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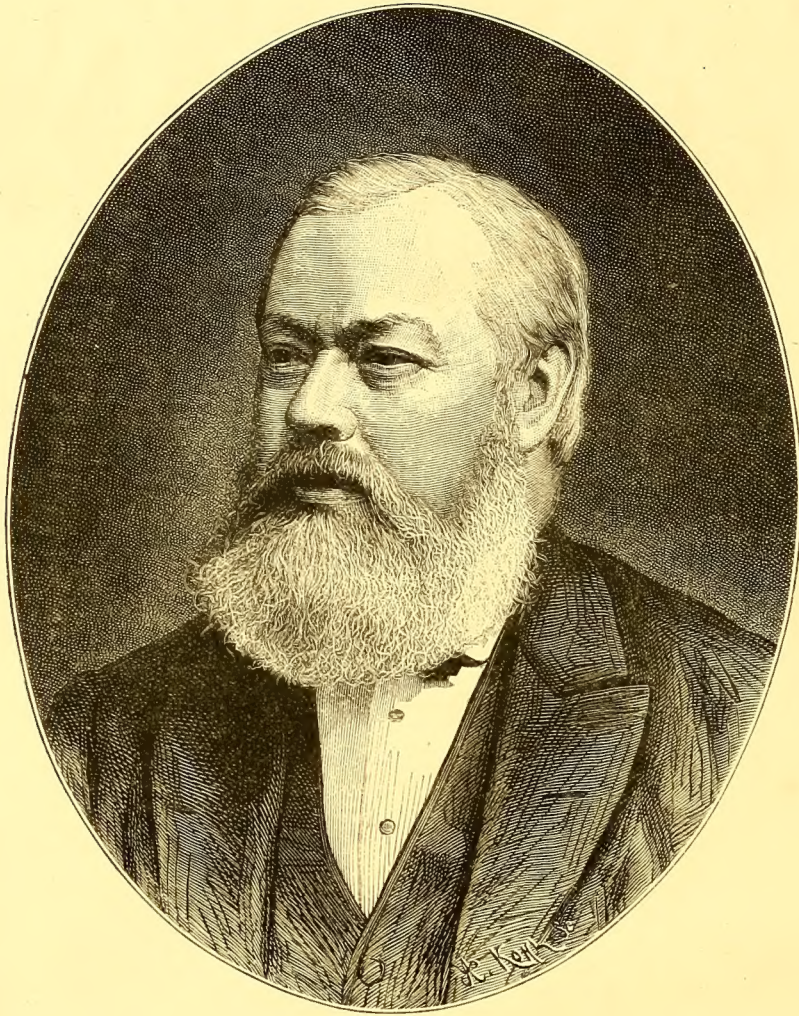
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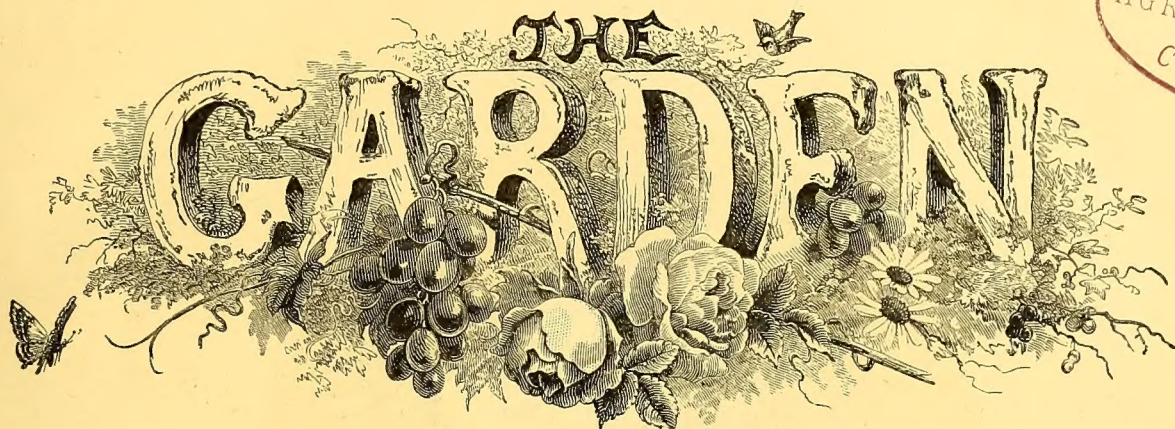
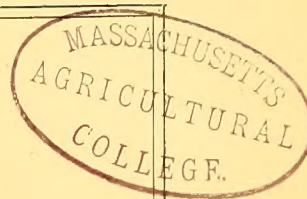
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1883





J. S. Moore



AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, F.L.S., Author of "Alpine Flowers," etc.

"You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature: change it rather
'The art itself is nature"—*Shakespeare.*

VOL. XXIV.—CHRISTMAS, 1883.

LONDON:

OFFICE: 37, SOUTHAMPTON STREET, COVENT GARDEN, W.C.



TO

THOMAS MOORE,

Curator of the Botanic Garden, Chelsea,

THE TWENTY-FOURTH VOLUME OF "THE GARDEN"

IS DEDICATED, IN RECOGNITION OF HIS LONG AND FAITHFUL SERVICES
TO HORTICULTURE.

W. R., Jan. 1, 1884.

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1883 v. 24

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THOMAS MOORE.

FEW men have laboured more assiduously for the advancement of horticulture in this country than Thomas Moore, the present curator of the Chelsea Botanic Garden. For upwards of a quarter of a century his name has been intimately associated with gardening. His knowledge of practical horticulture in all its phases is no less remarkable than his skill as a botanist, though the latter sphere is that in which he is most widely known, and particularly in relation to pteridology, to which he has devoted the greater part of his life, and on which subject he is one of the first authorities in this country.

Mr. Moore was born at Stoke-next-Guildford, Surrey, on May 29, 1821. Associated with gardening from a very early age, he was employed while a lad, for three or four years, in the nursery of Mr. Dickinson, at Guildford (now broken up). In 1839 he went to Mr. Fraser's nursery, Lea Bridge Road, Leyton, and from thence, after a few months, as an under-gardener to Mr. W. Leaf, Park Hill, Streatham. In 1841 he entered the service of the Royal Botanic Society as garden clerk to Mr. Marnock, who was then laying out the garden, and remained there till 1845, when Mr. Marnock took charge of the newly-started gardening paper, *The United Gardener's and Land Steward's Journal*, and retained him as sub-editor. In 1848 he was selected by Dr. Lindley for the curatorship of the Chelsea Botanic Garden, *vice* Mr. Fortune, who had resigned in order to accept service under the East India Co., and this appointment he has held up to the present time. During this period of thirty-five years the Chelsea garden has passed through many vicissitudes, but though small and limited in means, it is now more available for study than at any previous part of the long period (about 200 years) during which it has been kept up, chiefly for the benefit of students in medicine, by the Society of Apothecaries.

Always of an active disposition, and never shrinking from any duties that fell in his way, Mr. Moore has been more or less intimately mixed up with most of the leading gardening events of the past thirty years. Thus he assisted as entry clerk at the first few of the exhibitions of the Royal Botanic Society, and since 1848, when he removed to Chelsea, has been one of the judges of new plants at their shows—both those of the summer season and in later years those of the spring months. Probably in recognition of this long connection with the Society, he was a few years ago nominated by the Council as an Associate. His connection with the Royal Horticultural Society began about the time when the late Mr. George McEwen was superintendent of Chiswick Gardens. At that time he assisted as a judge at the Society's shows, and has continued to do so from time to time ever since, including the Society's provincial shows. In 1858 his association with the Society became closer, as in that year, the fruit committee, of which he was a member, was established to carry on the work of the Pomological Society, of which he also had been an active member; and in 1859, when the floral committee was organised to take up the work of the National Floricultural Society (of which he was a member and one of the appointed censors), he was selected as secretary to that body, an office which he held for a period of five years, during which these meetings grew up into the most important, popular, and useful agencies, through which the pursuit of horticulture was promoted by the Society. He has indeed been closely connected with all the practical work of the Society since the time when the committees were established. Thus in 1866, when new arrangements were made by which the secretaryship of the floral committee passed into other hands, he was appointed, in conjunction with the Rev. M. J. Berkeley and Dr. Hogg, as one of the directors of the Chiswick Garden, a position he continued to hold till the calamitous times of 1873 made other arrangements necessary, but he has since then, up to the present time, retained a seat on the floral committee. He was secretary to the movement for establishing the Veitch Memorial, and is one of the trustees of the fund. He is also a trustee of the Lindley Library, which was purchased with the profits of the Great International Show of 1866, of which he was the chief acting secretary. He has been a judge at the Manchester National Horticultural Exhibitions since their commencement almost without a break; is chairman of the committees of the Southern Auricula and of the Carnation and Picotee Societies; and has acted during the past two years as secretary to the Dahlia shows got up for the purpose of reviving the taste for that fine autumn flower. He is also a life member of the British Association for the Advancement of Science. Mr. Moore was the exhibition secretary of the Great International Horticultural Exhibition and Botanical Congress held in London in 1866; and was examiner in floriculture to the Society of Arts and the Royal Horticultural Society while those examinations were carried on.

He has been an industrious author, among his works being the "Cultivation of the Cucumber and Melon," published in 1844, "Handbook of British Ferns" in 1848, "Ferns and Allied Plants" in 1851, "Ferns of Great Britain and Ireland—Nature Printed," folio, in 1856, and an 8vo edition, in 2 vols., in 1859, "Illustrations of Orchidaceous Plants" in 1857, and "Index Filicum" (incomplete) in the same year; the "Field Botanist's Companion: British Isles," in 1862, and "Elements of Botany" in 1865. He was joint editor of the "Gardeners' Magazine of Botany" in 1850-2, editor of the "Floral Magazine" in 1861, editor of the "Treasury of Botany" in 1866, and of a new edition in 1874; contributed many of the botanical and horticultural articles to the new edition of Brande's "Dictionary of Science" in 1865-6; and was joint editor of the *Gardeners' Chronicle* from 1866 to 1881. In 1878 he edited a new edition of Thompson's "Gardeners' Assistant," and in 1880 contributed to the "Encyclopædia Britannica" the article "Horticulture," which was afterwards separately printed, with additions and illustrations, under the title of "Epitome of Gardening" (1881). He has also been for many years editor of the "Florist and Pomologist and Suburban Gardener," an illustrated magazine, which, commencing as the "Florist" in 1848, is still published monthly. On the occasion of his retirement from the *Gardeners' Chronicle*, a valuable public testimonial and piece of plate were presented to him.



THE GARDEN.

VOL. XXIV.

ROSE HER MAJESTY.—If the floral event of the past week has been the National Society's Rose Show, certainly the event of the show was the winning by Mr. H. Bennett, of Shepperton, the Society's gold medal for the best Rose in the show with his new Rose called Her Majesty. It is instructive to find that a homely English farmer, now retired from the doubtfully profitable occupation of Corn growing, should have beaten both home and Continental raisers by producing, not only for the year the finest new Rose, but also one which will probably prove the best of a decade of years. We are thankful that Her Majesty does not wear those heavy habiliments of colour which have marked so many of our new Roses of recent introduction; on the contrary, it is of a lovely soft flesh tint. Just as A. K. Williams has proved to be the richest coloured and most beautiful Rose of its class so far, so will Her Majesty occupy that distinguished position amongst fair Roses—in fact, amongst regal flowers the queen. On stands of many blooms there has been such a ringing of changes upon the Baroness de Rothschild and La France, both very beautiful of their kind, that another new Rose belonging to their section is indeed a treasure. Her Majesty, as becomes such a royal flower, is large in size and beautiful in form; and it was noticeable, in spite of the expansion caused by the heat, that she maintained her good looks to the last.

HARDY FLOWERS.—The display of cut blooms of hardy plants put up at South Kensington last Tuesday by Mr. Ware was both in quantity and in arrangement so much beyond what that grower did at the previous show, that if an extra gold medal could have been awarded to the group but bare justice would have been done. We should like to see the banks of cut flowers of tender plants covering the same extent of table that could have excelled this truly superb group in variety, elegance, and beauty. There was not a garish flower amongst the lot; on the contrary, all the tints were subdued, well balanced, and wondrously effective. A sight of such masses of flowers doubtless made scores of lovers of hardy flowers wish for the early coming of that garden millenium when trade growers shall send their customers clumps and clusters of big plants rather than, as now, pieces, to say the least of them, homœopathic in character to the last degree.

Apart from such considerations, however, Mr. Ware deserves the thanks of all who love flowers, no matter to what floral sect they may be attached, for thus showing the public how great is the wealth of colour and form amongst hardy flowers. Such splendid displays must soon put to the rout those few who can see no floral beauty except in a Dahlia, a scarlet Pelargonium, or a Calceolaria.

FRUIT PACKING PRIZES.—Messrs. Webber deserve praise for their continued efforts to teach people the art of fruit packing. Such valuable prizes as five, three, and two guineas for the best packed three boxes or baskets of fruit, consisting of Grapes, Peaches, and Strawberries, are not to be picked up every day, and we are surprised that but four exhibitors should have contended for them at S. Kensington. On this occasion ordinary cross-handled wicker baskets were used by one exhibitor, who sent 7 lbs. of Black Grapes in one, and the same quantity of Muscats, and really good samples, too, in the other. Placed in the bottom of each was a little moss, then the baskets were lined with stout, soft tissue paper; the bunches were then dropped in so that the berries settled down together and held each other firm. A few of the stems were tied to the baskets, and over the whole was tied simply a piece of stout paper. These came from Hereford in first-class condition, and if the competitor was placed only third, it was because his Peaches (packed, too, in a flat basket with wadding) and his Strawberries were inferior. Mr. Coleman, who always packs well, stuck to boxes and soft dry moss, and his Grapes and Peaches were first class. There was really no difference between Messrs. Coleman's and Allan's Strawberries; both were packed in flat boxes with leaves, as usual, and the latter competitor's Grapes and Peaches were excellent. One exhibitor put a basket of good Grapes out of court by packing in a wicker basket without even a piece of paper to defend them from rough usage.

THE MELON COMPETITION at South Kensington on Tuesday last was remarkable for the high value of the prizes compared with that of the exhibits—a single fruit—unless the donors, Messrs. Sutton, of Reading, were hopeful that such large amounts as from one guinea to three guineas would inevitably bring out some first-class new kinds. The result was but a moderate competi-

tion for Melons, for these fruits are usually seen at summer fruit shows thick as Blackberries. The first prize went to a kind which, though named, is not yet in commerce—Mr. Herrin's green-flesh Chalfont Favourite, and though certainly not a beauty, the flavour was far before any other kind shown. Indeed, nothing so forcibly reminds one of the old saw about the proof of the pudding as Melons do, for in this case, and it is a common one, the very finest and handsomest fruits were as flavourless as Turnips. Raisers of new Melons are apt to think that in their productions they have some marvelously good things, but tasting almost always shows that they are but very commonplace after all. No doubt Blenheim Orange, Hero of Lockinge, and one or two others of recent introduction have turned out fairly well, and there is great hope that Mr. Herrin's green-fleshed kind will, when in better form, prove to be as good as either, and being very green in the flesh perhaps rather better. It is worthy of remark that the third prize Melon, an unnamed seedling, came all the way from Ireland, a fact which shows that in exhibiting, as in most other things, faint hearts rarely win prizes.

NEW IMANTOPHYLLUMS.—Although *Imantophyllum* miniatum is considered a valuable plant in this country, its merits from a decorative point of view have never been so fully recognised as they should have been. In France the worth of this fine flowering plant is properly estimated, and only its slow rate of increase has hitherto prevented it from becoming one of the most popular of market plants, for, independent of its beauty, it is formed to well resist the more or less impure air of apartments, and is therefore much favoured by those who have furnishing and decorating to do. It would seem, however, that by means of seeds a large stock of it may be got up, for we read in the journal of the French National Horticultural Society that M. Gontier, nurseryman, Route de Orleans, Montrouge, Paris, has at the present time some ten thousand seedlings, so that in Paris, at least, this plant is likely to become ere long quite popular. Amongst so many seedlings it is only natural to suppose that something superior would show itself, and as a fact M. Gontier has obtained a variety which has secured the commendation of a special committee of members of the French National Society, and which is said to quite equal those fine kinds, Madame Van Houtte and Lindeni. It is

described as being of strong growth, with fine dark green foliage, the flower-stem rising boldly therefrom, carrying about a dozen large, finely formed flowers of an orange-carmine colour, with a white centre and veined with light orange. As M. Gontier makes a point of obtaining all the best varieties of *Imantophyllum*, and has made a large number of crosses, we may confidently expect in the course of time to hear that many other fine kinds have originated with him. The name of the variety just described is *Madame Gontier*.

NOTES FROM HECKFIELD.

I HEREWITH send you, Mr. Editor, a few notes on seasonable topics suggested by work now in hand or such as must be done on the first available opportunity.

SCALDING OF LADY DOWNES GRAPES.—The first affected berry was discovered on June 28; this indicated the kind of treatment by way of prevention which must be adopted for the next fortnight, which is, that air be given freely, and particularly that the ventilators be opened very early in the morning—not later than 5.30. A better plan is, however, to leave a good bit of air on all night long, and use additional fire heat to keep up the temperature and prevent condensation of moisture. By so doing we are never concerned about scalding. Muscat of Alexandria, and sometimes Black Alicante, are a little liable to the same affection, but by the application of the same remedy it is unable to spread.

GATHERING PEACHES.—These I like to pick from the trees before some people would consider they were fully ripe (say about a couple of days before they might be expected to fall off), which is considered by many to be the proper way of gathering them. The plan of catching them in nets I never could see my way to adopt—first, because of the inevitable bruising which they get; and second, because when they so drop, the fruit being dead ripe, the flesh is mealy and less piquant in flavour than if gathered two days earlier, not to mention how much better the fruit travels when not dead ripe. How long have Peaches been kept after gathering? About twenty days is the longest I myself have kept them.

LAYERING STRAWBERRIES FOR FORCING.—Strawberry forcing is an all-the-year-round affair. We have only just cleared out the last batch from the houses, and are now busy layering for next season's supply. This early securing of plants we find to be essential to ensuring an early and continuous supply of fruit. The layers are obtained from runners planted out last autumn, and from which all the flower-stems have been kept picked off; consequently the plants are now a mass of good runners that are only waiting to be placed in the pots. We layer in 3-inch pots and use a piece of turf in lieu of a crock, press the soil in very firmly, and secure the plants with pegs made of bracken. The pots are plunged in the soil, a practice which saves much watering, and they are shifted into their fruiting pots before there is any danger of the roots getting matted together. Our sorts are *Vicomtesse Héricart de Thury* and *President*. We have tried many kinds, but none approach these two as regards free setting, productiveness, and quality.

THINNING PEARS.—Very many of the trees have saved us this labour, particularly those in exposed positions. Apparently all set their fruit equally well, but the fearfully cold winds that prevailed in the early part of April blighted our Pear prospects, for on many of the trees there is not a solitary good fruit. On walls and low bushes there is an abundance, and these are now being thinned, an operation that requires not only nimble fingers, but good judgment both as to the amount of fruit each tree is capable of perfecting, and to take off only ill-shaped, specked, and badly placed fruit. As soon as done, the trees will be given a thorough drenching with the garden hose to wash off insects and water the roots; but previously those trees that are likely to need such help will be thickly mulched with good manure. Size in Pears can only be assured by rich mulch-

ings and waterings during the earlier stages of the swelling of the fruit.

GOOSEBERRIES ON NORTH WALLS.—Though there is no scarcity of this fruit here, there have been complaints on that score in some quarters, and to such as are thus troubled, and who have command of a north wall, I would suggest that they plant them in such a position. We have them on a north wall here, and for the last sixteen years, the whole time they have been planted, there has never been even a partial failure, and this year the crop is far more abundant than on trees in the open borders. Other advantages are that the trees are rarely affected with caterpillar; the fruit comes late, is easily protected from birds, and it proves invaluable for the dessert after Apricots, Peaches, and Plums are over.

W. WILDSMITH.

ROSE GARDEN.

ROSE PROSPECTS.

THIS is hardly even a correct term, for we are in the very height of the Rose season, and I should not have again touched on the matter had it not been (1) from the letters by Mr. D. T. Fish, Mr. Frettingham, and others, and (2) from my having received a letter, which I give *in extenso*, from one of the largest amateur growers in the north of England. As a rule I think it is unprofitable entering into controversy on such subjects, but as Mr. Fish does not dip his pen in gall instead of ink, and does not impute motives, as is too often the case where persons must be ignorant of such motives, I have thought it well to refer to the matter once again. I would in the first place correct a mistake into which Mr. Fish has fallen when he writes of my pleasure in my prize blooms. Now I am not, and never was, a Rose exhibitor, and my observations were quite independent of such an *arrière pensée* as that; I was simply desirous of giving my impressions of what I had seen and heard from others bearing on the Rose season. Mr. Fish is also wrong in supposing that my observations were based on my own garden, or on any specially favoured district; my correspondence was from all quarters, or I should not have ventured to have expressed my opinion as I did. Since then I have been to Hereford, the climate of which is certainly not too favourable for the Rose, and I saw at Mr. Cranston's, amongst other notable things, a field of 8 acres of last year's budded plants (maidens on the Manetti). This comprised a total of about 170,000 plants, and a more perfect picture of health and vigour it was impossible to see. The rows were 2 feet apart and the plants 8 inches apart in the rows; they were as even as a quickset hedge, and the leaves on some of the shyest growing kinds were more than 5 inches long. It was a wonderful sight, and yet they had had very severe weather, which did not, however, seem to have injured them; the cold winds in March gave them a check, but the long dry weather in May up to the 25th, when all fear of frost was over, tended to save them from all serious hurt. I have also seen other collections, and nearly all had to tell the same tale. Of course, I am sure that Mr. Fish's statements are correct so far as his experience goes, but when he began to argue, as is too often done, a *particulare ad universale*, and to conclude that all must be in the same condition, I thought it right to express my dissidence. I now give the letter I have received:—

"On looking over THE GARDEN for to-day I find several letters from various correspondents respecting the Rose prospects for the present season in opposition to an article in the same paper last week signed 'Delta,' and thinking that you will probably reply to some of the remarks made by Mr. Fish and others, I thought a few particulars from this district might be of service. The impression seems to be that the places spoken about are favoured ones as regards climate, and Mr. Fish makes mention that 'Delta' writes from the garden of England, but the county of Durham with its smoke-laden air is the extreme reverse of the garden of England, for when the N.-E. winds do blow we get them with a vengeance.

After carefully looking over my Roses to-day I think I have never had them in such fine condition in any previous year; the weaker growing kinds, such as *Louis Van Houtte*, have in some instances made shoots of over 2 feet before showing buds, and the foliage and growth of nearly all the varieties grown are as fine as could be desired; longer growth than what the plants show would simply mean rough and coarse flowers. Mr. Whitwell, who is much more sheltered than I am, and at least a week earlier, also says his plants this season are finer than ever, but as he will doubtless have informed you of this I need say no more with respect to his Roses, but I have seen two or three collections newly planted this spring and last autumn growing as well as possible for newly planted plants, and not one in a hundred has been lost. I do not know the reading of the thermometer here when the severe frost occurred in March, as I was in the south at the time, only I know that it was so severe here that the ice on the ponds was of sufficient thickness to allow the Scotchmen to indulge in their favourite game 'curling,' but I know something of the cold north-easters and drought afterwards, and my impression of the healthy state the Roses are in at present is owing to the dry state of the atmosphere, which prevented the usual May frosts from doing so much damage as they otherwise would have done if it had been wet at the time. My plants were pruned the second week in February, and I do not expect to be in very full bloom much before our own show on the 18th. I think the plants killed in the south must have been in the last stage of consumption, as I saw a large collection within twenty miles of Bury St. Edmunds in the early part of March, and our plants seemed then just to be about in the same degree of earliness."

I would desire especially to disavow the charge which has been made against me of want of sympathy with an afflicted brother. I can assure Mr. Fish that was the last thing I should like to show. I have too often suffered myself to show any want of feeling for others; but we want encouragement, not discouragement, and when that can be given without sacrificing truth, I think it is our duty, as I am sure it is our pleasure, to give it.

DELTA.

ROSES IN THE NORTH OF SCOTLAND.

I FIND my Roses this year to be most healthy and prolific, notwithstanding the very severe and intense frosts of the past winter, and the cutting cold winds of March, April, and May, and a long spell of dry weather. They are now furnished with rich and ample foliage, and they are very full of buds and bloom. Though so far north as Nairn, I cut some beautiful blooms on the 24th of June, which is earlier than in many previous years, and to-day, the 30th ult., I gathered a fine basketful, consisting of the following kinds:—

Stadtholder	Duc de Magenta
Jules Margottin	Gloire de Dijon
Duc de Rohan	Duke of Edinburgh
Alfred Colomb	General Jacqueminot
Baron Bonstetten	Rubra
Jean Cherpin	Vivid
Marquise de Caux	Queen
Louis XIV.	Peter Lawson
Vicomte Vigier	Souvenir de la Malmaison
Charles Lefebvre	Rev. H. H. Dombain
Sir J. Paxton	Rousseau
Charles Duval	Princess Beatrice
Charles Lawson	Boule de Nanteuil
A. K. Williams	John Hopper
Boule de Neige	La Ville de Bruxelles
Olga Marix	Lanei
Blairi No. 2	and several others.

I attribute their fine leafage and blooms to having given them a large supply of farmyard manure. Only one or two were protected with Ferns through the winter, but all were well mulched, and the mulching was dug in in April. I pruned about the 12th of that month, and have only lost a few. I have never disbudded any of my Roses, and they are perfect in form and size. I have no diseased leaves or green fly, and I have not watered them. I have no glass; our soil is light and sandy, and we suffer most from west winds.

C. A. CLARKE.

Acharaidh, Nairn.

FLOWER GARDEN.

SINGLE CHRYSANTHEMUMS.

I HAVE been trying for some time to bring these into favour, and I have every reason to believe that at our next autumn shows some of these single types will be produced; at all events those interested in the matter may be glad to know that at least one society has made a start in this direction. I refer to special prizes offered by the Borough of Hackney Society, or more properly the National Chrysanthemum Society, the show of which will take place in the Royal Aquarium, Westminster. I shall be very glad to receive or give any information I can relating to single Chrysanthemums—of course I mean the true autumn flowering species, and in no way refer to annuals. There is one item in the remarks respecting these in THE GARDEN last week (p. 564) that is likely to mislead, that is, Peach Venus being called a late flowering Chrysanthemum. It is an early November flowerer, and always in time for the very earliest shows. Its late blooming last season was simply a freak; many others also bloomed late, even Elaine was to be seen in February. This late blooming is caused either by the usual buds being destroyed and new stem growth made, or by suckers starting earlier than usual, ripening, and then blooming; moreover, the plants may have been cut down too late, all of which might happen in the case of any other Chrysanthemum, and therefore no criterion that Peach Venus is a naturally late variety. Princess Teck is a far superior flower in every shape and way, and so is Hero of Stoke Newington. Both these varieties are from a fortnight to three weeks later than the Venus family, and even these two may always be seen at November exhibitions. Late Chrysanthemums are those that are naturally late, and not plants thrown back either through faulty culture or being struck late, or some circumstance such as has been just recorded. I have called attention to this, as many enquiries have been made as to late-flowering Chrysanthemums, and misleading replies given. Really valuable late flowers can be had naturally from such varieties as virginale, James Laing, Snowdrop, grandiflorum, La Sceptre, Toulousaine, Princess Teck, and Hero of Stoke Newington.

N. DAVIS.

Warner Road, Camberwell.

Red, white, and blue near Tenby.—

In a field near this town, with a slight slope to the south, is the most beautiful colour effect I ever saw. The farmer fondly hopes to raise a crop of Oats, but these are out-topped by three kinds of wild flowers—*Echium vulgare*, *Lychnis vespertina*, and *Papaver Rhæas*. In some parts of the field one colour slightly predominates over the other two; here the white, there the blue; in another place the scarlet. It is just as if the three kinds of seed had been sown broadcast, but not evenly mixed. The glare of colour is simply dazzling. No garden bedding that I have ever seen came anywhere near it for effect. It is worth going a very long journey to see it. The plants average 2 feet high. The field is between Tenby and Penally.—W. T., Tenbridge.

Mignonette.—Few, perhaps, would care to dabble out small plants of Mignonette, as in most cases the seed germinates quickly and abundantly in the open ground, but here, where the soil is cold and stiff, I cannot always insure a good plant from seed sown outdoors, and therefore it is a rule with us to sow some under glass, and when the plants are strong enough to handle and have been somewhat hardened off, to dibble them out into well-prepared ground at about 15 inches apart. For the first fortnight the plants seem to grow smaller and almost to disappear, but when a start is made the growth is remarkable, and the floral development later on is of the finest. Such plants are now 12 inches high and as much through, but in a few weeks they will cover every inch of ground, and might well want even more room. I grow only the Giant White, and, sown this season in pots for comparison with five other

strains, it is the most robust in growth, and produces good spikes of bloom. The new golden is a novelty, and to those fond of a yellow Mignonette it is worthy of culture, but the spikes are short and not thrown out in good long stems, as in the case of a good white-flowered kind. For pot culture, perhaps one of the more compact-habited forms, such as the hybrid spiral or pyramidalis, is best, but for general garden culture I prefer the free-growing, spreading, large-flowered white form. Few annuals are longer lived and perform better service in the garden than Mignonette, for, beginning to bloom in June, it will continue to flower freely up to the end of October, and, if the winter so far is mild and fair, even on to the end of November. A few sprays of Mignonette are ever welcome, and serve to add a sweet perfume to flowers that, if more gay, are at least less pleasantly odorous.—A. D.

Hairbell and Bluebell.—Permit me to say that it is the Hairbell (*Campanula rotundifolia*) that is almost universally known in Scotland as the Bluebell, and not the wild or Wood Hyacinth (*Agrophis nutans*), as stated by "A. H." in THE GARDEN (p. 523). I am well aware that out of Scotland the Wood Hyacinth is generally recognised as the Scottish Bluebell, and I have frequently been referred to regarding the matter, and as frequently corrected the error. I have frequently found white varieties of both Hairbell and Wood Hyacinth, and in one case last season I was delighted to meet with a large patch of the former in full bloom, and not, as is usually the case, mixed up with the normal form.—A. D. WEBSTER, Llandegai, Bangor.

When to sow biennials.—A correspondent advises the sowing of biennials now—advice so far useful because it is better to sow late than never, but so far from sowing now I am just planting out strong plants of Canterbury Bells, Sweet Williams, Foxgloves, and Antirrhinums, and shall have Columbines, Stocks, Honesty, and various other things ready to plant the moment spare ground can be had for them, and I have put out Wallflowers some time. I find, however, that in the case of small-seeded plants it is absolutely necessary to sow under glass, because our soil is not one that favours the germination of such plants as Foxgloves, Canterbury Bells, and Antirrhinums, but Stocks, Wallflowers, and Honesty do very well sown in the open. I prefer to get plants of all these things out early; indeed, it is so seldom that Snapdragons will winter as old plants, that I sow in September and winter in a frame, or else sow very early in spring in order to get plants to bloom freely the first year. Pentstemons also are sown early with the tender annuals under glass, and these are now out and well established to bloom in the autumn. In many cases when biennials are sown late the best forms of the plants are not seen. Canterbury Bells and Foxgloves, for instance, are mere shadows of what they are if sown early, and the plants have ample time to get strong ere winter sets in. With such things as Sweet Williams, also, it is often all the difference between a plant producing ten or twelve trusses of bloom and one or two only. I have a large mass of these plants now in bloom that are such a perfect thicket of stems and flowers a cat can hardly crawl about in it, and that is the way to have a good show of biennials, no matter what they are.—A. D.

SHORT NOTES.—FLOWER.

Monstrous Foxglove (Bray).—The fusion of several flowers at the top of the spike is not an unusual occurrence, though it is somewhat singular that such a large percentage of your seedlings should, as you state, partake of that character.

Stocks.—I warmly second Mr. Muir's recommendation in THE GARDEN of the 23rd of June to cultivate Stocks—"lavish Stocks that scent the garden round." I have had them in bloom in the greatest profusion for months past. They weathered the cold winter and cutting east winds unprotected, and are now as densely clothed with bloom as they well could be.—A. G., Mid-Scotland.

Aster alpinus.—This is certainly one of the most desirable of all the perennial Asters, and I am surprised that Mr. Dod finds it a difficult one to deal with. It flowers early in June with us, and grows quite freely. We managed it well in our light soil at Loxford Hall. I have planted it out here and it is growing very freely indeed. It ought to be propagated annually. Each plant will make from six to a dozen. I tear the plants up into single bits, and each of them has a good tuft of roots attached to it. Mr. Dod should try potting about five of these in a 6 inch pot, in light soil, and keeping the pots in a frame until the plants are established. Some of them may then be planted out, and the others should be wintered in pots; indeed, I find that they flower well in pots, and that they are very pretty in the greenhouse. Now is a good time to propagate this Aster.—J. DOUGLAS.

FRUIT GARDEN.

MARKET FRUITS AND MARKET PRICES.

THE hard, uneatable Peaches referred to by Mr. Gilbert (p. 530, Vol. XXIII.) are sent to market in that condition simply because no mode of packing has yet been devised that will convey really ripe Peaches to market without a blemish. Messrs. Webber have given prizes for the best modes of packing, but they do not give the best prices for really ripe, eatable Peaches sent to them for disposal, for although they might reach them apparently as fresh as when gathered, they would show blemishes and bruises the next day. "Peregrine" says truly (p. 586) that Oranges are the most delicious fruits in season in May and June, but they are not so when first sent over to this country; then they are acid, but they ripen in time, thanks to their thick rind. Our home-grown fruits are, however, not so accommodating, and we have yet much room for improvement in our market management. I have faith in our home growers being able to supply anything for which there is a demand at a reasonable price; but fancy prices, such as Strawberries from out of doors at 12s. per lb., are out of the question. In this locality, whence they are sent by the truckload, they are now barely paying market expenses, fruit fit for exhibition being hawked in the streets at 3d. per quart. The good crops which we have this season will, however, make the year fairly remunerative, as the earliest and latest fruits will fetch higher prices. I cannot agree with "Peregrine" that worthless fruit will do for market, for, although the general public has little chance of becoming acquainted with really good fruit, it is surprising how soon the best samples sent to market are picked out of the mass of inferior ones. Happily, too, the taste for gardening is spreading. Here we have whole fields of arable land let out in little patches of a few rods each, and the cleanliness and luxuriant aspect of the crops speak well for the cultivation. It is a cheering sight to see working men employing their leisure hours in their gardens and carrying home a good supply of vegetables of their own growth. Fruit culture in time will follow, and many will grow their own supplies; but in the interest of those who must always [be dependent on the market let us hope that no effort will be spared to lighten the burdens on land in the shape of taxes, both ordinary and extraordinary. These removed, or at least lessened, private competition will in time do the rest. If appearances are placed before flavour, it is not the fault of the growers, who spare no effort to get the very best varieties with which to supply the market. Frontignan Grapes or any other sorts that have flavour only to recommend them are out of the question. Market fruits must be the best of their kinds, both as to crop and look under ordinary circumstances.—J. GROOM, Gosport.

— "Hard, poisonous Peaches, that can neither be eaten nor bruised, and the worst kinds of Grapes badly ripened," are said by "Peregrine" (p. 586) to be what can be purchased by those who depend upon the market alone for their fruit supply. Is it not a fact, then, that an immense

amount of capital and some of the best talent in the gardening world are engaged in the production of fruits for market? Moreover, are not some of the best fruits that can be produced in the largest private establishments in the country sent to market? It does not pay to grow the worst kinds of Grapes or Peaches for market. The Grapes to be found in Covent Garden and other large markets at the present time are principally Black Hamburgh and Muscat of Alexandria. Are these the worst kinds of Grapes? The principal Peaches are Royal George, Grosse Mignonne, and Bellegarde, and one large Peach of these is worth more than twenty badly grown and badly ripened ones. Why? Because a discerning public knows a good article when it sees it. There is plenty of bad fruit sent to market in the hope that it will fetch something; but growers soon discover to their cost that it does not pay to send bad fruit to market. There is such a thing as good and bad teas in the market, but those who can afford it pay the best price and get the best article—a rule which also applies to fruit. I went to Covent Garden for some Strawberries a few weeks ago. I could have purchased them at a shilling a pound, but I wanted the best, and paid five shillings a pound for them, and they were as fine examples of Sir J. Paxton as ever graced an exhibition table. When I want to purchase good fruit of any kind there is no difficulty whatever in obtaining it. It is very dear, but, to speak the truth, it is often cheaper than we can grow it in our own gardens, and I can purchase as good fruit as I can grow, let me do my best. Such statements as those made by "Peregrine" on this subject are not borne out by facts.—J. DOUGLAS, *Ilford, Essex.*

STRAWBERRY CULTURE IN FRAMES.

AFTER reading "J. C. C.'s" remarks on this subject, I feel tempted to give my own experience in this matter. Indeed, I cannot think that your correspondent has been successful in growing first-rate fruit on the system which he recommends. I, however, do not mean to say that good fruits cannot be grown in pits or frames planted out. I admit that at once; it is the preparation of the plants and the time of planting them out with which I find fault. In the first place, if the plants are pegged out from the runners in the open ground, however carefully they are lifted, they receive a check, and a serious one; but when they have to be lifted twice, the chances against their doing well are greatly increased. Moreover, I cannot conceive why the planting is deferred so late as the 1st of March; at that date this year our plants had made a very considerable amount of new growth. May I ask "J. C. C." if he really has been successful in cultivating Strawberries in that way? Nearly twenty years ago, when the late Mr. Rivers was writing strongly in favour of "ground vineries" (inverted triangular glass troughs, under which the vine rods were pegged down on the ground, and also the laterals, which were trained right and left on slates), I tried the system and found that we grew good Black Hamburghs, but not quite so good as we could in ordinary vineries, and therefore the system was abandoned. I, however, found that the glass ridges in question were well adapted for Strawberries, and the system which I then adopted I would strongly recommend. The runners, I found, should be taken early; now is the time. Whatever quantity of plants may be required, an equal number of 3-inch pots should be filled with good rich loam, and the runners should be pegged firmly on to them. In two or three weeks they will be rooted sufficiently to be removed from the parent plants, and in a week longer they will be quite ready to plant out permanently. Any further removal would be needless and positively injurious. They must of course be planted so that the lights can be placed over them as soon as severe winter weather sets in, not sooner. The plants do best fully exposed while making their growth. After the lights are placed over them they give no further trouble. They are placed on a single layer of loose bricks, and a small hole is left at each end close to the apex of

the roof, which provides sufficient ventilation, whereas ordinary frames and pits require daily attention in this respect; still, if frames were preferred, it would be easy enough to plant the ground in a different way, and then when the time came to cover the plants the frames could be placed over them, and, if too deep, they could be let into the ground—an easier and less expensive way than filling them up with soil. To grow really good Strawberries the plants must be in a position freely exposed to air and light, and these conditions are better secured in ground vineries than in lean-to pits or frames. After all has been said and done, however, as regards Strawberry cultivation under glass, I have come to the conclusion that

POT CULTURE is best when the plants can be properly attended to. The runners should be layered in small pots, as has just been recommended; when well established, we pot them firmly in good rich loam, the well decayed top spit from a Grass field, to which has been added a fourth part of rotten stable manure, and 6-inch pots are better than larger or smaller ones in which to grow and fruit the plants. During their growth they ought to be well exposed to the air. Select an open space of ground, make it level, and then tread it over until it is quite firm. We take the trouble to lay a lot of bricks over the surface, and a plant stands on each brick, sufficient space being allowed to prevent the leaves from being drawn up. Plants placed on bricks in an open position and well supplied with water form very firm and large crowns by the end of the season, and thus compare favourably with those not so treated.

VARIETIES.—We still grow the old Black Prince to come in early, and this season we had some really good fruit from it very early in the year. Keen's Seedling is not much behind it, and when well grown is a splendid early Strawberry; for very early forcing it is much better than President, although this last named sort is by far the best to succeed it, not being so liable to mildew as Sir J. Paxton, although the latter is the best looking fruit and not behind it in flavour. We also grow to come in later British Queen, which when well managed is truly the queen of Strawberries; and lastly Loxford Hall Seedling, the dwarfest variety we have, but very prolific and useful, because it is so late.

J. DOUGLAS.

New Strawberry.—Fruits of a new seedling Strawberry have been sent to us by Mr. Laxton, who has raised it by intercrossing Crown Prince and Excelsior. The name of this new sort is The Captain. Mr. Laxton states that it fruits as early as Marguerite, and continues to bear until late in September, yielding but very few small fruits. The fruits sent are above the average in size, conical and regular in shape, and good in colour and flavour. If, as Mr. Laxton states, it is a late autumn fruiter, it cannot fail to be an acquisition.

Standard Peaches.—An article in the *Field* last week strongly recommends those about to erect Peach houses to discard lean-to houses, and what I may call the flat system of training and substitute for them specially constructed span-roofed houses, something like the letter U inverted, standard trees being planted instead of the ordinary trained ones. As far as I can understand, the writer claims for this method double the quantity of fruit and no trouble as regards tying and training, two powerful arguments in favour of standards. No idea can be formed of the amount of work needed during the season in a good-sized Peach house except by those who have had it to do. The writer recommends the plan for late crops. As far as I can judge, however, he has not grown them himself on that plan except as an experiment; but would he do so if he had an opportunity? If any Peach grower who has tried the two systems will kindly state his experience in regard to this question, I shall be greatly indebted to him.—R. L. MCINTOSH, *The Abbey, Great Grimsby.*

TREES AND SHRUBS.

FORESTRY FOR JULY.

EXAMINE young grafted plants, remove all superfluous stock growths, and commence to bud ornamental trees and shrubs. Young seedling Hollies may still be planted out, care being taken to water and shade sufficiently if exposed to the sun. Weeding and cleaning seedling and transplanted material will require immediate and constant attention, and even in cases in which few weeds appear, by running the hoe over the ground the increased growth of the plants will amply repay the trouble. Clean ornamental shrubberies and plantations, and if necessary renew the mulching about the roots of recently planted trees. Ornamental trees and shrubs supported by stakes must be examined to see that the ties are not getting too tight; any Bramble or other undergrowth likely to damage young plantations should be cut away. Keep a sharp look out for the Pine-leaf caterpillar, the first broods of which appear in June and July, and the second in the end of August. They feed in groups, and when observed the branch should be cut off and the progeny destroyed. About the end of this month the pupæ of the Pine-destroying beetle (*Hylurgus piniperda*) will be full fed, when they will emerge from their subcortical burrows, and attack the leaders and branches of healthy trees. If possible detect and destroy them before they reach the pith. Continue to prune deciduous forest trees as recommended last month, i.e., by cutting off all double leaders, and pruning back any rambling side branches; cut clean and smooth in order to prevent the lodgment of water. Hedges may now be clipped. Oak plantations thinned during the barking season should have the timber and branches removed as soon as possible; all drains should be thoroughly cleaned out and everything left in an orderly manner. Towards the end of the month all roads likely to be used for shooting purposes should be put in proper order by cutting down all surface herbage with the scythe, and any straggling branches that may be in the way should be cut back. Prepare ground for autumn planting by draining and fencing. See that all fences are in thorough repair, and gates in good order.

J. B. WEBSTER.

DYING CEDAR TREE.

MY reply to "B. P. O." would be, dying of starvation and smothering, if I may be allowed to coin a word. It may do something more effective than a commoner expression to stop the most prevalent cause of the disfigurement and destruction of trees. How is a Cedar with a girth of over 13 feet expected to continue green and flourishing with a young Fir nudging it at only 14 feet distance? probably two other trees may be almost equally near. Shades of Lebanon! is it any wonder that the giant Cedar that is refused room for the due development of its noble limbs pines, lingers, dies at last in consequence. And then what a mockery of its grand native mountains is the miserable paltry mound 4 feet high and 10 feet through. Could any device be more skilfully devised to starve the unfortunate Cedar than to perch it on the top of such a hillock? Little wonder the poor starved roots have raised their pinched extremities out of the impoverished earth into the air. This is their expressive and telling way of informing all concerned that their larder is empty. Most of the good things that it contained were no doubt on the surface, and were skimmed, as cream off milk, some thirty years ago when the lawn was lowered; and it is a marvel that the tree has lived so long on a thin layer of poor soil on chalk. The wonder grows when it is noted that the roots that have so long maintained the unequal struggle for life have not only been deprived of solid food, but likewise of water. It is difficult to see how any contrivance could be more skilfully devised for

SHEDDING OFF ALL THE RAIN that would have plentifully nourished the roots than the placing

the latter on a mound 4 feet high and 40 feet in circumference. The mound becomes the more mischievous when crowned with a Cedar tree, the limbs and branches of which in a state of health being almost as semi-impenetrable as an umbrella. One can but wonder when or how those parched roots could have had their last nourishing draught of water. The tree is no doubt suffering from thirst, starvation, and suffocation; if so, then the remedies are simple. Give it room to breathe and plenty to eat and drink, clear away everything within 40 feet or 50 feet of its bole, then proceed to cover the mound with 9 inches or a foot in thickness of good maiden loam. These may be called the permanent medicines, but something more special should also be done, and this special treatment may not need to be repeated. It is this, irrigate rather than merely water the roots of the Cedar, so far as the mound or overshadowing top extends. If there are any roots beyond this limit, which is hardly likely, they will not need special or drastic measures. Convert the mound into a hollow basin with the bole for its centre, and keep that basin full of water for at least a week. Care must be taken by firmly ramming the soil against the side of the mound or by forming a puddled wall of clay to prevent the water escaping by the sides and to force it through among the roots. Such a root flooding will not only satisfy their water wants, but destroy the root fungus that will almost certainly have sprung up and flourished as the result of their long drought. When the

ROOT RUN has thus been thoroughly soaked, an ordinary watering occasionally in dry weather will suffice. Hence the whole of the soil or other material used to force the water through the dry mound may be removed, with the exception of the top dressing to be left as food; the latter may be renewed every alternate or third year, and if in applying it is kept thicker at the lower part of the mound the latter will finally disappear, and the spectacle of perching Cedars atop of hay—nay, I beg pardon, soil cocks—by the sides of public roads will no longer be seen or heard of.—D. T. FISH.

The Cedar above alluded to is probably starved. Judging by the description given of it, such must be the case. If the lawn was levelled some thirty years ago, leaving the tree standing on a small mound above the surrounding ground, unless the roots found congenial soil downwards, which is not always the case, after that of the mound was exhausted, it would fall into ill health and ultimately die. The fact of the roots forcing their way above ground would favour the supposition that they were in search of food not to be obtained below. Under such circumstances I would recommend the removal of some of the surface soil where it could be done without injuring the roots, and the application of a liberal coating of good maiden loam in which fresh roots could be made. Even with this attention it is probable the tree will die, but if carried out carefully a chance of succeeding will be given it—i.e., if decay has not gone too far.—ALPHA.

SHORT NOTES.—TREES AND SHRUBS.

Pyrus Maulei.—Of Maule's *Pyrus* it may safely be said that its season of flowering is spread over a longer period than that of any other, except it be *P. japonica*. A specimen of it was in flower early in the spring, and on June 15 there were several perfect flowers on it, which have, however, since dropped. This is so beautiful and floriferous a shrub, that it certainly ought to be in every collection, however small.—ALPHA.

Rhododendron fastuosum fl. pl. — Of this "J. C. C." says, "It is a fine weather flower, a little rain spoiling its beauty and causing it to fall quickly." Here it proves itself quite the contrary. During a week's uninterrupted rain and fog lately, which caused many Roses and nearly all the *Rhododendrons* left in bloom to rot, this variety bore it bravely—in fact, came through nearly untarnished, and it here remains in perfection double as long as any other.—J. M., *Charmouth, Dorset*.

ORCHIDS.

Choice Masdevallias.—Some flowers of the following pretty species of *Masdevallia* have been sent us by Mr. E. Harvey, Aigburth, Liverpool. Among the varieties of *M. Harryana* there are the splendid Bull's Blood variety, still rather uncommon, and another equally as fine is named splendens. It has larger flowers than the Bull's Blood variety, and the colour more resembles that of *cærulescens*. *M. ignea pallida* is a very distinct variety, with pale orange coloured flowers, a different tint to that of the type. Flowers are also sent of the new and rare *Masdevallia rosea*, which, however, is not so beautiful as either *Harryana* or *Lindeni*, but far more floriferous. A very fine variety of *M. Shuttleworthi* is sent, likewise of the very singular *M. Nycterinia*, the curious little *Wagneri*, and *M. Normani*, a rare species with attenuated tail-like sepals of a dull white, and a body of chocolate brown, the whole shining as if varnished.

Oncidium janeiriense.—Of this somewhat uncommon species Mr. Harvey sends from his collection at Aigburth, Liverpool, some good flowers. It is in the way of *O. sphacelatum*, the lip of the flower being of a clear chrome-yellow, while the sepals and petals are barred with chocolate on a yellow ground. Mr. Harvey also sends flowers of the pretty little *Dendrobium transparens*, a lovely plant when profusely flowered; also a fine form of *O. cirrhosum*, remarkable for the long-tailed and twisted sepals and distinct markings of the flower.

Serapias neglecta.—Regarding your note as to the hardness of this Orchid, I may state that this species, as well as *S. cordigera*, have been planted out here for the past year without protection of any kind, and do not seem to have suffered in the least, although at times the frost was pretty severe. Both are in full flower at present, and very interesting, on account of their deep colours and peculiarly shaped lip, which is different in this Orchid from any I have yet seen. *S. neglecta* is a very rare plant, bearing flowers of a deep claret colour, not unlike those of *S. lingua*, but differing from that species in having a long, hanging lip with a hairy disc. The heart-shaped *Serapias*, *S. cordigera*, has much smaller and lighter coloured flowers, the lip being heart-shaped and of a greenish yellow colour, which contrasts strangely with the outer portions, these being of a bright scarlet. This Orchid is a native of fine woods and hilly pastures throughout the whole Mediterranean coast except Egypt, and it succeeds well here planted in calcareous loam in a shady position.—A. D. WEBSTER.

RECENT PLANT PORTRAITS.

ONCIDIUM CONCOLOR (*Illustration Horticole*, plate 487).—A very handsome Orchid, with large deep canary coloured flowers. It is indigenous to the mountain ranges of Brazil.

IMPATIENS SULTANI (*Illustration Horticole*, plate 488).—This beautiful Balsam has been already well figured in THE GARDEN in Vol. XXII., p. 208.

GREVILLEA PUNICEA (*Botanical Magazine*, plate 6698).—A native of New South Wales, with bunches of bright scarlet flowers; also known as *Lysanthe speciosa*.

GYPHOPHILA CERASTIOIDES (*Botanical Magazine*, plate 6699).—A pretty little plant from the higher ranges of the Himalayas, being found at elevations of from 6000 feet to 12,000 feet. The flowers vary a good deal in size and in colour from white to lilac, always with three red or purplish veins on each of the five petals. The plant is a very free flowerer, and well adapted for the rock garden.

TORENIA FLAVA (*Botanical Magazine*, plate 6700).—A yellow-flowered variety with purple throat, hitherto known as *T. Bailloni*, a native of Cochinchina; also known under the name of *Peristearia racemosa*.

ERANTHEMUM BORNEENSE (*Botanical Magazine*, plate 6701).—A Bornean variety with bunch of large white flowers, with faint lemon tinge on centre lower petal. Sent to Messrs. Veitch by their collector, Mr. Curtis, from N.-W. Borneo.

SAXIFRAGA MARGINATA (*Botanical Magazine*, plate 6702).—A pretty little white-flowered species which is a native of Southern Italy and Greece, and is also known under the synonyms of *S. Cotyledon* and *S. Poryi*. It was sent to the Royal Gardens by Mr. Maw, of Bentham Hall, Broseley.

CAMPANULA JACOBÆA (*Botanical Magazine*, plate 6703).—A native of the Cape de Verd Islands. A pretty tubular flowered variety of shrubby habit, with medium sized flowers, varying in colour from pale greenish yellow to a deep blue. It requires the protection of a greenhouse or cold frame. The specimen here figured was raised from seed sent to the Royal Gardens by Herr Max Leichtlin, of Baden-Baden. W. E. G.

PLANTS IN FLOWER.

AMERICAN ALOES.—It may interest some of your readers to know that two American Aloes in the garden here are now approaching full blossom. The stems are more than 15 feet in height, and some of the lateral branches are nearly a foot long. These plants have been in the possession of the family over eighty years.—W. W. BOREHAM, *The Mount, Haverhill, Essex*.

PTEROSTYRAX HISPIDA.—A flowering twig of this beautiful shrub has been sent to us by Mr. Gumbleton from his garden at Belgrove, Queens-town, where it evidently succeeds admirably. The branch sent bears clusters of flowers produced almost at right angles with the branch. The flowers, which are white, are about the size of those of the Snowdrop Tree (*Halesia*).

LYCHNIS HAAGEANA is one of the gayest of its colour among plants in flower in the open air; indeed, there are very few that possess such a brilliant vermilion-scarlet colour. Some flowers sent by Messrs. Rodger, McClelland & Co., Newry, show well what a beauty it is. It is said to be uncommonly fine in their nursery this season. An attractive plant such as this is needs only to be better known to be universally appreciated.

NEILLIA OPULIFOLIA.—This is an uncommon shrub, with foliage like that of the Snowball Tree (*Viburnum Opulus*), but the clusters of flowers which terminate the slender branches remind one of those of some species of *Cratægus*. We never remember seeing the plant before; therefore can only speak of specimens of it which Mr. Gumbleton sends us from his garden at Belgrove, near Queens-town.

TWO LOVELY DELPHINIUMS.—The pick of Mr. Joseph Stevens' collection are Cantab, with a dense flower-spike nearly 2 feet long, of a lovely cerulean blue, shaded with a darker hue; and Paul and Virginia, with a shorter, but denser spike, the colour of which is an intense indigo-blue, shaded with violet-purple. These two Larkspurs are well worth growing, and we believe can be obtained from most large nurseries.

EURYBIA STELLULATA.—This pretty Australian composite shrub, reminding one of the better-known *E. Gunni*, has been sent to us by Mr. Gumbleton, who states that it has been in flower for the past six weeks in his garden at Belgrove. As in *E. Gunni*, the flowers are white, and borne profusely on the tips of slender spurs, thus forming quite a wreath of white blossom. It is no doubt quite hardy at Queenstown.

LILIUM GIGANTEUM.—I send you a few flowers of the Giant Lily from a plant that has attained a height of nearly 9 feet. The old Scotch saying, "The best laid schemes of mice and men gang aft a'ge," was fully verified in this plant, for although duly attended to with water, and as we thought securely staked and tied, we were sadly disappointed a few days ago to find the flower-spike completely broken over by a sudden

gust of wind, and all our care and attention bestowed on the plant gone for nought. The average rate of growth for the past four weeks was $1\frac{1}{2}$ inches per day, and it bore 12 fully formed flowers similar to those sent.—A. D. WEBSTER, *Llanedogai, Bangor*. [Uncommonly fine blooms accompanied this note. We had not hitherto observed what a strong varnish-like scent the flowers possess, not at all pleasant in a room.]

ACHILLEA PTARMICA SERRATA PLENA.—This resembles the later flowering double Sneezewort, but is very distinct as regards its leaves, which are sharply toothed at the margins, hence the name. The flowers, small and white and perfectly double, are borne in dense heads, much in the same way as in the better-known kind. It is a very useful plant for cutting from at this season. Mr. Stevens brings us some fine specimens of it.

CAMPANULA SCHEUZERI is one of the most charming of all the Hairbells. It is in the way of *C. rotundifolia*, but it forms a denser, dwarfer, and more compact tuft. The colour of the pretty bell-like flowers is a bright bluish purple, a colour that shows finely in a mass. It is a capital plant for the rock garden and also for the edge of a choice border. From Messrs. Rodger, McClelland, & Co.'s nursery at Newry, Mr. Smith sends us some admirable specimens of it.

SIDALCEA MALVEFOLIA is a plant not at all common, yet it has much to recommend it, as it is quite different from any other of a similar stamp. The flowers, about the size of a florin, and of a rich deep rose colour, are borne in a dense cylindrical cluster on the top of an erect stem, well overtopping the Mallow-like foliage. We cannot speak of its hardness or of its likings as to soil, exposure, &c. Mr. Smith sends some beautiful specimens of it from the Newry Nurseries.

LONICERA TOMENTELLA.—This is a most distinct shrub, bearing small foliage and tiny white tubular flowers in pairs on slender spurs profusely borne on the long, wiry branches. When copiously furnished with flowers it must have a pretty appearance. Of this rare shrub Mr. Gumbleton sends us a good specimen, and also one of a near ally—*Abelia triflora*, a very pretty and tolerably well-known shrub. At Belgrove, near Queenstown, Mr. Gumbleton states it requires the protection of a wall.

CYTISUS NIGRICANS is one of the brightest dwarf shrubs now in bloom. It forms a twiggy bush, each branch at this season being thickly furnished with numerous erect racemes of small bright yellow blossoms, which, seen in the open air, have a fine effect. Though a very hardy plant and a profuse flowerer, it appears to be but little known, as one seldom meets with it. For the last few seasons Mr. Stevens has brought us some fine sprays of it from his garden at Grasmere, and those he brings this season seem finer than even their predecessors.

CROWN DAISY (*Chrysanthemum coronarium*).—Of this beautiful annual Marguerite Mr. Kingsmill sends us some fine flowers, which measure $2\frac{1}{2}$ inches across. They are white, with a conspicuous yellow eye surrounded by a zone of soft lemon-yellow. They are not only effective in the garden, but also when cut and placed in water, in which they last long in perfection. Mr. Kingsmill states that self-sown seedlings of this plant have sprung up plentifully in his garden at Eastcott this year; therefore it must be considered to be a good and easily raised hardy annual.

DIPLARRHENA MOREA.—A good specimen of this rare and handsome Irid has been in bloom for some time in the Cape house at Kew. It is a Reed-like plant, with dark green, narrow rigid leaves from 18 inches to 2 feet in length, and an erect flower-scape compressed in the same manner as in *Morea*, surmounted by a spathe in which the flowers are borne, not more than one at a time from each spathe. The flowers are regular in outline, about 2 inches across, and ivory white. Unfortunately, each flower lasts only one day, but as a good number of blooms are borne in succession by each scape the plant continues in flower for some weeks. The genus is a small one, being

limited to this single species and several distinct varieties. *Diplarrhena* is a good companion for the better-known *Patersonia*, to which it is closely allied and along with which it is found in Australia and Tasmania, the *Diplarrhena* being especially plentiful in the latter island. A variety, viz., *latifolia*, is mentioned in Bentham's "Flora of Australia," and is said to have beautifully variegated flowers and broader leaves than in the type. In old plants a stem several feet high is formed. Many of these Australian Irids, including the Wedding Flower (*Iris Robinsoniana*), are specially adapted for the conservatory border or for growing in pots. By-the-by, when are we to hear of the last named plant being flowered in England?—B.

SPIRÆA FLAGELLIFORMIS, apparently a variety of *S. hypericifolia*, is one of the finest of its race, and we are reminded of its beauty by a glorious wreath of it brought by Mr. Stevens from his garden at Byfleet. It measures 18 inches, and throughout that length is densely furnished with small clusters of white Hawthorn-scented blossoms. The tall, slender branches droop gracefully, and, therefore, it is an excellent shrub for an isolated spot. The beautiful feathery-flowered *S. arifolia* has also been sent to us by Mr. Stevens.

THE MADEIRA ORCHIS (*O. foliosa*) is unusually fine with us this season. It has now reached a height of nearly 3 feet, and is bearing dense spikes of purple-blue flowers 7 inches in length and 3 inches in diameter. It is planted in a bed of peat and leaf-mould in which it has an abundant supply of moisture and it succeeds admirably, resembling at a distance a gigantic Foxglove in flower; many of the leaves are 10 inches in length by 3 inches in width. Close to this and in similar soil the rare and curious little Orchid, *Liparis Læseli*, has become thoroughly established and is now in full flower.—A. D. WEBSTER.

PANCRATIUM SPECIOSUM.—We have frequently called attention to the usefulness of this noble plant whose magnificent blossoms are borne in such profusion all through the summer months, even by plants treated in the most ordinary way. At Kew there is annually a fine display of these blooms, and just now they are particularly fine, some specimens bearing three or four large heads of flowers of the purest white and sweetest odour. Such a plant might be grown in any corner, and would amply repay the little attention which it requires.—B.

IXORAS.—Among stove plants in flower in the gardens of Mr. R. White, Pentland House, Lee, may be noted a very fine young *Ixora Williamsi*, 12 inches high and 2 feet through, bearing forty fully expanded trusses, each measuring 5 inches in diameter. The plant is only two years old, and is the best flowered *Ixora* of that age I have seen. There is also a noteworthy plant of the somewhat shy, but compact and showy, *I. Dixiana*, with about thirty trusses out, the plant being about the same age as that just noted. These plants have more light and air and less atmospheric moisture than is usually accorded to *Ixoras*.—A. I.

PENTSTEMON PUBESCENS, now in full flower, grows so freely and makes such a number of flower-spikes as to be quite showy, though the colour is not bright, being of a dullish purple mixed with white. Flowers of it come from Messrs. Rodger, McClelland's nursery at Newry, and along with it *Jurinea alata*, a pretty composite with tall slender stems, bearing sweet Musk-scented flower-heads. *Phyteuma Scheuzeri*, with dense heads of blue flowers; *Silene Armeria*, a pretty, old hardy annual; and *Salvia interrupta*, one of the finest of all the Sages, bearing large blue and white flowers on tall spikes. It is unfortunately not hardy in gardens about London, though it may be at Newry.

LONDON GARDEN FLOWERS.—Herewith I send you *Campanula Van Houttei*, a favourite of mine. I also send a bloom of a seedling *Cypripedium spectabile*, a plant which does well with me. The bloom of *Inula glandulosa* I send, though going off, as it has been now over three weeks on the plant. I find this a useful and handsome perennial. This, with *Delphinium*, *Sidalcea candida*,

Digitalis gloxinoides, *Aquilegia chrysantha*, and *Campanula macrantha*, grow in a fine mass on one of my herbaceous borders. The following plants have been unusually fine with me, viz., *Dodecatheon Jeffreyi*, *Milla laxa*, *Cyclobothra pulchella*, and particularly *Ixiolirion Pallasii*. I send, moreover, a bloom of Orange Lily to show how grand it is for town gardens.—STUART WORTLEY (Colonel), *Rosslyn House, Grove End Road, N.W.*

GARDEN FLORA.

PLATE CCCXCV. HYBRID DENDROBES.

(WITH COLOURED PLATE OF DENDROBIUM NOBILE AUREUM VAR. LEECHIANUM.)

I HAVE promised myself the trouble of assisting somebody in a discussion on the naming of Orchids, and mayhap shall quote and collate a few descriptions of these plants generally, which will interest Orchid amateurs as well as botanists. At present, however, I have a task almost as difficult to perform, for I wish to say a few words on the hybrid Dendrobies of the *D. nobile aureum* race, without giving any offence to the raisers of these beautiful forms or varieties. Mr. Mitchell, gardener to Dr. Ainsworth, of Lower Broughton, near Manchester, has the honour of priority, the first hybrid of this race being now pretty generally known under the name of *D. Ainsworthi*. It is a beautiful plant, having somewhat of the *D. nobile* habit of growth, and, like that fine old species, it is a profuse bloomer. The plant was exhibited at South Kensington, I think, late in the year 1875, and received a first class certificate of merit, and early the following year a coloured plate of it appeared in the *Floral Magazine*, and it has since become a general favourite in our gardens where choice Orchids are grown. Mr. Mitchell sowed his hybridised seeds upon a block of wood, and after seven years of waiting—an apprenticeship in patience, one may call it—he was rewarded by the blooming of the typical variety, which has flowers about 3 inches in diameter, the sepals and petals being white, the lip also white with a radiating purple blotch on the labellum. Subsequently another and more beautiful form appeared having larger flowers, and the sepals and petals, especially near their apices, washed or suffused with bright purplish rose colour, the blotch on the lip being also of a darker hue than in the typical form. This variation is that now known in gardens as *D. Ainsworthi roseum*, its flowers varying from 3 inches to $4\frac{1}{2}$ inches across. It is singular to note, however, that two other growers had essayed their hands with the same parents, and the results are as interesting from a garden point of view as they are perplexing to the botanist, for one of the main difficulties with which the descriptive botanist has to deal is that he is not allowed to wait until his material is complete. His patrons are impatient; time is money to them; and so it too often happens that his hand is forced against his better judgment. *D. Ainsworthi* is as distinct as an hybrid plant may well be, and while *D. Ainsworthi* is ample for garden purposes, botanists may know it as *D. nobile aureum* var. *Ainsworthi*. Not long, however, after Mr. Mitchell's success, Messrs. Veitch & Sons flowered a hybrid at Chelsea, respecting the parentage of which there was (and even yet exists) some little doubt. Professor Reichenbach, who originally described it in the *Gardeners' Chronicle* for March 8, 1879 (p. 298), says, "this is



DENDROBIUM LEECHIANUM

a great beauty," and calls it *D. splendissimum*. The seed parent was *D. aureum* (the *D. heterocarpum* of gardens) without a doubt, but Mr. Seden was not sure whether the pollen was from a good variety of *D. nobile*, or from flowers of *D. macrophyllum* Huttoni, which happened to be flowering at the same time. The hybrid itself seems to insist on *D. nobile* having been its father, and for the present we must rest satisfied with this information. Mr. Harry Veitch was, at the time of the first blooming, inclined to believe in *D. macrophyllum* as the male parent, for two reasons. First, the flowers were larger than those of either *D. aureum* or *D. nobile*; secondly, the 18-inch long growths were pendulous and not erect, as in *D. Ainsworthi* proper. A well-known connoisseur of Orchids last season sent me cut flowers of Messrs. Veitch's plant fully $4\frac{1}{2}$ inches across. There is a *D. Wardianum* look about this variety not so apparent as in other forms; the whole flower has a more solid, or what gardeners call "dressy," appearance; the creamy white segments glisten as if varnished, and the petals are delicately crimped near their margins. There is a suffusion of magenta-rose near the apices of all the segments, and the ruby-purple blotch on the lip is deep in colour with darker radiations. It has more than once been asserted that *D. splendissimum* and *D. Ainsworthi* roseum are identically the same, but I am quite sure that any grower who has both plants in flower side by side will have no difficulty in observing marked distinctions alike in growth and in inflorescence. *D. nobile aureum* var. *splendissimum* was raised by Mr. John Seden at Chelsea in 1870, and bloomed in the spring of 1879. We now come to the

PROGENY OF THE SAME PARENTS—*D. nobile aureum*, raised by Mr. Swan, in the collection of Mr. W. Leech, of Fallowfield, near Manchester. When the first of this batch or series of hybrids was bloomed by Mr. Swan, Prof. Reichenbach named it *D. Leechianum*. Mr. Swan seems to have been more fortunate than either Mr. Seden or Mr. Mitchell in securing variety among the seedling plants; but, as our plate has been prepared from Mr. Swan's flowers, we cannot do better than quote what he has kindly told us of them. "It has occurred to me that you may not have had the pleasure of seeing *Dendrobium Leechianum*, and so I now take the opportunity of forwarding you good fresh flowers of this hybrid, in order that you may compare it with other kinds. I also enclose flowers from a plant of *D. Ainsworthi* which has over 230 blooms upon it, and it is certainly very pretty. The flowers of *D. Leechianum* are cut from three different plants, and, as you will notice, all three vary somewhat from each other, and I observe that this variety in all its forms differs from Dr. Ainsworth's variety in the way in which the upper sides of the lip close over the column. The base of the lip in *D. Leechianum* wraps itself more closely around the column, so that it is quite covered; whilst in *D. Ainsworthi* the column is fully exposed, the lip also being longer and narrower than in *D. Leechianum*."

THE PLATE shows all three forms of *D. Leechianum*, the lower flower in the plate being the finest variety, and the one which comes nearest to *D. splendissimum*. The second variety had paler sepals and petals, and in the third form the flowers were smaller, although well coloured, and very shapely also. The flowers reached me on February 2 of the current year, but Mr. Swan informed me that the first flowers opened during

the last week in October of the previous year, adding, "we have had others coming on ever since, so that we have never been without flowers since that date, and as the last plant opened its flowers only a few days ago, we have every reason to hope that we shall have it in flower until March. Altogether we have flowered eighteen different plants." We may add that to Mr. Dominy belongs the credit of having raised *D. Dominii*, the first of all hybrid *Dendrobies*, its parents having been *D. nobile* and the nearly-related *D. Linawianum* (*D. moniliforme* of gardens). Mr. Seden has also raised two or three hybrid *Dendrobies* of decided merit, although, so far as we have yet seen, they do not promise to become so generally useful for winter blooming or ordinary warm house decorative purposes as do all the varieties of this beautiful and free-flowering *D. nobile aureum* race or strain.

F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

NEW ZEALAND FLAX.—In form of foliage and habit of growth this may be described as a giant Sedge; the leaves, which are sheath shaped, often attain a length of 6 feet, and vary in width, according to the character of the soil, from 2 inches to 4 inches. This Flax is quite hardy in the southern parts of the kingdom, and we think would prove to be so in northern districts, provided the position in which it was planted was well drained and sheltered from cutting winds. As an isolated lawn plant it has few equals, but it will not grow satisfactorily in ordinary lawn soils—deep stiffish loam, well drained, is the soil in which it thrives best. It is readily increased by division, which is best performed early in spring. The only varieties are *tenax*, *t. variegatum*, and *Colensoi*, all equally hardy, the last named kind only differing from the others in the colour of its leaves, which are brownish green.

BEDDING PLANTS.—Bedded-out plants are now beginning to grow freely, and increased diligence will be needed to keep them in neat form; peg them out to cover the ground at the earliest moment, and water liberally, but not too frequently; they will then root deeply and be uninjured by a few days' drought should circumstances prevent water being applied. *Alternantheras* and other delicate kinds would be greatly assisted by a syringing at sunset on warm evenings and a light surface mulching of Cocoa fibre or leaf-soil. Keep all bad and seedling flowers off *Violas*, *Verbenas*, *Calceolarias*, and *Petunias*; this attention, combined with a good watering once or twice a week, will suffice to keep these usually quickly exhausted plants in vigorous condition throughout the season. Carpeting plants and undergrowths require to be gone over once a week; Sedums and similar kinds should be pressed out with the fingers to prevent a tufty growth, while the creeping kinds should be pegged or pinched, and stronger growers, such as *Mentha* and *Veronica rupestris*, clipped.

HERBACEOUS PLANT BORDERS.—As respects gaiety, these at the present time are in marked contrast to the bedders, and deserve all the labour as to keeping them in order that can be afforded them. Without such attention it is needless to expect results at all proportionate to those had from bedding plants; hence their being so often, but unjustly, designated weedy and unsatisfactory. Fill up vacancies by planting out seedling biennials for flowering next year, such as Sweet Williams, Canterbury Bells, Geums, Columbines, Delphiniums, and other favourite kinds. Should the weather become dry, they will need watering about twice a week till well established. Other appropriate positions for these kinds of hardy plants are the margins of shrubberies in any part of the dressed grounds; but before planting them the shrubs should be trimmed and the ground about them freed from weeds, and the spots for

the plants should be forked up, adding where convenient either well decayed manure or fresh soil.

FLORAL DECORATIONS.

WHAT a wealth of hardy flowers we have now in full beauty! From these any who delight in artistic decorations can draw an almost endless variety. We recently filled a stand with hardy flowers alone that would almost vie with the choicest inmates of our stoves and greenhouses. It was arranged as a centre-piece for a dinner-table; it had a base somewhat over 2 feet in diameter, from which arose a single cornucopia with a slender stem. For the bottom we used white Water Lilies (when these are to be had, no one need seek for the Amazonian Lily), in conjunction with flowers of the German Iris, chiefly in shades of blue, two or three colours of Cornflower, some spikes of London Pride, and the same of *Spiraea japonica*. These with the common Oat Grass, Quaking Grass, and Turk's-cap Lily, were sufficient to give a pleasing arrangement. For the cornucopia, we had *Spiraea* again with London Pride, Cornflower, and some Grasses. A few tender Fern fronds were certainly used, but had the Maiden-hair Meadow Rue (*Thalictrum minus*) been at hand, leaves of it would have been used in preference. The blooms of the Water Lily when wanted were closed; but this obstacle can easily be got over by passing the thumb and finger up each petal very carefully, and reflexing them till the flower, fully open, is exposed to view. Treated in this manner, Water Lilies will not again close at night, as is their usual custom. Since arranging this stand I observe that several valuable additions, all hardy, have expanded, such, for instance, as *Chelone barbata* and the blue and white forms of *Catananche cœrulea*, the latter, I think, the prettier. Besides these there are *Spiraea Aruncus* (the Goat's-beard) and *S. palmata*; also *Iris*es of many shades of colour, and than which nothing arranges better beside the blossoms of the white Water Lilies. The shrubby *Spiraea* (*S. arifolia*) is also now in bloom, and will be quickly followed by *S. Lindleyana*. Both of these are excellent while they last. An annual now in flower with us is another favourite, viz., *Gypsophila elegans*, very light and pretty. The following Grasses are also quickly coming into beauty, viz., *Agrostis pulchella* and *nebulosa*, *Briza gracilis* and *maxima*, and other kinds will soon succeed these. The various forms of *Liliums* now in flower I have not included in the above, though all of these are beautiful; the perfume emitted by them is, however, somewhat powerful, and when used a few only at a time ought to be chosen. They are fine subjects for large vases in entrance halls or corridors where the whole spike can be advantageously used to good purpose.

INDOOR PLANTS.

BALSAMS.—These quick-growing plants very soon fill their pots with roots, and where it is intended they should grow large they must have proportionately large pots, but it is of little use shifting them when the bloom buds are much advanced; in that case all that can be done is to use manure water. A diligent outlook must be kept for aphides on all such plants, without which they are likely to get infested, and their foliage being tender does not well bear Tobacco smoke. Quassia water made by pouring boiling water on Quassia chips and letting them remain in it for a day or so is a good preventive, its bitter properties being distasteful to most kinds of insects. Aphides rarely make their appearance on plants syringed with Quassia water once a week or so.

CHRYSANTHEMUMS.—These should now be in their blooming pots, and all that are strong should be stopped for the last time. It is a mistake to stop the shoots so often or so late, as is sometimes practised, as when that is done, and the summer happens to be a short one, the flowers set so late as to have insufficient time to get fairly formed before it is necessary to take the plants

indoors, and where large flowers are required stopping interferes with their production. A few sticks should be placed to each plant in time to prevent its being broken by wind. As soon as the roots fairly enter the new soil, manure water ought to be used once or twice a week. The idea that Chrysanthemums should not have any stimulants given them until the flowers are set is a mistake, it being impossible to keep the lower leaves on them without it, even where the attention in the matter of water is such as to prevent their ever suffering through drought.

DRACÆNAS.—Whatever propagation is to be yet done with these it should no longer be delayed. The crowns of all the stove varieties, as well as most of the greenhouse kinds, will strike readily in water in stove heat, and the leaves attached suffer less when they are struck in this way than if the rooting process is effected in soil or sand. The crowns to be so dealt with should be taken off in the usual way, but may be left a little longer, that is, so many leaves need not be removed. They may then be put four or six together in anything in the shape of small jam-pots, keeping the pots well supplied with water until the crowns are well rooted, after which they must be potted and kept close for a week or two until they have got established. This will be found a better method of dealing with the tops of these plants than that which is usually followed. The stems composed of the hard wood are best shaken out of the pots, taking off the bottom root pieces already formed and potting them singly. The stems may then have all the roots cut off as well as the leaves, and should be laid flat down on the propagating bed, covering them entirely with about half-an-inch of soil. Thus managed they will push up a crop of young shoots from the eyes that can be taken off when they have made three or four small leaves.

GREENHOUSE PLANTS.—The system of turning free-growing greenhouse plants into the open ground in summer has much to recommend it, provided the selection made for such treatment is confined to plants naturally able to bear the root disturbance inseparable from the transfer from the open ground to pots before winter, and enough attention is given through the summer in the way of preparation, so as to avoid the check otherwise calculated to result in serious injury. The plants chosen for this mode of summer management should be free rooters; amongst these are autumn-flowering Veronicas, Salvias, white and yellow Paris Daisies, Solanums, Chrysanthemums, and Callas; in all cases the soil ought to be free, open, and not over rich; the former condition is needful to admit of the plants being taken up with a thick mass of roots near home, *i.e.*, well packed together about the collar, as opposed to the long straggling fibres which plants of most kinds have a disposition to make in heavy strong soils. Nor should the material be over-rich, as if so growth will be over-luxuriant; the plants will attain too much size, which will make them less easily accommodated. To still further keep them within a reasonable size it is well to cut back the roots with a spade once or twice during the summer; this restricting operation is the more necessary in dripping seasons when, as a rule, all strong growing things are liable to get into an over-luxuriant condition. When the roots are in this way shortened it causes them to break back, and to make many more feeding fibres than they otherwise would. The work should be done with judgment. Where there is a disposition in the plants to get too large or luxuriant, the root severing should be carried out before too much progress has been made, or the leaves will suffer, and if the soil is at all dry enough, water must be given to prevent the leaves flagging, and in all cases where root shortening is thus effected they must be cut back, so as to keep the balls within the size of the pots they are ultimately to occupy. Where Chrysanthemums are grown in this way due attention must be given to tying the shoots up before they get so long as to be in danger of breaking with the wind. The advantage of planting out in this manner is that much less attention is required.

ERICAS.—As these go out of flower, the seed-pods should be immediately picked off; inattention to this until the seeds have had time to grow has most exhausting effects on the plants, interfering much with the season's growth. The favourite yellow E. Cavendishi requires different management from the generality of the species, inasmuch as after flowering it will bear keeping close and warm for some weeks to further growth. This treatment is best carried out in the case of old plants that have bloomed and are not over-vigorous, and, unless so used for a time, would not flower oftener than each alternate year. Plants that were potted in the spring and are now getting established in the new soil should have more water, but on no account give it oftener than the soil gets dry. See that all plants now out-of-doors have the sides of the pots protected from the full force of the sun, either by standing them near enough together to give this protection to each other, or fastening pieces of old canvas or some such material on each, and if heavy rains occur means must be taken to keep them from getting too wet, either by covering with loose lights or canvas, or, these failing, laying the plants down on their sides.

MYRTLES.—There are many who care for fragrant-leaved plants quite as much as flowers, and although old-fashioned, independent of their sweet-smelling foliage, the flowers of Myrtles are pretty. Myrtles strike readily from cuttings, and where the stock is deficient it is well to put some in, choosing shoots that are about half ripe and not too strong; if these can be slipped off with a heel they will root more easily. Put six or eight together in small pots, keeping them moist and close, but not in heat until the base of the cuttings are callused over, after which they will bear being warmer. Myrtles are naturally erect-growing plants, and to keep them bushy they should be well cut back every year, by which means they may be kept fully furnished with green foliage down to the base. When the plants have attained a moderate size they are better out-of-doors in the summer. The ordinary double-flowered old variety and the small-leaved Jenny Reichenbach are both good kinds; the last especially is very pretty in bouquets, and gives to arrangements of flowers of this kind a perfume which the other materials of which they are composed are not unusually deficient.

LANTANAS.—These plants, though not so much grown as they once were, can easily be made very useful in greenhouses and conservatories during the summer and autumn months at a season when there is insufficient variety. Their continuous disposition to flower causes the plants to get into an exhausted state, unless they have adequate pot room to meet the free production of roots natural to them; this can to some extent be met by the regular use of manure water. Where wanted to bloom freely late in the autumn a sufficient number should now be stood out-of-doors with their pots plunged in ashes, in all cases keeping them freely syringed daily, and stopping any shoots that grow too luxuriantly.

ROSE CUTTINGS.—Tea Roses for pot culture of most varieties are best grown on their own roots, and where a considerable stock is required cuttings should be put in annually. Shoots of medium strength in a half-ripened state taken off now and put five or six together in 4-inch pots in sandy soil, and stood on a moist bottom in a close, cold frame, kept moist, and shaded when necessary for three weeks, will in this time get callused over at the bottom, after which, if submitted to a humid heat, they will soon root freely; whereas, if placed in heat without first having time to callus, many will damp off. Young stock of the Tea varieties struck in the spring should be kept under glass all the summer, as well as the ensuing winter; in fact, it is a question if this section of the Rose family is not better kept wholly under glass. It is so much their nature to be continuously growing more or less during the greater portion of the year that they do this out-of-doors, and with a glass covering they are never quite at rest; neither does it seem that rest is necessary

for them, as plants so treated go on for an indefinite time increasing in size and retaining their vigour. The great thing is to feed them well by the repeated use of manure water, and to keep them completely free from aphides, red spider, and mildew; if any of these pests are present they do injury in a very short time which it takes long to repair.

CAMPANULAS.—The drooping *C. fragilis* makes one of the prettiest basket plants for a greenhouse or window that can be grown; it is easily managed, and little subject to the attacks of insects. By placing a portion of the stock out-of-doors in the spring and keeping the rest in a greenhouse, the season of their blooming will be lengthened. This species will succeed in small pots—6-in. or 8-in. are large enough—and they will do two or three years without re-potting; but when thus treated they should have manure water in the spring from the time they begin to grow up to their season of flowering. *C. pyramidalis* will now be coming into bloom, and should have manure water regularly until the flowers open. Young plants raised from seed sown early in the spring ought to be pricked off in the open ground in a bed of ordinary soil to which have been added some leaf-mould and sand, keeping them well watered in dry weather, for on their getting strong before autumn depends their ability to make handsome specimens next year.

FRUIT.

VINES.—Early houses from which all the Grapes have been cut may now have the ventilators left constantly open, and the syringe must be freely used to keep the foliage clean and healthy until the wood is quite ripe. Keep inside borders in a moist growth-encouraging state by the frequent use of diluted liquid, and add more mulching outside to protect the surface roots now working freely in the top-dressing. If the Vines are in a healthy state, lateral growths will soon be abundant and valuable, but they must not be allowed to run wild, otherwise they will do harm by crowding the main foliage now filling up and perfecting the buds from which the next year's crop of fruit is to be obtained. Now all the thinning is finished it will be advisable to go over the bunches in late houses with the scissors for the last time and remove a few of the smallest berries where they are likely to bind, for if once allowed to become jammed their removal cannot be accomplished without leaving marks which will be visible when the Grapes are ripe. If not already done, put on more mulching and give all the inside borders a heavy watering with warm liquid or guano water, fill the evaporating pans every morning, and damp the borders with the same after closing for the day. The agreeable change to warmer weather will at last enable us to reduce fire-heat, but nights are still cold, and a gentle circulation to admit of giving air at night and on dull days will be needful until the earth gets much warmer than it is at the present time. When Muscats have passed the stoning process and are safe from scalding, the house may be closed early and the heat may range as high as 90° for a time to swell the berries. The ventilators must, however, be again opened for the night, and then fire heat will do good service in preventing the temperature from falling below 70°. Hamburgs and other kinds which do well under Hamburg treatment may range a few degrees lower—say, 65° to 68° at night; but instead of trying to maintain these figures in a dull, stagnant atmosphere, it will be much the best to warm the pipes, and, with the exception of the afternoon closing, keep up a constant circulation of air by night and day. When newly-planted Vines have grown to the top of the house the leaders may be stopped, also the laterals, from the base up to the bud to which it is intended to prune in the winter; but above the pruning bud a free rambling growth may be encouraged to cover the whole of the trellis and back wall. Keep the inside borders well mulched and watered with pure water, and carefully preserve all the main leaves by a liberal

use of the syringe once or twice a day. Give an abundance of air from the time the temperature begins to rise until it declines in the afternoon, then close for an hour or two, and re-open the ventilators for the night.

POT VINES intended for early forcing will now be changing to a bright nut brown colour, and the buds at the base of the leaves will be filling up. If the canes are very strong it is not likely that they will become too prominent, but great assistance may be rendered to them by shortening back the laterals to one eye for the present, and by keeping the main leaves clean and healthy to the last. See that the roots do not want for water, and gradually check them if they have been allowed to find their way into the plunging material. Ventilate freely, shut up with plenty of sunheat every afternoon, and maintain a circulation of air through the night.

ORCHARD HOUSES.—By this time the latest Peaches and Nectarines will have passed the stoning process, and many of the early and mid-season kinds will have commenced their last swelling. As no more fruit will drop, it will be well to look each tree over and see that it is not carrying more than it is capable of bringing to maturity, and at the same time to stop all sub-laterals to increase the size, and turn aside the foliage to insure the perfect colouring of the fruit. Keep the trees regularly fed with good liquid and guano water. Mulch any that may require it with good rotten manure, and syringe well with tepid soft water about 6.30 every morning and again after the house is closed for the day. Trees growing in internal borders may also be stopped, to prevent the force of sap from passing by the fruit; mulch, and well water with water of a stimulating character or otherwise, according to the strength of the growths and the crop of fruit they are carrying. The insects to which these trees are now subject are spider and brown scale; the first can make little if any progress under good culture, and the second must be kept in check by brushing with a short, stumpy brush before it passes from the wood to the leaves.

EARLY HOUSES.—The principal work here will be good syringing to keep the foliage clean and healthy, and feeding with weak liquid to plump up the buds before the leaves fall. If directions contained in my last paper have not been followed up, lose no time in getting the forward kinds potted and started into fresh root growth before they are placed in the open air. Many people are afraid to pot a fruit tree when in full leaf, but they need not hesitate, as fresh healthy trees under glass start into free root growth at once, and are fit for removal to the open air within three weeks of the performance of the operation. The principal points in the management of a newly potted tree are a close, moist atmosphere, a temperature that will not excite the prominent fruit buds, and moderate watering until the roots begin to work freely in the new soil.

PINES.—The pit in which the early started Queens have been grown may now be renovated with fresh leaves or tan, and filled up with the most forward fruiterers from the second batch. Let each plant be made firm at the base by packing with a few pieces of fresh turf; secure the fruit in an upright position by tying above and below to stout sticks, and plunge lightly at first, until it is seen whether the new material will become too hot or not for the roots now coiling round the pot's inside. The greatest length of days having been reached, a high temperament, with a corresponding supply of moisture, may now be advantageously given to them, and liberal supplies of generous liquid or guano water may be used when the roots require feeding; the evaporating pans may also be replenished, and the surface of the bed syringed with the same, in order to keep up the requisite supply of atmospheric moisture. As the re-arrangement of this pit will make room in other compartments, a general turn over will bring together the next batch of starters, from which fine autumn fruit may be expected, and afford facilities for shifting strong successions still occupying small pots. See that the balls are

thoroughly moistened before they are potted; use the soil in a dry, rough state, and ram it firmly to prevent water from passing through and leaving them dry in the centre. Be careful in the selection of medium sized pots, using the largest for Rothschilds and Cayennes, and the smallest for Queens, Jamaicas, and that excellent variety Lord Carington. Shade slightly from bright sun. Syringe the walls and dew the plants overhead on fine afternoons, but guard against heavy root watering until they have taken freely to the new soil.

HARDY FRUITS.—Although our fruit crops are not so promising as we at one time anticipated, it is gratifying to be able to say there is a great improvement in the appearance of the trees; many of the Plums and Apples, at one time nearly leafless, are now making clean, healthy mid-summer shoots. Pears in this county are much more abundant than Apples, and some few kinds of the latter, including Alexander, Golden Winter Pearmain, and Irish Peach, are carrying good crops of fruit. Where trees which are pruned in winter and pinched in summer have been hard bit, it will not be wise to risk a second check by stopping the shoots too soon, as it is more than probable that a fine autumn will ripen up a good set of fruit buds for another year, while unrestricted growth will restore the blighted trees to healthful vigour, without which fruit buds are of but little use.

APRICOTS are an immense crop and require a great deal of thinning, but unfortunately the Apricot is a badly treated tree, inasmuch as it is frequently burdened with such heavy loads of fruit that it is no uncommon thing to see them forcing each other off the branches. Where, after repeated thinnings, the trees are still heavily cropped, the surplus fruits should now be taken off and used for tarts; leaders should be nailed in, and laterals pinched back, but not too close on south walls; the borders may then receive a little more good mulching followed by a heavy watering, and little more will be needed until the fruit begins to ripen.

PLUMS AND CHERRIES.—If any of the Bigarreau and other late kinds of Cherries are still hanging on pot trees, they will be the better for removal to a cool, airy place where they can be effectually protected from sun, rain, and birds, and space being limited, the very early kinds of Plums may be placed out-of-doors to ripen. The finer varieties, including the Gages, Jefferson's, Coe's Golden Drop, Coe's Late Red, Ickworth Imperatrice, and others, which are so much improved by being grown and ripened under glass, may then be re-arranged for the season. If any of the second growths are starting away freely, as they often do after the stoning is complete, let them be stopped at the third or fourth joint, otherwise they will rob the fruit of food, and shade it from bright sunshine, of which these kinds cannot have too much provided they are properly supplied with air and water. Look well to the mulching, add more as it is required, feed well with good liquid, and syringe twice a day with clean soft water until the fruit begins to change for ripening. If any of the early pot Cherries from which the fruit has been gathered require potting, it is a good plan to give them a shift before they are taken out of the house, and as the latter will now be kept like a warm orchard house, the soft humid atmosphere will favour the rapid formation of fresh roots. When new growth has set in no time must be lost in getting them removed, first to a sheltered shady place for a few days, thence to a dry, open situation where they can be plunged and mulched to save watering. As stone fruit trees of all kinds enjoy a firm, resisting, calcareous soil, the compost in which they are potted should be firmly rammed and the shift should be large enough to admit of good drainage beneath the ball and plenty of room above it for a liberal supply of water.

PEACHES AND NECTARINES.—When all the young growths actually required for forming the trees have been nailed or tied in the final thinning of the fruit will follow without delay, as it

rarely happens that fairly treated trees lose many at stoning time. Where timely attention is paid to the selection of the fruit for the crop, preference should always be given to the finest on the upper sides of the shoots, and, taking the whole area of the wall covered with foliage, about one Peach to every square foot will be found quite sufficient for ordinary trees to carry. From this time forward the principal work will be keeping the foliage clean and free from insects, the most troublesome of which are black fly and red spider. The first may be destroyed by the persistent use of Tobacco water, and the second makes but little headway where the borders are well mulched and the engine is vigorously applied at the close of the day. The proper balance of the trees must also be kept in view, otherwise foreright and gross shoots, while robbing the fruit will greatly interfere with the extension of the leading branches, and as these never require stopping where there is wall space to fill, growths which will be taken out after the fruit is gathered may be shortened back to let in light and air, so essential to the proper ripening of the wood.

STRAWBERRIES.—Young plants intended for making new plantations should be taken away from the parent stools and removed to a cool shady situation as soon as the small pots are nicely filled with roots. If the ground upon which they are to be planted can be cleared of the spring crop, which generally consists of early Peas or Potatoes, lose no time in getting it well limed, manured, and broken up to a depth of 18 inches or 2 feet, add another dressing of manure, fork it in near the surface, and tread firmly. Set out the lines 2 feet 6 inches apart, see that the balls of the young plants are thoroughly wet when they are turned out, and place them 15 inches from each other in the rows. Where new heavy soil is plentiful and can be spared, give a little, if only a 6-inch potful, to each plant, see that the balls are firmly embedded and covered to protect them from drought. Give a good watering to settle the soil, and mulch with a little short manure.

KITCHEN GARDEN.

POTATOES when lifted will leave ground vacant for the earlier kinds of Broccoli, which we plant as we clear the ground. We let the Potato tubers lie for an hour after they are dug in order that they may get quite dry and be in the best condition for use. Sow at once the latest crop of Peas. We grow William I. and Unique, both good early and late varieties. We have just finished planting our stock of Celery, excepting a row or two for very late use. Should the present favourable weather last, young Asparagus plantations will be benefited by being mulched with short litter and having a good soaking of manure water. Keep the beds clean by hoeing and weeding; in fact, time may now be profitably spent in using the hoe amongst all growing crops. We have now got into July—an important month for the kitchen gardener. Endive and Coleworts should be sown at once. That important crop, winter Lettuces and Cabbages of all varieties, must be sown this month. The land should, therefore, be got ready for them without delay. Our early Pea land is always used for seed purposes, well cultivated, but never dug at all. We put on 2 inches of burnt refuse, which freshens the soil and sweetens it, too. Under such circumstances the young seedlings always come up strong and healthy.

Coleus Canary Bird.—The extraordinary number of varieties of Coleus that exists, and the ease with which they are cultivated, tend to make an otherwise useful class of plants to be looked upon as common in the case of those who prize plants in accordance with their commercial value. But Coleus Canary Bird is quite out of the common run of colour and marking, being of a pale lemon-yellow edged with green, and a very pretty and effective plant for mixing with brilliant colours. It is of good habit, being of moderate growth, branching freely, and requiring very little

training to make shapely plants. Where plant decoration indoors is largely carried on, these easily grown plants become most useful, as they last as long as much more valuable plants, and are quite as effective. They can be thrown away as soon as done with and young stock substituted for them.—J. G., *Hants.*

INDOOR GARDEN.

VIOLETS IN SEPTEMBER.

5008.—There should not be any serious difficulty as to getting Violets in September in moderate numbers, for I am not aware that under any circumstances they can be made to flower so freely then as in November and December. No doubt soil and climate have something to do with the matter, but with us in the moist climate of Somerset if desired we should not have much difficulty, with suitable appliances and a judicious selection of varieties, to get a constant supply of Violets from September to June. As it is, we require a good many, and we rely principally on three varieties—the single and double Russian and Marie Louise. The last-named is with us an almost perpetual bloomer; there is hardly a month in the year in which we cannot gather flowers from it. Our plants of Marie Louise were taken in the early part of May from frames where they had been all the winter. They were then divided, and the youngest parts reserved for future stock, the oldest portions being thrown away. Those to furnish stock for next year were at once planted in a border in the kitchen garden where the soil is rich and deep. During the dry weather experienced early this month they were regularly watered, and in order to afford some amount of shade to which Violets are partial, we cut Laurel branches and stuck them in the soil to shield them from the strong sunshine. Here they will remain until early in September, when they will be carefully lifted and planted in frames again for the winter. If they do as well this year as they have done in previous ones there will be flowers upon them at the time of lifting, and the plants will be bristling with young flower-buds. If I had to provide Violets in September, I should not alter my treatment until the usual time of lifting the plants. I should then leave a portion of the stock to furnish flowers for immediate picking, which, according to my experience, they will produce if undisturbed, and they would go on flowering in the open air until the end of October, or as long as the weather continued mild. Marie Louise will not flower throughout the season in the open air, as it is a tender sort, but I nevertheless consider it to be the most valuable variety for general use in cultivation. For furnishing flowers through the month of May and the early part of June I find the double Russian the most reliable kind to grow. J. C. C.

STEPHANOTIS NOT FLOWERING.

"F. W." (p. 575) must have patience. It is almost too much to expect a Stephanotis that has clothed one side of the roof within the year to bloom freely at the same time. Occasionally the most floriferous varieties do so, but more generally growth first and flowers in plenty next year is the more natural order. "F. W." must see to it that his wood is well ripened before winter, and then next year, under fair treatment, each shoot will prove a cordon of bloom next summer, and will likewise push out laterals that will likewise bloom in succession. Of course this is always assuming that he has got a floriferous variety. There are some Stephanotises in existence—it is to be hoped not now in the trade—that flower but scantily, if at all. The writer had one such for several years, and no treatment could induce it to bloom. It grew freely, and closely resembled the true floribunda in all points excepting the refusal to flower and a dash of purple in the veins of the leaves. The latter was, however, so very slight, that it was some time before it led to its being found out and discarded. With the introduction of the common variety into

the self-same house and under the same treatment all our difficulties vanished. "F. W." says nothing about the distance of his plant from the roof. The Stephanotis can hardly be too near to the glass to bloom it freely, intense light being apparently essential to the full development of its flowering properties. Another curious thing has been noted in regard to the flowering of Stephanotis in houses running east and west with their roofs of necessity facing north and south. Plants flower fairly on the north side when confined to it; but allow the same plant to clothe the south also, and the major portion of the bloom will henceforth be found concentrated on the sunny side of the house. Possibly these hints may prove useful to others besides "F. W.," who will most likely find that his plant will bloom freely enough next year, all that it needs being greater age and more thorough maturity.

D. T. F.

GLOXINIAS AND BEGONIAS.

TUBEROUS-ROOTED Begonias and Gloxinias were fast attaining perfection in Messrs. Sutton's establishment, at Reading, when I visited it the other day. The strain of the latter is noted for its free-growing habit, the leaves of a well-grown plant completely hiding the pot in which it is grown, while the extremely large and handsome blooms, in great variety, elicit the admiration of all who see them. The thousands of plants raised from seed sown early in January present a beautiful appearance, so healthy and even are they. The majority of these will by this time have been shifted from the 3-inch pots, in which they were well established when I saw them, into 4-inch or 5-inch pots, and in these sizes will perfect from twelve to twenty-four large blooms. The compost employed always consists of two parts fibrous loam and one part each of leaf soil and peat with a good addition of sand. Great pains are taken with the potting, especially with regard to keeping the leaves intact and also free of the soil. The plants are never inverted at potting time, but are raised out of the pots with the aid of a short piece of quarter-inch iron rod, this being fixed to a portable stand, and the operator merely presses the point through the drainage hole, secures the plant, and allows the pot to slide down the rod.

GLOXINIAS are never syringed overhead, but are placed on benches covered with ashes, which are always kept moist, and a moist atmosphere is also maintained. They are carefully shaded from bright sunshine and never allowed to become dry at the roots. Bulbs or corms raised this season are easily grown into large specimens next year. Very late batches are not raised, but it was remarked that it is an easy matter to have a number of neat little plants, carrying six or more blooms, any time during the dull winter months from seed sown in June or early in July. I have also found small late Gloxinias extremely attractive on the dinner-table during November and early in December.

TUBEROUS-ROOTED BEGONIAS are equally well grown and receive much the same treatment as the Gloxinias. The strain is especially rich in white flowering varieties, some of these for size, substance, and form nearly equalling the showy red-coloured varieties. Some of the blooms of the latter I measured were fully 5 inches in depth and 4 inches across, and I have no doubt they will attain a greater size. They are very sturdy and branching in habit and the markings of the foliage alone render them attractive.

W. J. M.

Gloxinias not flowering.—From "G. A. F.'s" description of his Gloxinia buds, and their not flowering (p. 575), I think it very likely that they are infested with thrips, to which Gloxinias are subject at this season, especially when kept in strong, dry heat. Under such circumstances, they often infest them to such a degree as to quite spoil and cripple the foliage as well as the buds, which turn rusty as if scorched by the sun. The way to prevent the evil is to grow the plants in a genial

atmosphere, that is, moderately moist, and where they can have shade without being far from the glass, a good position for them being the back shelf in a stove or other house where a similar temperature is maintained. To free them from any thrips that may be on them, smoking must be resorted to, but as the foliage of Gloxinias is rather tender, it is advisable to use tobacco for the fumigating instead of the paper, the smoke from which often does injury, and this is almost sure to be the case if, at the time of fumigating, the leaves are not dry.—S. D.

Plumbago capensis.—The use of this plant for a screen or shade is well exemplified in the Water Lily house at Kew, where it is planted out all round the porch to act as a shade to a bed of *Amorphophallus* on one side and *Hedychium* and *Cannas* on the other. At present the Plumbago is a perfect curtain of pale blue flowers, against which the crimson of the *Cannas*, and especially of *C. Ehemanni*, of which there is a good specimen in bloom, is shown off with fine effect.—B.

KITCHEN GARDEN.

PEAS PODDING TO THE GROUND.

ONE week "J. S. W." asserts that *Ne Plus Ultra* is the best of all Peas, and the next that *Veitch's Perfection* is superior to it—statements difficult to reconcile. Be that as it may, however, my contention was, and is, that *Laxton's Omega* and many other Peas, if properly managed, will produce pods from the ground upwards. Of course, if "J. S. W." is satisfied with a Pea which produces 4 feet of barren straw and only 30 inches of bearing growth at the top, and one which is only coming into bloom when others are ready for gathering, it is no business of mine, but let me tell your readers how they can have Peas podded from the ground upwards. The old-fashioned way of growing Peas was, and in some places still is, to place row after row only a few feet apart, opening narrow drills with a draw hoe, and throwing in the seeds so thickly and close that they touch one another. When the plants made their appearance above ground, they were as close together as blades of Grass on a lawn, air and light being excluded from half of them. An unfruitful foundation was at once formed, and this continued until the plants had grown to a considerable height, the shade from the neighbouring rows assisting the non-podding. Under such circumstances, the haulm is bare of Peas near the ground, and being so much drawn up and attenuated, when the tops do bear, unless particularly well staked, the weight of the pods bends them over, fertility ceases, and then comes the outcry of "no Peas." The varieties which will pod from the ground upwards are numerous enough, and a few of them may be named, such as *Telegraph*, *Telephone*, *Dickson's Favourite*, *Walker's Perpetual Bearer*, *Hundredfold*, *Marvel*, *Veitch's Perfection*, *Giant Marrow*, *Nelson's Vanguard*, *Webb's Electric Light*, *Sutton's Berkshire Marrow*, *Omega*, and a new variety shortly to be distributed from seeds. The mode of culture, however, just pointed out is not what I would recommend in order to have haulm in bearing condition from the ground upwards. Instead of drawing a drill some 3 inches wide with a hoe, we take a spade and open a shallow trench about 9 inches wide and into this we place three rows of seed, quincunx fashion, each seed being 4 inches apart, and thus, when the growths come through the ground, each plant stands distinctly by itself. There is no drawing up or crowding, but substantial growth, massive leaves, and abundance of blossoms and pods close to the ground and all the way up the stems. Half-a-pint of seed will go further in a row in this way than a quart in thick sowing, and the produce from thinly-sown plants is profuse and high in quality. The rows, too, it may be observed, do not prop each other up, but stand here and there in the vegetable quarters, intermixed with low-growing crops, and in this way the Peas are fully exposed to light and air. The only Pea which

refuses to be benefited by this treatment is *Ne Plus Ultra* and its close relations; its scandent habit and the sterile character of the lower portions of the haulm are so inherent, that the quantity of it grown here has annually become "smaller by degrees and beautifully less."

Margam, Glamorganshire.

J. MUIR.

Redbraes Cabbage.—This has always proved in my case to be uncommonly useful. It is not the first to head, but as a midseason or main crop Cabbage it is certainly the best I have ever grown. An ordinary sized head which I cut the other day weighed, when trimmed, 7 lbs. It was grown in a quarter in which the plants stand 18 inches apart. In this kind of produce size and quality are not always found together, but in this instance they are combined.—J. MUIR, *Margam*.

Cucumber No. 1.—About two months ago Messrs. Sutton sent me two seeds of a new Cucumber to try. It has been bearing for some time, and is very satisfactory. It possesses a good constitution, and from the first has grown freely, producing short-jointed wood, large leaves, and abundance of fruit of good size and quality. In my opinion it belongs to the Telegraph class, but is superior to any variety under that name I have ever grown.—J. MUIR, *Margam*.

Celery maggot.—This appears to be very prevalent this year, and where not destroyed is committing sad havoc on Celery plants, the leaves of which die away wholesale. The grub is hatched between the tissues, where it feeds, and eats everything away except the thin outer walls, which soon shrivel under the action of bright sunshine, or rot after wet. The only way of dealing successfully with this is to take the affected leaf between the thumb and finger and smash the maggot.—S. D.

Picking Peas.—I agree with Mr. Hobday so far as being particular in not breaking the haulm of Peas is concerned. But surely Mr. Hobday must be drawing largely on his imagination when he boldly asserts that by being careful in this respect the second crop will be even superior to the first. I have also to find fault with the use of the term legumes. Mr. Spurgeon told us last Sunday that oratory was the curse of this country, and I say these botanical flashes have no charm for us Cabbage growers.—R. GILBERT, *Burghley*.

Short Horn Carrots.—This is a good time to sow a good breadth of Short Horn Carrots for autumn and winter use; they are so delicious in a half-grown state, and at all times, when procurable, so much better than the long hard varieties that are so largely grown for market, that no one would use the latter except as a makeshift. Anyone having a small plot of ground might grow sufficient of these small kinds for home use, as they occupy but little space; a row of early Potatoes, when lifted, will make room for two or three rows of such Carrots. Sow moderately thick, and begin to draw and thin as soon as the roots are large enough to be useful.—J. G., *Hants*.

Early Peas.—The dates of sowing and other particulars respecting the following sorts of Peas may possibly prove useful. In the first place I sowed four varieties, viz., five rows of Day's Early Sunrise, fourteen rows of William I., sown on the 8th of January, and I gathered on June 11 our first dish from William I. Day's Early Sunrise is a disappointing Pea with me. From that variety I did not commence to gather until the 23rd June, although both were exactly under the same conditions. These two kinds comprised my first sowing. From Emerald Gem, sown on the 20th February, I gathered my first dish on June 18, and from Laxton's Alpha a few days afterwards. From the Emerald Gem I have gathered a grand lot, and I would advise all who have not grown it to make their last sowing of it. William I. and Alpha are good all-round Peas, but for a first early I like Emerald Gem. The facts just recorded speak for themselves as to its earliness for North Wales. Altogether I have forty short rows of good Peas on a

south border, from which I can gather daily until those in other parts of the garden more exposed come into use. While spring-sown Peas can be had so early, I hardly see the use of sowing in autumn.—J. CLARKE, *Brynkinatt*.

Gourds.—The recommendation in THE GARDEN of the 23rd of June to cultivate Gourds brought "the light of other days around me." Many years ago I had a large bed of ornamental Gourds. The seeds I got from Dresden and elsewhere, and their produce consisted of many curious forms and tints. There was plenty of it too, and what was I to do with it? It was far too beautiful to eat. I therefore made a cloth mat, surrounded it with a wide gold coloured fringe, and placed it in the recess of a sideboard. I then heaped up the Gourds as tastefully as I could as to form and colour, and the effect was very pleasing. We adorn our rooms with flowers; therefore why not with fruits equally beautiful?—A. G., *Mid-Scotland*.

Arrested growth in Cucumbers.—My Cucumbers increase in size very slowly, and it will be seen by the fruit sent that they become deformed. These plants are in a lean-to house, and trained up in the usual way. The roots are not in any way near the pipes, the bottom of the bed being perforated tiles. I have the same variety planted out on a hotbed, and so treated it is doing well.—F. G.

. It is impossible from an aborted Cucumber to point out the cause of arrest of growth. Such aborted growths are common, and they frequently arise, not only from the plants being placed in unfavourable positions in regard to the roots, but from the Cucumber plants being traversed by the spawn of fungi or minute worm-like creatures of microscopic size.—W. G. S.

Late Peas.—As everyone who has a garden likes to grow the best of everything, most of us would be glad to know the names of the Peas which Mr. Muir would have us believe are so much in advance of *Ne Plus Ultra* as late or main croppers. If it be a fact that there are such, I for one should like to have them, as they must be of superlative quality to beat that sterling kind, and may justly be regarded at prodigies, although Mr. Muir appears to object to the use of the term.—S. D.

—If the controversy with respect to the merits of *Ne Plus Ultra* should cause it to be better known, it will have done good service. As a mid-season or late variety it is always good with us, grows vigorously, crops well, and for flavour and appearance when cooked has but few equals. For exhibition, where flavour should be the most important point, none need fear the result as regards *Ne Plus Ultra* in contest with others, but sometimes, unfortunately, flavour is sacrificed for appearance. So popular have I known this kind to be with some, that, after the first one or two crops, the season's supply has wholly depended on it.—C. MAXTED, *Kearsney Abbey*.

Inferior Rhubarbs.—I frequently notice in cottagers' gardens and allotments that the variety of Rhubarb grown is of the most worthless description, being of a greenish brown colour in the stalk and hard and stringy even when quite young. It would therefore be conferring on cottagers a real benefit if owners of large gardens would distribute in the winter season some of their surplus roots of good edible Rhubarbs amongst such small growers, for good Rhubarb is not readily procurable in rural districts. Worthless kinds are consequently grown and spread from one garden to another simply because they are the best available. In the case of Potatoes or other vegetables, their respective merits are generally pretty correctly settled at rural cottage exhibitions, but Rhubarb, if exhibited at all, is generally of the giant varieties, and the prize goes to the largest—useful kinds in their way, but not the sorts to recommend for private use. I would therefore advise anyone having a bed of Rhubarb to mark any of these hard, stringy, worthless sorts and destroy them, as they occupy just as much ground as good sorts would do, and to little purpose, as no amount of good cultivation

will make a bad Rhubarb tender and succulent, while, with a good sort and high cultivation, there is no difficulty in having young tender stalks for nine months in the year.—JAMES GROOM.

Summer Spinach.—Although the round or summer Spinach may be grown fairly well under the conditions advocated by Mr. Groom, no one who has ever cultivated the New Zealand kind would ever be bothered with it, as this latter is equally good in flavour and much more tender and juicy, the leaves being quite thick and succulent, and unaffected by the hottest of weather, which, indeed, rather agrees with it than otherwise. The round or summer kind at this time of year runs to seed almost as soon as it is up, and it is only in moist, cool lands where it can be grown with tender leaves large enough to be worth picking. That being so, we seldom sow it now after May, but raise plants in heat of the New Zealand variety, which we plant out on old soil heaps, manure beds, or in other vacant places of that kind where it can find rich food and have plenty of room to send out its trailing branches and spread. This it does freely, and the supply of leaves which it yields for picking is something astonishing, there being no cessation till the plants are killed by frost.—S. D.

QUESTIONS.

5023.—**Imported Orchids.**—Can any reader of THE GARDEN say whether Orchids in a dry state can be purchased at either the ports of London or Liverpool?—F. D.

5024.—**Red spider** is attacking my Vines. What plan can I adopt to destroy it. If some of the readers of THE GARDEN will kindly enlighten me on that subject I will be greatly obliged.—N. W.

5025.—**Peat Moss litter.**—I find that this answers very well for plunging material in hothouses. Has anyone ever used it instead of peat for Rhododendrons and shrubs and would it be good to mix with sandy loam in making a rockery and hardy fernery?—M. F.

5026.—**Honey blight.**—Will any of the readers of THE GARDEN be so kind as to tell me the best way of getting rid of a kind of sticky honey blight on the leaves of a very fine *Pelargonium* in the corridor of our house? It is roofed in at the top, the front only being glass.—G. P.

5027.—**Mediterranean Lilies.**—I have had sent to me some bulbs bearing the name of Mediterranean Lilies. Can any of the readers of THE GARDEN give me any information as to what they are, and how they should be treated? They were found on the sea-shore at Allassio growing in the firm sand just above high-water mark, close to an Olive grove. They are said to have magnificent spikes of white flowers, which open in the autumn. The bulbs are white, hard, and smooth.—T. E. F.

5028.—**Transplanting Lapagerias.**—My friend has two Lapagerias in pots, and says now is about the time to remove them from their pots into pits; therefore, will some of your readers tell me how these pits should be made? What kind of composition or mixture should they be filled with? I had one beautiful Lapageria rosea, for which I would not have taken £5, and it was removed from one of my distant gardens here and put into a pit under glass (a greenhouse); but, alas! it died. My fear was that either my gardener did not set it in the right sort of soil, or that his pit was not made right, or that he failed to water it sufficiently. Of course, he believes and says he treated it properly, but I am naturally anxious to start right this time.—Q.

5029.—**Spring and summer bedding plants.**—I will be much obliged if any of the correspondents of THE GARDEN will give me a list of very hardy yet showy flowers for spring and summer bedding that would be likely to do well in an exposed garden in South Wales facing north-east, but getting the morning and a little of the evening sun. Violas, Mimuluses, Anemones, Irises, Forget-me-nots, yellow Alyssum, &c., do well; also Chinese Paeonies. Lilies do badly in the damp climate of Wales. I wish to use as few Geraniums and regular bedding plants as possible, and am at a loss to find substitutes that will keep the beds gay all the summer, and being close to the house they are much seen. I would like to know if *Arabis rosea* is really pink and as hardy as the common white; also if *Epimedium alpinum* and *Orobus vernus* are showy and good plants for beds, and whether *Crambe juncea*, *Saxifraga peltata*, and the small *Iris Chamæiris* (which I lately saw in Paris would be likely to succeed).—L.

SOCIETIES.

ROYAL BOTANIC.

THE annual evening fête held by this Society in its garden in the Regent's Park on the 27th ult. was a brilliant affair, and an appropriate termination to the series of floral displays which have taken place during the present season. As on previous occasions, the gardens were beautifully illuminated by thousands of lights; the trees, and especially the fantastic structures erected on the lake, created an exceedingly pretty effect. In order to as far as possible obviate the unpleasant effects of a wet night, nearly every path in the garden was covered with an awning, the total extent of which was nearly a mile, and these covered pathways were likewise lit up by myriads of tiny lamps. The evening was, however, fortunately fine, and a numerous company visited the garden. As usual, there was a competitive exhibition of floral decorations held under the spacious tent and adjoining corridor. Fourteen classes were enumerated in the schedule, and all, with the exception of two—one for floral decorations for a room, and another for night-flowering plants—were represented. The principal subjects of competition were the dinner table decorations, of which no fewer than twenty-four competed for the six prizes in the two classes, one being for decorations with flowers of any kind, the other restricted to the use of hardy flowers only. Taking the tables collectively, there was a conspicuous tendency to follow the simple style of decoration encouraged by the judges during the two years previous, although on this occasion preference seemed to be given to the old style of arranging the flowers in trumpet-shaped vases, the first prizes in the two classes being awarded to arrangements of that character. The first prize table in the first class was arranged by Mrs. Sperling, of St. George's Road, Regent's Park. The centre piece in this instance was large, consisting of a wide shallow vase, in which were arranged Water Lilies, crimson Gladioli, and other flowers intermixed with Fern fronds spread out flat on the table. From the base arose a stem entwined by *Cissus discolor*, and supporting another shallow vase.

The second best table was arranged by Mr. W. Wood, Conduit Street, who took the first prize last year with a similarly arranged table. The flowers, yellow and white English and Spanish Irises, were mixed with other flowers arranged lightly in capacious round bowls. There were three of these large bowls and about a dozen smaller ones. Another prettily arranged table was that from Mr. Buster, St. Mary's Cray, which was accorded the second prize in the class for tables arranged with flowers only. This we thought was the most tasteful and effective table of the whole twenty-four. The flowers consisted chiefly of yellow Columbine, white and yellow Roses, Irises intermixed with the graceful foliage of *Thalictrum adiantifolium*, Grasses, Ferns, &c. The vessels were large, simple round bowls for the centre, and smaller ones of the same pattern for the corners. Miss A. Williams, Sutton House, Holloway, was one of the most prominent prize winners. She exhibited great taste in all her arrangements, particularly in the classes for dinner-table vases of flowers, adornment of a recess, bridal, and other bouquets, in all of which she took the first prize. The three groups for a dinner table were very effective, one consisting entirely of spikes of *Oncidium flexuosum* and an elegant Palm (*Cocos Weddelliana*); the other two were arranged principally with English and Spanish Irises, the quiet tones of which blended beautifully with the delicate foliage. In the arrangement of at least two of the tables we observed that the competitors had made free use of potter's clay, which they made into rope-like rolls; these they laid in crinocranum fashion on the cloth, and in this clay ropes stuck flowers and foliage. Dinner-table decorating competitors have many devices by which to effect their designs, but the line ought really to be drawn at bringing clay on the dinner table, and the practice ought to be discountenanced by

the judges, but on this occasion one of the clay workers was encouraged; the table which was awarded the third prize in the first class had a clay-rope device, and, moreover, had such needless appurtenances as pink satin as a groundwork for the floral decorations. Several of the other tables were arranged more to show the china ware than the flowers, and such puerilities as mirrors to imitate pools, china swans, and artificial Water Lilies were freely indulged in, and in the decorations for alcoves, windows, &c., we noticed such distasteful exhibitions as glass and china imitations of Grapes and other fruits, stuffed birds, and equally absurd objects, as if natural flowers and fruit were not plentiful at midsummer. There was no very remarkable examples of baskets of flowers, vases, &c., and the bouquets were mostly of an ordinary character. We noticed that the Society still offers prizes for sideboard decorations and floral arches, as a temptation for floral decorators to make a ridiculous exhibition. Such paltry affairs would never be tolerated in good houses, and no good can possibly accrue from encouraging them by offering prizes on such an occasion as this, when one expects to see the best taste receive due recognition.

Among the non-competitive exhibits was a magnificent group of Orchids, numbering 200 plants, from Mr. Peacock's garden, Sudbury House, Hammersmith, and tastefully arranged by his gardener, Mr. Vicary, on one of the central sloping banks. It need hardly be said that such a group was the focus of attraction, for seen by artificial light it was extremely beautiful. The principal elements of the group were *Odontoglossum vexillarium*, of which there were some scores of profusely flowered specimens, *O. crispum*, almost as numerous, as were also several other species of *Odontoglossum*, *Cattleya Mendeli* and *Mossia* in great variety, *Lælia majalis*, the rare *Cattleya Dowiana*, *C. aclandia*, various *Dendrobies*—all lending their lovely hues to enliven the group, while amongst duller hues, but more singular, flowers were *Anguloa Ruckeri* and *eburnea*, various *Lady's Slippers*, and the extremely handsome *Stanhopea gibbosa*, a rare species in the way of *S. bucephalus*. This plant bore two huge flowers, heavily barred with chocolate on a yellow ground. The aromatic perfume of it was very strong, pervading the entire tent. It seemed to arrest the attention of everyone. These gay-flowered Orchids were intermixed with fine-foliaged plants, such as Palms, Ferns, *Lycopods*, in a charming manner. The Society's own garden contributed more largely to the display than on previous occasions.

NATIONAL ROSE SOCIETY.

JULY 3.

THE principal metropolitan exhibition of this Society, held on Tuesday last in the Horticultural Gardens at South Kensington, was indeed a grand feast of Roses, there being upwards of 6000 blooms gathered together from all parts of the country—from Darlington to the coast of Sussex, and from Norwich on the east and Devon and Hereford on the west—therefore a thoroughly representative English gathering, if not a national one, and it plainly showed how general is the love for Roses in all parts of the country. The principal bulk of the show was held under the large tent, which afforded ample room for the crowds of boxes arranged in lines according to the classes in which they were to compete, and in every case the lines followed the windings and undulations of the paths—an arrangement infinitely better than the long monotonous lines of boxes which usually confronts one at a Rose show; indeed, placing the boxes around the margins of the rising mounds rendered the show one of the most picturesque we had ever seen, and it only wanted a little more greenery in the way of large fine-leaved plants to make the arrangement perfect. Though the exhibition was so vast and the schedule such a complicated one, all the arrangements worked smoothly, and the classes being arranged consecutively, little trouble was experienced in

finding out any particular exhibit in the whole of the thirty-two classes. Taking the show as a whole, there was a conspicuous absence of inferior exhibits, and the present may be fairly said to be a good Rose year, though later than usual. An analysis of the prize list will show that the principal prize winners were from the home counties, and it is a singular fact that the leading prize-takers of last year were not even placed in the present competition. For instance, Mr. Whitwell, of Darlington, the winner of the amateurs' challenge trophy last year, was not a prize-taker at all on this occasion, and the well-known Rose exhibitor, Mr. Baker, of Heavitree, Devon, generally among the winners of the highest prizes, was almost as unfortunate. The hot, thundery weather no doubt militated against the chances of exhibitors from long distances off who had to cut their blooms on the evening previous to the show, and which consequently were too much opened by the warmth on the journey. Mr. Baker's blooms, for instance, were nearly all overblown, and some even showed their centres. Consequently the short-distance competitors had the best of it.

Nurserymen's Classes.

Throughout the show exhibits from nurseries were of good quality, particularly those in the principal division (A), in which there were four classes. The class for seventy-two trusses was the chief one, as the first prize winner took the envied challenge trophy, given by amateurs. This class above all others was a severe test, even in the case of the most extensive collections, for it must indeed be a hard matter to get together six dozen blooms and as many distinct varieties as would pass muster. There were five collections shown, the best being from Mr. B. Cant, of Colchester, who having taken the challenge trophy the last two seasons as well as this, therefore must be considered to be the champion Rose exhibitor, though on this occasion he had a powerful rival in the Messrs. Paul, of Cheshunt, who were awarded the second prize. The judges must have had a hard matter to adjudicate upon the merits of these two collections, though there is not a doubt that their decision was just, as Mr. Cant's collection contained the most perfect blooms, including the best Tea and the best Hybrid Perpetual, in the whole of the nurserymen's classes. Being so thoroughly representative of the finest exhibition Roses, it may be well to give the names of the most prominent varieties in this collection as a guide to those who wish to make a selection of exhibition sorts, and, moreover, save us the trouble of reiterating names in the other classes.

Hybrid Perpetuals.

Xavier Ohbo	General Jacqueminot
John Hopper	Merveille de Lyon (new)
Mad. Gabriel Luizet	Sultan of Zanzibar
Mad. Clemence Joigneaux	Violette Bonuyer (new)
François Michelon	Duke of Wellington
Constantin Treiakoff	Mlle. Marie Finger
A. K. Williams	Marchioness of Exeter
Mad. Charles Wood	Marie Baumann
Marquise de Castellane	Duke of Edinburgh
Duchesse de Vallombrosa	La France
Dupuy Jamain	Dr. Sewell
Ferdinand de Lesseps	Captain Christy
Star of Waltham	Fisher Holmes
Edouard Morren	Mad. Prosper Laugier
Mons. Noman	Mad. Isaac Perrière (new)
Mad. Eugène Verdier	Mlle. Marie Coindet
Alfred Colomb	Horace Vernet
Princess Mary of Cambridge	Captain Christy
Duchess of Bedford	Tea and Noisette varieties.
Mons. E. Y. Teas	Anna Ollivier
Reynolds Hole	Maréchal Niel
Marguerite de St. Amand	Marie Van Houtte
William Warden	Souvenir d'un Ami
Antoine Ducher	Niphotos
Mad. Lacharme	Souvenir d'Elise
Baroness Rothschild	Devoniensis
Marie Finger	Mad. Willermoz
Louis Van Houtte	Rubens
Mad. Eugène Verdier	Souvenir de la Malmaison
Souvenir de Mons. Boll	Comtesse de Nadaillac
Maréchal Vaillant	Mad. Bravy
Boildeau	Jean Fernet
Mad. Vidot	Catherine Mermet

The Cheshunt Roses, as we have said, were of remarkably high quality and wonderfully uniform in size. The varieties were much the same as those on Mr. Cant's stands, with the addition of a few new ones, such as Mad. Isaac Per-

rière, Ulrich Brunner, and Julie Touvais. The third collection, from the Slough Nurseries, contained some splendid blooms of the new sorts raised during the last few years by Mr. Turner, and which had a telling effect. The class for three dozen treble trusses was also finely represented, and in this Messrs. Paul were first and Mr. Cant second. Both exhibits were excellent, especially that from Cheshunt, which was furnished with wonderfully vigorous foliage and large, full blooms. Mr. Turner was third, and Messrs. Keynes fourth. The best two dozen trebles, shown by Mr. Cant, were scarcely inferior to his larger collection. The trade class for Teas was not numerous, there being only four sets of eighteen trusses, Messrs. Paul and Mr. Prince, Oxford, being awarded equal first prizes. The sorts best represented in these two collections were Jean Ducher, Alba rosea, Catherine Mermet, Rubens, Souvenir d'un Ami, Maréchal Niel, Souvenir de Paul Néron, Devonensis, Mad. Margottin, Innocente Pirola, Belle Lyonnaise, Souvenir d'Elise Varden, Mad. H. Jamain, Marie Van Houtte, Perle des Jardins, Anna Ollivier, and Adrienne Christophle. This selection includes the cream of the older Tea and Noisette varieties, and these were supplemented by new ones, such as Mad. Cusin, Etoile de Lyon, and others, all very beautiful and distinct from older kinds.

The second division (B) was set apart for exhibitors not showing in the first division. In the class for forty-eight trusses there were no fewer than a dozen collections, the best being from Messrs. Curtis and Sandford, of Torquay, exhibitors generally to the front. The second collection came from Peterborough, the third from Exeter, the fourth from Cirencester, all widely separated localities. The smaller classes for eighteen trebles and twenty-four singles were not so numerously supported. The best dozen Tea varieties were shown by Messrs. Mitchell, of Uckfield, a good collection indeed, and one representing a good selection.

Amateurs' Classes.

Amateur exhibitors were more numerous than ever—a pretty good criterion that Rose culture is spreading. There were a dozen classes set apart for amateurs, each of which was numerously represented, and some by a score of competitors. The principal prize, the challenge trophy, a handsome piece of plate, was won by Mr. Slaughter, of Steyning, with a collection consisting of thirty-six trusses, his best blooms being Egeria (better than we have before seen it), La France, Marquise de Castellane, Jean Ducher, Duchess of Bedford, and Marguerite de St. Amand. There were a few weak blooms in this collection—sufficient to show that the exhibitor's garden had been tested to the utmost to make up the collection. Mr. Haywood's garden at Reigate contributed the second best thirty-six, certainly a fine display of good blooms, particularly Mrs. Baker, Horace Vernet, Alba rosea, and Bennett's new Lady Mary Fitzwilliam, one of the loveliest of all new Roses. The other winning collections in this class came from Sunningdale and Heavitree. From Reigate came the finest two dozen trusses, and the second best blooms were furnished by the Rev. H. A. Berners, Ipswich, whose exhibits throughout the show we noticed to be of excellent quality. Mr. Haywood's gardener (Mr. Ridout) was also first with a dozen treble trusses in a numerous competition. The best dozen Teas came from the challenge trophy winner, Mr. Slaughter, who had a good selection, including Jean Ducher, Maréchal Niel, Souvenir d'un Ami, Niphetos, Amazone, Rubens, Marie Van Houtte, and Belle Lyonnaise. The four next classes in the schedule were set apart for exhibitors not showing in the previous class, and being for 24, 12 singles, and 6 trebles; there was a large competition, as so many amateurs' gardens could supply such comparatively small collections. There were six extra classes for amateurs, one being for the best arranged basket of Tea Roses—a commendable innovation. There were nine baskets shown, all being of the same pattern, called "double border flower stand on legs," about a yard high. These were placed around the

centre bed in the tent, and had a very pretty effect. The judges selected for the first prize (a piece of plate, value five guineas, given by Messrs. Paul & Son, Cheshunt) the basket from Mr. Harroway, Oxford, which was arranged in a pyramidal style, the Roses being of mixed shades of colour, but all admirably blended. The second best, from Mr. Pemberton, consisted entirely of Caroline Kuster, and the other baskets were mostly all arranged with one sort. There was a poor competition for suburban-grown Roses, there being but four collections of six trusses. The Tea varieties, too, were so poor, that the first prize was withheld. On the other hand, there was a numerous competition for the prizes offered to exhibitors who had not previously taken one of the Society's prizes, and some fair blooms were shown, but the number was only six trusses.

Open Classes.

These were principally devoted to a dozen trusses of Roses of a particular shade of colour. There were eight sets of twelve trusses of yellow Roses, the best being Caroline Kuster, from Mr. Cant; Mad. Margottin, from Mr. Turner, was second; Marie Van Houtte third, and Perle des Jardins fourth. The best dozen trusses of a white Rose was Niphetos, from Messrs. Paul, Cheshunt; the second, Devonensis; third, Duchesse de Vallombrosa. Twelve exhibitors showed in this class. Among eleven collections of a dozen trusses for a crimson variety, A. K. Williams, from Mr. Walters, Exeter, was first; Duke of Edinburgh, from Mr. B. Cant, was third; and Duke of Wellington, from Mr. Baker, Devon, fourth. There were no fewer than twenty-seven collections of twelve trusses of any Rose. The finest amongst this large number was the collection of that grand new Rose, Her Majesty, shown by the raiser, Mr. Bennett, of Shepperton; the second best was Mons. Noman, from Mr. B. Cant; the third was Souvenir d'Elise Varden, from Mr. Piper, Uckfield; while a fine dozen blooms of La France, from Messrs. Paul's Cheshunt Rose grounds, were highly commended.

New Roses.

The class for three trusses of any new seedling Rose not in commerce was not numerously represented, there being but three or four exhibitors. The gold medal of the Society was awarded to Mr. H. Bennett, Shepperton, for his superb new Rose Her Majesty, of which he showed some marvellously fine examples, the flowers being fully 6 inches across, of fine shape and very full, while the colour is a pleasing rose-pink. It is not only the finest Rose of its colour, but unquestionably the finest new Rose of the season. In the same class Mr. Turner showed Mabel Thompson and Alice Turner, both dark crimson varieties of good promise. A curious, yet beautiful, sport from Countess of Oxford, was shown again this season by Mr. Brown, Reigate. The flowers have all the qualities of the original, but are crimson flaked and streaked with white. It is named Pride of Reigate, and was highly commended. There were three collections of twelve new Roses sent out since 1880. The best came from Messrs. Paul, Cheshunt. The varieties shown were Tatiana Onegina, Merveille de Lyon, Ulrich Brunner, Archduchess Elizabeth, Madame Cusin (Tea), George Moreau, May Paul, Pride of Waltham, Countess Coombes, Violette Bouyer, Etoile de Lyon, and Mad. Isaac Perrière. The second set was from Messrs. Curtis, Sandford, and Company, Torquay, who had in their collection Red Gauntlet, Mad. Montet, Souvenir de Mad. Bertha, Pride of Waltham, Comte de Flandres, Mad. Marie Royderer, Mad. Crosy, Violette Bouyer. Messrs. Cranston showed the third collection, in which were Guillaume Guillemot, Rosieriste Jacob, Empereur de Brésil, besides others mentioned above. The greater number of these new Roses were not shown in their best condition; therefore a correct estimate of their character could not be obtained. Those which most pleased us were Violette Bouyer, Madame Cusin, Pride of Waltham, Ulrich Brunner, and Etoile de Lyon. The class for six new Roses from amateurs was poorly represented, so poor, in fact, that the first prize was withheld.

Silver medals were awarded for the best Hybrid Perpetual and the best Tea or Noisette in the nurserymen's exhibits, and the two best in the amateur's classes. Mr. B. Cant won both medals in the trade class, having a splendid Mons. Noman, one of the finest Hybrid Perpetuals, and a large and superbly shaped bloom of Souvenir d'Elise Varden took the other medal. It is singular that Mr. Cant should have taken the medal last year with a bloom of the same variety. The finest Hybrid Perpetual from amateurs was found on Mr. Ridout's stand—a splendid bloom of François Michelin. The best Tea was an admirable Jean Ducher, from Mr. Brown, Reigate.

There were numerous non-competing exhibitors, the chief being Messrs. W. Paul and Son, Waltham, who entirely filled one of the banks with cut Roses. Messrs. Lee, Hammersmith, also showed an extensive collection.

Special prizes for vegetables.

Messrs. Sutton, Reading, offered some excellent prizes for ten kinds of vegetables, but there were only six lots staged, and the quality was not as a rule so good as usual; still the samples would ordinarily be regarded as excellent. Mr. Haines, of Coleshill gardens, on this occasion beat that capital vegetable cultivator, Mr. Miles, of Wycombe Abbey gardens, by just a few points, having really good London Cauliflowers, Stratagem Peas, Hicke's hardy Cos, and All the Year Round Cabbage Lettuces, fine Tender and True Cucumbers, perfect Nantes Carrots, excellent white Naples Onions, Purple-top Turnips, and Woodstock Kidney Potatoes. Canadian Wonder Beans was the weakest dish. Mr. Miles was strong in Italian Red Tripoli Onions, Canadian Wonder Beans, Lady Paget Potatoes, and Telephone Peas; and Mr. W. Mead's three prize lots included five samples of Sutton's superb Cos Lettuce and Sutton's Improved Telegraph Cucumbers; whilst the most noticeable dishes in Mr. H. W. Ward's collection were Culverwell's Giant Marrow Peas, and Woodstock Kidney Potatoes, with very fine Lettuces.

Messrs. Jas. Carter and Co., seedsmen, High Holborn, were very fortunate in obtaining in return for their capital prizes for one dish each of their fine Peas, Telephone, Telegraph, Stratagem, and Pride of the Market, a dozen collections, and a finer lot has not previously been seen at one time. One lot which arrived too late included some splendid samples, and must have stood in with the prize dishes had it been earlier. The finest samples came from Lincolnshire, grown by Mr. Richardson, of Boston, and the fourth prize lot, also a splendid sample, though spoiled by hail, also came from the same place. Mr. Ward, whose samples were placed second, and Mr. Beckett, who came third, both southern growers, ran the first prize lot hard, for their samples were wonderfully good. Pea pods are large enough in all conscience, and if the kinds are both productive and of the best possible quality, points about which there is difference of opinion, then have we secured in this favourite vegetable nearly all that can be desired. Messrs. Carter exhibited some interesting collections of Lettuces and Peas, the former comprising all Cabbage kinds, and including Paris Market, Victoria, All the Year Round, Perpignan, and Grand Admiral, all of the white smooth-leaved section, and the latter good old kind was about the best, whilst the little solid hearting Tom Thumb was the earliest. Ne Plus Ultra is a good-looking, copper coloured sort, and American Gathering, Simpson's Black, and White-seeded and others were of the curled section. The Peas were pulled sample plants, sown on March 21, and comprised most of the early kinds, Carter's First Crop and Harbinger being the best tall ones, and the new William Hurst the best dwarf kind for cropping and earliness. The Melon competition is alluded to elsewhere, and the dozen splendid Queen Pines shown by Mr. G. T. Miles, weighing in the total almost 60 pounds, were worthy of the highest praise, and well merited the silver medal the judges recommended.

[A list of awards of the foregoing shows will be found in the advertising columns.]

NOTES FROM THE RICHMOND SHOW.

SEVERAL of our metropolitan trade growers always exhibit some interesting groups of plants at the Richmond Show, and at the one held last week nothing could well exceed in interest the beautiful group of hardy ornamental foliaged trees and shrubs set up by Messrs. Lee & Sons, and which, faced by dwarf Roses in pots, finely flowered and edged with bush Ivies (*Hedera arborea aurea* and *arborea elegantissima*), proved to be a conspicuous feature of the show. The hardy plants represented included Oaks of wondrous leafage, Acers in great variety and beauty, Castaneas, green, yellow, and silvery; the showy golden Elder that does so well on the Thames Embankment, beautiful Robinias, golden and creamy Horse Chestnuts, several varieties of Cornus, the purple-leaved Peach, Hazel, and Beech—indeed dozens of such things, making up a group that for variety and beauty of foliage in colouration, form, and diversity, no group of hothouse plants could hope to excel. Messrs. Veitch & Sons matched this group with one composed of some 120 dwarf pot Roses in bloom, conspicuous amongst them being the pretty white cluster *Rosa polyantha*, Paquerette, and the single-flowered *Rosa rugosa*. As a background had been placed a few of those charming cut-leaved Maples which this firm has introduced to gardens with such good effect, and margining the Roses was a line of that useful shrub, *Eurya latifolia variegata*. The fine group of stove and greenhouse plants put up by the Messrs. Jackson, of Kingston, was noteworthy for the large number of Heaths it included, and in the culture of which their able manager is such an adept. The beautiful Balsam Impatiens Sultani was also seen in it to good advantage. Messrs. Hooper & Co. were the chief exhibitors of hardy plants and cut flowers, having Pæonies, Pinks, Pansies, Delphiniums, Poppies, and other beautiful plants, and it was worthy of remark that a box of twelve bunches of cut flowers sent up by this firm, and which included nine bunches of hardy flowers, all well displayed, beat several other boxes that were chiefly filled with tender flowers.

ORCHIDS were unusually well represented, and in the second prize open decorative group Mr. H. James, of Norwood, was so strongly in force, that the judges, influenced by their value, gave him the second place. In the class for six Orchids there were five lots staged, and Mr. J. Child, who came first, had some fine plants. *Aerides Lobbi* had eight handsome pendent spikes; *Vanda suavis* was a fine specimen; a big plant of *Cypripedium Stonei* in full flower and *Aerides odoratum majus* were specially good. Mr. James, who was second, had a handsome *Cattleya Mossiae*, *gigas*, and *Mendeli*, *Odontoglossum cordatum*, *Alexandrae*, and a *Masdevallia Harryana* having nearly thirty blooms. In Mr. Wiggins' lot were *Dendrobium Dearei*, with flowers of the purest white, and for which a special certificate was awarded, *Thunia Marshalliae* having an exquisitely spotted orange lip, and a capital piece of the orange-coloured *Dendrobium suavis-simum*. Messrs. Jackson & Sons had a good *Cypripedium barbatum grandiflorum* carrying thirty-five blooms, and the best piece of *Odontoglossum vexillarium* in the show. Such a good show of Orchids was an unwonted feature, and the whole of the plants were highly meritorious.

FUCHSIAS are too seldom seen in good form at suburban shows, though oftentimes they have been seen so at Richmond. Seldom at any local show, however, have nine better plants been put up than were staged by Mr. J. Bond, a gardener at New Hampton. They were all capital pyramids, of varying heights, but all finely grown and flowered, and included such excellent sorts as Mrs. Marshall, Lord Beaconsfield, Rose of Castile, and marginata in light colours, and Wave of Life, Gazelle, Enoch Arden, and Mr. C. Lee, as good as they well could be among dark kinds. It was quite refreshing to see these charming flowers in such good form. The same exhibitor was well ahead of others in the class for six zonal double and single Pelargoniums; in fact, better plants in foliage and flower, 30 inches across, have rarely been seen, although it is not at all desirable they should be larger. I need not say, after his success at South Kensington

on the previous Tuesday, that Mr. Turner's large-flowered and fancy Pelargoniums were the best in the show.

BEGONIAS were very badly represented, but Achimenes were grandly shown; indeed, the six pans put up by Mr. J. Sallows were splendidly grown, and as fine as well could be. The pans were 14 inches in diameter, and the growths covered with fine flowers rose to heights varying from 15 to 24 inches. The pure white Marguerite, the striped Ambroise Verschaffelt, the old, but lovely blue longiflora major, the pretty Mauve Queen, and longiflora alba, were amongst those so well shown. In Mr. Beckett's lot, placed second, were smaller, but beautiful pans of several of the same kinds superbly flowered. Gloxinias were in plenty, but included no striking plants. By far the best lot both for size and form of bloom and variety of markings were those in Mr. W. Brown's very charming group of plants; indeed Gloxinias set in Selaginella and Maiden-hair Ferns with a few other small decorative plants make up the prettiest conceivable base for an ornamental group.

It seems a long descent from these high-class plants to cottagers' flowers, but few things at this exhibition were more worthy a note of praise than were the half-dozen of window boxes shown by this section of exhibitors; and, unlike some of the baskets in the gardeners' classes, which had just been made up for the occasion, these boxes were genuine, and just what they professed to be. The popular tastes, however, ran on gay colours, such as are found in scarlet and pink bedding and Ivy-leaf Pelargoniums, yellow Calceolarias, striped Pelunias, blue Lobelias, Creeping Jennys, and here and there Fuchsias. Cheerful must be the windows decorated with these boxes, even if the mixture of colours be a little garish. Then, too, what a capital lot of window plants were shown by these working people, repeating here again all those seen in the window boxes, with the addition of Musks, of which there was a considerable number.

TABLE DECORATIONS were hardly up to the Richmond standard. The prettiest, and it was a small stand, was one dressed with Maiden-hair Fern, and for flowers a few yellow Marguerites; from out the upper vase came a spike or two of the white Gladiolus Colvillei albus, and dotted here and there were pale blue Violas. This was simple and singularly pleasing. A huge stand, filled with Mock Orange and Portugal Laurel flowers, looked as though the bloom had tumbled on to the stand and nearly smothered it. Some stands of fruits and flowers from Mr. Chard, of Clapham, were elegantly dressed, but the combination of fruits with an epergne intended to hold flowers only is hardly what is wanted. In the fruit department specially noticeable was the truly grand collection of Cherries of some eleven dishes, sent by Mr. Rivers, of Sawbridgeworth, black and white kinds, all of large size and wondrous finish, as also were the large and splendidly coloured Lord Napier Nectarines and grand bunches of Madresfield Court Grapes shown by Mr. Hudson, of Gunnersbury House.—D.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE fortieth anniversary festival of this institution took place on Wednesday last at the Albion Hotel, Aldersgate Street, the chair being occupied by Mr. Alderman Cotton, M.P. The guests, numbering some 130, consisted for the most part of horticulturists representing every branch of the profession. In proposing the toast of the evening, "Success to the Institution," the chairman briefly adverted to its object and the good work it had done in aiding those who, from old age or infirmity, were unable to help themselves. He made an earnest appeal for funds to support the institution, and in doing so pointed out that employers above all others should endeavour to assist a class which contributed so much to their enjoyment by their skill and labour in the production of flowers, fruits, and vegetables, and who, from the nature of their occupation, were so liable to be stricken

down by rheumatism and kindred ailments. Amongst others who spoke in the interests of the institution were Sir Trevor Lawrence, Messrs. G. F. Wilson, Shirley Hibberd, and Bruce Findlay. Mr. Findlay alluded more particularly to what is called the "Augmentation Fund," the object of which is to raise the amount of the annual pensions from £16 to £20 a year, but in order to attain this object the funds must necessarily be largely increased. Mr. Findlay proposed that an appeal should be made to the proprietors of large gardens near populated centres to help the institution in this matter by allowing their gardens to be thrown open to the public for one day in the year. By charging a small entrance fee a good amount could be secured in aid of the institution. This would be no innovation, as Lord Henniker had kindly allowed his grounds at Thornham Park, Suffolk, to be used for a fête, the proceeds of which amounted to some £40. Public bodies should, moreover, be appealed to, and if the horticultural and botanical societies of London would favour the project, much good might accrue. Mr. Findlay remarked that the Botanical Society of Manchester, of which he was secretary, desired to further the interests of the Institution, and he hoped to be able to hand over a creditable sum as the result of an effort he was about to make in that direction. The secretary, Mr. E. R. Cutler, stated the numbers on the pension list, which were forty men at £16, forty-two women at £12 per annum, making a total of eighty-two, which has since been increased to 100. The secretary then announced that the subscriptions on the present occasion amounted to £633, but remarked that he expected that fully £700 would be subscribed during the evening, whereupon the chairman made a further appeal, and in a few minutes the donations amounted to £723, including, however, the donations of fifty-eight annual subscribers. The annual statement for the year ending December 31, 1882, shows an income of £2326 17s. 6d., inclusive of the dividends on the reserve fund, which, together with the balance of £441 14s. 10d. in the hands of the treasurer at the beginning of the year, makes a total of £2768 12s. 4d. The expenditure for the year amounted to £1679 2s. 1d., which, added to the purchase of £700 worth of 3 per cent. consols, makes a total of £2379 14s. 7d., leaving a balance of £377 17s. 9d. in the hands of the treasurer to be carried to the next year's account. We might add that the floral decorations of the room and tables were kindly contributed by Mr. B. S. Williams, the arrangement of which was tastefully carried out by Miss Williams.

Moss on trees.—"M. L. V." (p. 555) may clear his trees of Moss as follows: When the leaves are down let him scrape as much of the Moss, or rather Lichen, off as he can, and then when the branches are wet dust them well with freshly slaked lime.—E. D.

Deformed Abutilons.—My blooms of white Abutilon are rather eccentric this season, coming deformed in various ways. The plants are trained up rather in an old vineyard, with the roots outside; they were subjected to several degrees of frost during the winter, which may account for the malformation of the blooms.—BEESTON FIELDS.

Insects (J. B.).—The insects you forwarded are *Calo'coris fulvomaculatus*, one of the plant bugs, a common insect, but not one that usually occurs in great numbers; they injure plants by sucking their juices with their probosces; if the plants which they attack can be well syringed with some insecticide they would probably be killed or driven away.—G. S. S.

Names of plants.—Mrs. Robinson.—*Alonsoa incisa*.—J. Whitaker.—Apparently *Hedysarum Mackenzii*.—J. M.—Species of *Lychnis*, but it is not in a fit condition to name.—A. C. Bartholomew.—The Lily is not auratum virginale, only an ordinary variety. We do not know the name of this Lily.—J. L.—*Campanula muralis*.—E. W. R.—Variety of *Iris Kæmpferi*.—P. B.—*Philadelphus coronarius*.—E. Molyneux.—1, *Iris Xiphium* (white variety), English Iris; 2, *I. ochroleuca*.—R. Ray.—*Philadelphus grandiflorus*.—J. Roberts.—*Aquilegia chrysantha*, *Lonicera etrusca* (Honeysuckle).—J. T. G.—1, *Cicuta virosa*; 2, *Lychnis flos cuculi*; 4, *Scrophularia nodosa*; 6, *Stellaria Holostea*. (Please remember our limit is four plants each time).—J. W.—*Stenochloena scandens*.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

LABELS IN KENSINGTON GARDENS.

AT one time the trees and shrubs in Kensington Gardens were carefully, if not elegantly, labelled. Now all the labels have been taken away, and some very fine trees, and very rare, puzzle the passer-by if he be not very learned in trees, which indeed few are. Among the many places where trees were planted in old times few were more remarkable for a good collection than old Kensington Gardens. For many years past we have been busy fussing about things which perish in the first frosts of November, but few have taken the trouble to plant the fine flowering trees that ought to adorn every place. The more precious, then, are these in Kensington Gardens; but their value is to some extent lost in the absence of a good and simple style of naming them. We trust the question may be reconsidered. The old large label in Kensington Gardens was not desirable, but it is quite easy to have a good and simple one. For the trees they should be attached to the stems, and not stuck in the ground. Attaching to the stem is a very good way for trees, owing to the frequency with which the labels stuck in the ground are moved in digging and cleaning.

FINELY GROWN IRIS KÆMPFERI.

SOME wonderfully fine specimens of this Iris have been sent to us by Mr. G. F. Wilson, of Heatherbank, cut from plants growing in his new garden at Oakwood, Wisley. They afford abundant proof that Mr. Wilson has hit upon the right spot for the successful treatment of this beautiful Japanese plant, in the culture of which so many are unsuccessful. The tallest of Mr. Wilson's specimens is just upon 4 feet, and their stout, erect stems, furnished with broad, vigorous foliage, bear flowers in some instances measuring fully 8 inches across. These Irises occupy, if we remember rightly, a sloping bank within a few feet of the margin of a pool of water, into which their roots might possibly find their way. The situation is perfectly open and exposed to full sunshine, but the plants do not seem to mind that in the least, as they have abundant moisture at their roots. We forget the particular soil into which the plants were put, but we think it was of a peaty character, the natural staple being clayey loam. These grand specimens afford sufficient proof that this Iris can be grown to perfection in this country, and those who have hitherto been unsuccessful should try as far as their opportunities go to imitate Mr. Wilson's example. The plant appears to require a constantly moist soil in summer, but this moisture must not be stagnant. In winter they need to be drier, hence the necessity of choosing a spot in which these conditions can be carried out. As regards the varieties which Mr. Wilson sends, they are as fine as any we have seen, some with deep purple and yellow crested blooms being particularly good. Another with huge flowers having the six sepals and petals of the same size and arranged on the same plan is likewise extremely handsome, the colour being almost a pure white, delicately pencilled and veined with purple.

PAINTING THE LILY.

THE insatiable thirst for novelty results at times in the production of absurdities, and even the floral decorator, notwithstanding the wealth of material which he has at command, must now be reckoned amongst the class who have taken a wrong direction, since he has endeavoured to create a sensation by investing flowers with unnatural colours. At last Tuesday's show at South Kensington, a florist thought it wise to treat the visitors, there assembled, to a novel exhibition, but one as distasteful as it is fortunately rare. This was a bouquet composed of flowers of the beautiful old white Lily, the chaste purity of which was spoilt by a pink and bluish green colour infused into it, probably by placing the flower-stalks in a solution of pigments sufficiently dense for the colouring matter to exhibit itself on the petals. We have in all conscience a sufficiency of variety and diversity of natural colour in flowers, at midsummer especially, without the florist trying to paint with unnatural hues the fairest of Nature's productions. Such practices as this may have a charm for some, and we noticed that not a few were captivated by the South Kensington bouquet, but in the interests of art we think that such innovations ought certainly to be nipped in the bud. The devices practised by cultivators in producing highly coloured flowers and sometimes different tints, as in the case of the Hydrangea, are harmless enough, but to try to disguise one of the most beautiful of all flowers must be admitted to be, at the best, but doubtful practice, and at all times an indication of bad taste.

VARIETIES OF SWEET PEAS.

A LARGE and interesting collection of Sweet Peas was exhibited at South Kensington on Tuesday last from the Horticultural Gardens at Chiswick. There were about ten distinct sorts, but for these ten there were some twenty or thirty names. The collection, though the production of only two of the large seed houses—viz., Messrs. Carter and Messrs. Benary, of Erfurt—showed the amount of confusion that exists as regards the names of Sweet Peas. It is somewhat singular that the so-called new seedling varieties dubbed with new names, and exhibited by Mr. Eckford last year, should correspond precisely with old sorts, in point of colour at least. The kinds shown were:—

- | | |
|---------------------------------|--|
| 1 { Grandeur (Eckford) | 5 { Crown Prince of Prussia |
| Dark Red (Benary) | New Carmine-rose (Laxton) |
| 2 { Scarlet (Carter) | 6 { Invincible Scarlet (Carter and Benary) |
| Invincible Carmine (Eckford) | Duchess of Albany (Eckford) |
| 3 { Scarlet Striped (Carter) | 7 { Tricolor (Benary) |
| Red Striped (Benary) | Blue-edged (Carter) |
| 4 { Invincible Striped (Carter) | 8 { White (Carter and Benary) |
| Purple (Carter) | Butterfly (Benary and Carter) |
| Light Blue and Purple (Benary) | 9 { Princess (Eckford) |
| Blue King (Eckford) | Purple Striped (Carter) |
| Black-purple (Benary) | 10 { Black-purple (Benary) |
| 5 { Bronze Prince | |
| Invincible Blue (Carter) | |

It is much to be desired that this systematic way of dealing with varieties of plants both ornamental and useful should be carried out more fully and on a broader scale than it even now is. It would save a deal of trouble to both purchasers and tradesmen. There are hosts of other garden plants whose synonymy is quite in as great confusion as that of Sweet Peas.

Cypripedium spectabile.—The finest plant of this we have ever seen has lately been in flower at The Down House, Blandford. It was nearly 3 feet high and bore about seventy flowers. This is not perhaps so remarkable a fact as the

size of the flowers, which was almost double that usually seen. It was growing in a bed of deep peat, with a trellised tent overhead lightly covered with Clematis. This shows how much one may get by studying the wants of a plant. Such a specimen deserves our best attention. It had the right soil and some shade, without, however, being robbed at the root by the shade which it would get under strong-feeding trees. Sir W. Marriott, who has so many well-grown tropical and cool Orchids in his hothouses, is, we think, as proud of this beauty of a northern marsh land as of any of them.

PLANTS IN FLOWER.

LATHYRUS DRUMMONDI.—Flowers of this everlasting Pea have been sent to us by Mr. Poë, Riverside, Nenagh, who remarks that it is valuable for giving variety of colour in the mixed border, and a plant too seldom met with.

THE ZANZIBAR BALSAM (*Impatiens Sultani*) promises to become a useful plant for out-of-door borders in summer, judging by the plants that have been planted out at Kew. These are only a few inches in height, but they are tufty in growth, densely clothed with foliage, and beginning to flower profusely. The colour of the expanded blooms seems to be even brighter than under glass.

INDIGOFERA ELEGANS SPECIOSA.—Under this name Mr. Stevens brings us a branch of a very pretty flowering shrub. It has slender branches furnished with long pinnate leaves, from the axils of which are produced long racemes of small rosy lilac Pea-shaped flowers. It has the appearance of being somewhat tender, but in any case it would flourish against a warm wall.

INULA GLANDULOSA is one of the showiest composites now in bloom. Its flower-heads are some 3 inches across, the flowers very numerous and narrow, and the whole head bright orange-yellow. It grows from 1 foot to 2 feet high, according to the soil in which it is grown, and it is rather a neat growing plant of erect habit. Mr. Wood sends us from Woodville, Kirkstall, a very fine specimen of it.

CYPRIPEDIUM SPECTABILE.—Herewith I send a few flowers of this hardy Orchid, cut from plants three years established. They are making fine roots, and a batch of two square yards is fairly effective; most of the plants are twin-flowered.—J. WOOD, Woodville, Kirkstall. [Very fine specimens indeed, as fine as we have seen this season, the stems being nearly 2 feet high, and the flowers large and rich in colour.]

APHELANDRA CHAMMISONIANA.—This new species, which is identical with the *A. punctata* recently put in commerce by Mr. Bull, is now in flower in one of the stoves at Kew. It is a pretty plant, having crowded clusters of flowers of a clear chrome-yellow, which blends charmingly with the silvery foliage margined with emerald-green. The Kew plants, which are under a foot in height, are flowering freely.

SOLANUM SISYMBRIFOLIUM is a most distinct plant judging by a specimen of it brought to us by Mr. Stevens from Byfleet. Its leaves are deeply pinnatifid, and armed with prickles on the under surface of the mid-rib. The flowers, which measure over an inch across, are of a delicate mauve, a colour which blends beautifully with the conspicuous central tuft of bright yellow stamens. It is in the way of the rare North American *S. Torreyi*.

MILLA LAXA GRANDIFLORA.—Of this fine Californian bulbous plant Messrs. Smith send us some remarkably fine specimens from their Caledonia Nursery, Guernsey, where this and plants of a similar character flourish in perfection. The flowers of this large blossomed kind are of a rich Tyrian purple, much deeper than that of the typical form, of which some fine umbels are sent with it, one being fully 9 inches across, and consisting of some sixty flowers. Such growth as this is truly remarkable, and shows what valuable things these bulbous plants are when grown to perfection.

Specimens of the new *Milla longipes*, remarkable for their extraordinarily large size, are likewise sent by Messrs. Smith. This is a most elegant species, though not very showy. The flowers, which are starry, measure about an inch across. In colour they are dull white, stained with purplish brown on the outside. The specimens sent bear spreading umbels 9 inches across, terminating stout erect stems fully 2 feet in height, taller than we have ever before seen them.

DOUBLE WHITE LYCHNIS VESPERTINA.—This beautiful variety appears to flower as freely as the old double pink kind, and when the two are grown together in large mixed beds or borders, they have a pretty effect. The latter has increased so fast that I have dotted hundreds of it about in semi-wild places, and very pretty it looks. Its bright pink flowers, too, when cut might easily be mistaken by gas-light for Carnations.—**SAN-GUINEA.**

HYPERICUM CORIS.—This, one of the prettiest of the small shrubby St. John's Worts, is grown very successfully by Mr. Stevens, who brings us an excellent specimen of it in order to show how vigorously it grows in his light, warm soil. It has slender stems and small narrow glaucous foliage arranged in whorls. Its bright yellow flowers are produced in loose clusters, and the numerous black glands on the calyx, when closely examined, give the flowers a pretty appearance.

MONSTROUS FOXGLOVE.—I send you a spike of *Digitalis* bearing a monstrous flower; there are other three or four spikes on the same plant, each showing exactly the same monstrosity. Do you think this monstrosity could be perpetuated by seed if any can be obtained?—**R. WESTCOTT, Raby Castle, Darlington.** [We have had several examples of monstrous Foxgloves sent to us this season. We doubt if the monstrous condition can be perpetuated by means of seed.]

CALOCHORTUS FUSCUS.—Flowers of this new species have been sent to us by Messrs. Horsman & Co., Colchester. It may be best described as being in the way of *C. albus*, but the three outer segments are yellowish green and the three inner of a chestnut-brown. The inner faces of the sepals, as well as the margins, are furnished with hairs. It is a most distinct plant, and not without a beauty peculiar to itself. As it does not occur in the "*Botany of California*," we presume it comes from a more southern locality. Messrs. Horsman do not tell us anything respecting its culture or hardness.

CALIFORNIAN BRODIEAS.—A rich collection of these reaches us from the New Plant and Bulb Company's nursery at Colchester—all admirably grown specimens. Among them are some new varieties, such as *B. congesta alba*, a perfectly white form of the common kind and a pretty plant; *B. grandiflora*, one of the finest of all; *B. californica*, a major form of the fast; *B. ixioideis*, or *Calliprora lutea*, as it is more generally called, an elegant little yellow flowered species. The collection of Californian bulbous plants in this firm's nursery is evidently a rich one, judging by the fine things in that way which we have received from it.

GUERNSEY GLADIOLI.—A charming assortment of early flowering Gladioli has been sent to us by Messrs. Smith, Caledonia Nursery, Guernsey. Their spikes are so fine, their various colours so beautiful, that we hardly know which to select as the handsomest. That which strikes us most is insignis, a kind with flowers as large as those of *gandavensis*, and of a vivid crimson-scarlet, with the three lowermost petals blotched with violet-purple—a most attractive sort and a vigorous grower. It belongs to the *cruentus* type apparently, while most of the others are forms of *G. trimaculatus*, the distinguishing characters of which are the conspicuous blotches on the lower petals. To this class belong *Rosy Gem*, a lovely rose-pink coloured kind, with carmine blotches; *Delicatisimus*, white, or rather blush white, with carmine blotches; and *Prince of Wales*, almost if not quite like that ordinarily known as *cardinalis*; its colour is a bright scarlet, the blotches being white mar-

gined with crimson—a splendid variety. Lovelier flowers in season than these could not be, and they should find a place in every garden. They are not very hardy, but may be grown admirably in frames or in pots for conservatory decoration.

OLD GARDEN ROSES.—A gathering of old Roses comes from the Rev. H. T. Ellacombe, Clist St. George, Topsham. Among them is the true old York and Lancaster, a variety of *Rosa damascena* or Damask Rose, having white and deep rose prettily striped flowers. The spurious York and Lancaster Rose, *R. Mundi*, also sent, is similar, but the flowers are larger. The double flowered *R. polyantha* is a very pretty Rose bearing a numerous cluster of white rosetted flowers. Another, named *R. multiflora*, is much the same. The Burgundi with deep rose-crimson flowers, and the green Rose (*R. viridiflora*) are also sent by Mr. Ellacombe, whose garden is so rich in species and uncommon varieties of Roses.

PRIMULA IMPERIALIS.—For many years there has been an anxious waiting for the introduction of this species from the mountains of Java. At last it has been introduced successfully, and, moreover, it is now in flower at Kew. It is a beautiful plant, and may be best described as being the counterpart of the well-known *P. japonica*, except as regards the colour of the flowers, which is a bright yellow, as bright as that of *P. Stuarti*. The foliage and growth so much resemble those of *P. japonica*, that it would be a difficult matter to tell the difference between the two were it not for the colour of the flowers. The Kew specimen is about 1½ feet high, but this specimen is a mere pigmy compared with the stature of the native plants. It is a fine addition to hardy flowers.

CALOCHORTI.—Several species and varieties of these beautiful Californian bulbous plants have been sent to us by the New Plant and Bulb Co., Colchester. The collection includes *C. venustus* and a few distinct varieties of it, such as *roseus*, in which the flowers have a decided suffusion of rose; *Emperor*, flowers very large, dark in colour, and heavily blotched; *C. splendens*, a near ally of *C. venustus*; the new *C. fuscus* alluded to elsewhere; *C. luteus*, a beautiful yellow species; and the new *C. Greeni*, a large, lilac-flowered species, which had unfortunately dropped its petals before it reached us. These were all admirably grown, showing that the culture of *Calochorti* is well understood at this nursery.

DANEBOG POPPY.—Some flowers of this new Poppy from Messrs. Hooper, Covent Garden, show admirably what a charming flower it is, and how distinct it is from any other variety. The flowers sent are about the size of those of the scarlet field Poppy, but more cup-shaped, and the petals are jagged at the margins. The colour is a brilliant vermilion-scarlet, and each petal has a conspicuous white blotch at its base, the contrast of the white with the scarlet making the flower both interesting and showy. We presume it is a variety of the Opium Poppy (*Papaver somniferum*). Messrs. Hooper state that the plants are dwarf, only about a foot in height. They also send flowers of the pretty *P. umbrosum*, which has black spots on the petals instead of white.

CLEMATIS ERECTA.—Of this fine old border plant, one of the best of the herbaceous Clematises, Mr. Dartnall sends from Messrs. Cripps' Nursery at Tunbridge Wells some admirable specimens, showing how profusely it is in flower there. The plants, from 3 feet to 4 feet in height and nearly as much through, are perfect masses of white blossoms, which are sweetly scented. There are several varieties of *C. erecta*, some of which flower much earlier than others, and there is also a double variety, which may be seen at Kew. All the varieties are extremely useful for cutting, and they give little or no trouble in a cultural point of view. Messrs. Cripps also send a coloured drawing of a new hybrid variety which they are at present distributing. It is the result of a cross between *C. Flammula* and *C. Viticella rubra*. The hybrid, which is named *C. Flammula rubra marginata*, seems to be as profuse a bloomer as *Flammula*, while the flowers are twice as large and

stained on the edges with the purple of *Viticella*. This plant we have not yet seen.

PLUMERIA RUBRA.—In the Palm house at Kew a small plant of this *Plumeria* is bearing a large head of rose-tinted, deliciously scented flowers. Although this and other species of *Plumeria* have long been cultivated in this country, it is seldom one has an opportunity of seeing them in bloom. In Miss North's picture gallery there are two excellent representations of these plants, one of which is probably *P. rubra*, there called *Jasmine Mango* or *Frangipani*. *Plumerias* are now widely known in the Old World Tropics, especially in India, where they are commonly met with both in gardens and in a wild state. In Ceylon the flowers of *Plumeria* are objects of veneration, being used by the Cingalese along with *Jasmine* and *Oleander* for the decoration of their temples, and even as sacrifice flowers before the images of Buddha. As the flowers last for several days, and there is a good succession of them, *P. rubra* is certainly a most desirable plant could we but hit on the treatment necessary for the freer production of its flowers.

NOTES FROM CHISWICK.

FLOWERS ON CROCKERY.—If there was a little of the School of Art element about the exhibition of flower painting on plate made at the Chiswick show the other day, at least it was a novel and an attractive feature, and doubtless helped to create additional interest in the show. The competitors were ladies, and, it is assumed, amateurs, who paint for amusement and not for profit; still, it can hardly be said that the labour is profitless if by it crockery of a plain character is transformed into table service of a pictorial kind, and especially when good, favourite flowers are reproduced faithfully and with good taste and effect. The awards were made by a well-known floral artist, Mr. Fitch, and although his adjudication cannot be called in question, yet it must be stated that the first prize drawing of a sprig of a large flowered Guelder Rose hardly excited so much admiration as did some of the other exhibits. The lady artist had, with very questionable taste, selected a plate ground of a sandy red, or, as it is now termed, "crushed strawberry," upon which the green foliage was pale and lacking in finish, whilst the white bunches of flowers were much wanting in that striking purity which characterises the Snowball tree. Much prettier was the sprig of Cherry bloom, painted on a glossy black ground, the foliage being small, but excellent, and the cluster of single flowers displayed with admirable truthfulness and distinctness; this was awarded the second prize. Very charming, too, was the one pendent truss of *Wistaria* with natural and capably executed foliage on a silvery ground, which took the third prize. A very well delineated drawing of *Cattleya crispata* with eight blooms, a charming bit of the white flowered wild *Convolvulus*, a big dish having on it three well executed blooms of *Lilium auratum*, and several pretty sketches of Roses, Daffodils, and various Orchids were amongst the best of the thirty or forty designs that competed.

CLUB MOSSES.—It is not very often that Club Mosses as grown for exhibition are very decorative or pleasing. We usually see huge pans of them flat and uninteresting in character, the various competitors only vying with each other in seeing which shall produce the broadest and flattest masses. Mr. Wright, of Gunnersbury, however, staged at the recent Chiswick show specimens that may well be classed amongst the finest yet exhibited. These were all grown in pyramid form; indeed, the framework had been made apparently of sticks and Moss, and then the *Selaginellas*, dibbled in all over the surface and kept often and well watered, had developed into handsome specimens, ranging from 24 inches to 30 inches in height from the pots, and having bases about the same in breadth. The kinds shown were *Selaginella Kraussi*, *Kraussi variegata*, and *Kraussi aurea*, *stolonifera*, *circinata*, and *Mertensi*. One other exhibitor had a large pan of *Selaginella Browni*, a very dwarf, compact kind, resembling some curious seaweed.

INDOOR GARDEN.

MITRARIA COCCINEA.

THIS is not only a pretty, but an interesting plant—interesting on account of its being confined to a group of islands in the southern hemisphere, of which Chiloe is the chief. It is monotypic, that is, there is but one species in the genus which belongs to the Gesneria family. It is one of the many choice plants sent home by Mr. William Lobb some thirty or forty years ago when exploring the South American region for Messrs. Veitch, at that time of Exeter, where the climate is tolerably favourable for the growth of this *Mitraria* and many other half-hardy plants—such, for instance,



Flowering spray of *Mitraria coccinea*.

as *Cantua dependens*—in the open air. The *Mitraria* is a trailing sub-shrubby plant of somewhat slender growth, clothed with bright green leaves, from the axils of which are borne bright scarlet urn-shaped blossoms on pendulous stalks, as shown in the accompanying engraving. In situations near the sea on our southern and western coasts it is quite hardy, but in order to flower it successfully it needs the protection of a frame or cold pit. It thrives best in a partially shaded position and likes an abundance of atmospheric moisture while in growth, the climate of Chiloe being characterised by great humidity—indeed, almost perennial fogs—and though cold, there is but little or no frost. It flourishes admirably in ordinary potting soil having a little more fibry peat than usual, and it may be struck readily from cuttings inserted at almost any season. It flowers in this country about the latter end of May or beginning of June.

5017.—**Stephanotis not flowering.**—When I came here about four years ago I found several plants of *Stephanotis* planted out in a span-roofed house both on the north and south sides, but none of them had made much growth. One of them, however, began to grow very fast the next spring and soon covered the space allotted to it, but produced no flowers. I curtailed the root-run by putting slabs of slate in the bed, forming

in this way a box 15 inches square. The spring following I lifted this plant, and, finding plenty of roots in a good ball, I squeezed them into a large pot, which I placed in a warmer house, but got no flowers, so I discarded the plant. Its old wood was of a greenish colour, the young shoots purplish at first, and the old and young leaves were red veined. If "F. W." has this red-veined variety, I should advise him to throw it to the rubbish heap, and substitute a plant of one of the free flowering kinds.—E. HINDERLICH, *Neues Palais, Wildpark*.

EPIPHYLLUM TRUNCATUM AND OTHERS.

As decorative plants during winter and spring the different varieties of *E. truncatum* have few equals. They bloom well even in a small state, and can consequently be used either in 5-inch or 6-inch pots for the decoration of the side stages in a stove or intermediate house, or they can be grown to a size sufficiently large to fit them for a central position in large plant structures. In no way, however, are they seen to better advantage than when grown on their own roots in the form of low spreading bushes 12 inches or 15 inches in diameter, plunged in neat wire baskets of suitable size, fringed with *Lycopodium caesium* or other Club Mosses, suspended from the roof of the house in which they are placed. In this way their drooping flowers are shown off to the best advantage. Showy flowering plants with a drooping habit are not over plentiful, and it is well to use these *Epiphyllums* in that way. If hanging baskets were employed to a greater extent than they usually are, the appearance of plant houses, both warm and cool, would be enhanced. *Epiphyllums* of this class are easily propagated either by grafting them on the *Pereskia* stock, or by striking cuttings for growing on their own roots.

CUTTINGS made from pieces of the shoots, consisting of three, four, or half-a-dozen joints, taken off before growth has commenced, and inserted singly in small pots, drained and filled with a mixture of equal parts of sand and peat or sand and loam, will strike root freely if placed in a brisk heat and slightly but not over-moistened. They should be kept moderately near the light, but not under a propagating glass or similar contrivance, as if confined they are liable to rot. When the pots are filled with roots, shift into others a size or two larger, but they must never be over-potted. A mixture of five parts turfy loam to one of sand, with a sprinkling of potsherds, will be found to suit them perfectly. Soil of an adhesive character, that will hold too much moisture, they cannot bear. Grow them on in an ordinary stove temperature without shade during summer, and pinch the points out of any shoots that too much outgrow the others. A temperature of 50° in winter will be sufficient for them, and they should be kept drier at the root than when in active growth. In spring increase the pot room according to the progress which the roots have made, and grow them on until the end of July, as in the preceding season; then turn them out for a month under a south wall, where they will be exposed to the full influence of the sun. In cold parts of the country where this cannot be done, instead of turning them out-of-doors let them occupy a dry shelf in a greenhouse, or an equally airy, light position in a pit or frame, and they should have less water given to the roots than whilst in active growth. *Epiphyllums* of the *truncatum* class, being originally from Brazil, will bear a high temperature, and their progress, other cultural details being equal, will usually be more or less in keeping with the amount of heat to which they are subjected. They are generally grown as standards, so as to form either a drooping pyramidal head, or as spreading umbrella-shaped plants. Their cultural requirements when

GRAFTED on the *Pereskia* stock are similar to those under which they succeed on their own roots; but on this stock they will frequently bear a little rougher treatment. The *Pereskia* stocks on which to grow them are easily struck from cuttings put in in spring, and subsequently treated in a similar way to the generality of the

Cactus family, with the exception that they do not like such a continuous dry condition of the roots as some succulents will bear. The grafting may be effected any time either in the spring or early in summer. All that is required is to remove the top of the *Pereskia*, shortening its stem according to the length of leg wanted, then cleave it at the top in a way similar to that practised in ordinary cleft grafting; pare down the *Epiphyllum* scion at the bottom into the form of a wedge, slip it into the cleft in the stock, and bind it moderately firm, so as to hold it in its place, and nothing else is needed. Plants thus treated and placed in the temperature of an ordinary stove, will unite in a short time, after which the management ought to be the same as that for plants propagated from cuttings. The following are good

VARIETIES: *Violaceum Snowi*, v. *superbum*, v. *grandiflorum*, *splendens*, *salmoneum*, *salmoneum marginatum*, *albo-violaceum*, *Bridgesi*, *bicolor*, *Ruckeri*.

The stronger and more

ERECT-GROWING *Epiphyllums*, now generally known under the name of *Phyllocactus*, are easily propagated by means of cuttings treated in accordance with the directions given for striking the *truncatum* section; their after management, both as to growth and preparation for flowering, is also similar. The following are handsome and desirable kinds, viz:—

ACKERMANNI.—A medium-growing Mexican sort, with scarlet flowers.

SPECIOSUM.—A strong-growing Brazilian kind, bearing large highly-coloured red flowers.

SPECIOSUM JENKINSONI.—A very free flowering, handsome hybrid, with crimson flowers.

ALATUM.—A fine North American white-flowered species, distinct and handsome.

CRENATUM.—A distinct habited sort, with conspicuous white flowers, from Honduras.

LATIFRONS.—A South American kind, which differs in appearance from most of the others; its flowers are creamy yellow.

INSECTS.—*Epiphyllums* are little troubled with insects except green fly, which often establishes itself on the flower-buds, and is best destroyed by means of fumigation.

T. BAINES.

STEPHANOTIS AND OTHER PLANTS AT COMBE ABBEY.

THERE seems to be some idea that of this magnificent stove creeper some are floriferous and some not. For a great number of years we cultivated it in pots with less or more success. About the year 1865 we planted out a plant in a brick box at one end of the fruiting Pine stove, and trained it upwards to the roof, which it soon reached, and then travelled, entwined in many garlands, horizontally for 40 feet, until the middle or partition of the house was arrived at. This plant flowered most profusely, and we cut freely and often from it. All it seemed to require was a mixture of fibry sandy loam, well drained, frequent and copious waterings with manure water, and now and then a good surface dressing with loam and horse droppings mixed. The time to apply this is when the roots are observed to be coming plentifully to the surface. This fine plant came to grief through a severe and persistent attack of bug, which at that time defied all our best-laid schemes to exterminate. The plant was taken bodily down from the roof, and for twenty-four hours submerged in a tub of diluted tobacco juice. We thought that would be an effective cure, but, to our surprise, when lifted out of the tub these pests unrolled themselves, took a long and deep breath, and were evidently as happy as ever. The plant was therefore, at once destroyed. About the same time a plant—

A CUTTING from that just adverted to—was planted in another house in an exactly similar

way. This quickly reached the end of the house, which was 40 feet in length, and would long ago have covered the whole space, but we were obliged to keep part of it clear on account of Pine-apples being in the front bed. This plant, like its parent, is very floriferous, and for years we have been sending no end of boxfuls of its blooms to florists and salesmen in Covent Garden, until, both last year and this, we were informed there was no market for such quantities. The prices, too, returned for large quantities were so ridiculously small, that we have given up offering blooms of it for sale. This plant is also in a brick box conveniently near a water tank, out of which it is frequently deluged with a liberal mixture of manure water. I should here mention that so thoroughly does this plant enjoy water, that we frequently find its roots making their way into a tank of it through a brick and mortar wall, a crack in the cement facilitating their exit. A few years later

ANOTHER STEPHANOTIS was planted to run from the centre partition to the opposite end of the same house (40 feet). This plant grew equally vigorous and was quite as floriferous as that referred to, and it covers a space equal to that occupied by the other in the opposite house. With the exception of a little brown scale, which gets troublesome soon after the plants have done flowering, these plants have hitherto kept free of insects. The roofs of Pine stoves are generally rather warm; consequently Stephanotises come early into flower in such houses and go off early. They are now, 4th July, considerably past their best, but being continuously in heat and plentifully supplied with water, a few sprays can generally be had from them throughout the season. We have yet, however, another plant to be described. This was planted February 11, 1881, on the back wall of a vinery, at that time being replanted. Its first shoot was trained up the wall to a height of 12 feet; from this, horizontal shoots about 10 inches apart were run out to a length of 12 feet on one side of the stem only. These are now the most gorgeous garlands or wreaths of floral beauty and loveliness imaginable, sufficient to satisfy the most hypercritical in floral productions. The back wall of a vinery being cool compared with the top of a Pine stove, this plant is later in coming into flower; it lasts longer, and thus prolongs, in a most admirable manner, the flowering season of this favourite climber. This Stephanotis is one of the largest flowering kinds, and is known in this district, in which many plants of it may be seen, as the Combe Abbey variety. As regards this sort, we cannot see that boxing or confining its roots adds anything to its flowering propensities. One of our plants of it in the Pine stove is not so confined, and the plant on the back wall of the vinery has a wide root range in a strong soil, and is continuously watered by the swillings off the slate footpath.

HOYA CARNOSA.—In the same house, in the same soil, and on the same wall, were planted at the same time as the Stephanotis two plants of this Hoya. These have run up and along the wall with marvellous quickness, and are producing this year an abundance of their so-called honey blossoms, less useful, perhaps, than those of the Stephanotis, but highly interesting when closely inspected. These Hoyas are also subjected to the same root-watering as the Stephanotis.

LAGERSTROEMIA INDICA.—On the same wall and under similar circumstances as the Hoyas and

Stephanotis grows a plant of Lagerstroemia, which covers a panel of the wall 13 feet high by 10 feet wide, and now a mass from top to bottom of lovely delicate, feathery pink inflorescence. This plant, though an old one, is not so much grown as it should be. Though it thrives in sunshine, it is not particular as to a little shade, and is an invaluable plant for long corridors, which its lovely flowers beautify and lighten up in a manner unequalled perhaps by almost any other plant which at present I can remember. WM. MILLER.

Combe Abbey.

GLOXINIAS AND THEIR CULTURE.

THE present race of these lovely Gesnerads owe their parentage to a few species imported from different parts of South America. The hybrids recently raised are, however, superior to the imported species both in size and form, and their colours are almost unlimited, varying, as they do, from the purest white, through the different shades of pink to deep red, and from pale blue to intense purple, with endless kinds of spotting and banding with light and dark colours; in fact, there are few flowers in which there is so much variety, and they also possess other points equally noteworthy. Gloxinias may be increased rapidly either by means of seeds or cuttings; they are likewise easily grown and most useful for decorating not only the stove, but also the intermediate house in summer, in which they continue to bloom more or less for a considerable period. Their flowers, too, are very useful when cut, lasting in good condition in water for several days, provided the plants have made their growth and produced their flowers in a thoroughly light situation, with the amount of air requisite to impart sufficient substance to them—the latter an indispensable condition when required to be used in a cut state. Indeed, the flowers of few plants depend so much as regards durability upon the way in which the plants have been previously managed as those of the Gloxinia, the whole character of which is so much changed for better or worse according to the conditions of cultivation. When well grown the leaves are firm and short, borne on stout footstalks, and the flowers stand well above the foliage; whereas, if grown either too moist or too hot, with insufficient light, the whole plant has a soft, flabby, straggling appearance that effectually destroys its beauty. By having a sufficient number of plants, and bringing them on at different times, a succession of flowers may be kept up from March until the end of September or later. In

RAISING GLOXINIAS, the seed should be sown early in spring—say about the middle of February, so as to allow the plants an opportunity of attaining sufficient size to flower during the summer in a way that will exhibit their true character; sow in an ordinary seed pan; put an inch of drainage on the bottom, and on that place a little Sphagnum. The soil ought to consist of equal parts of loam, peat, and leaf-mould, all sifted; add to it one-sixth its bulk of sand, as it is essential it should be loose and open, or in transplanting the roots of the young seedlings will be injured; fill the pan with soil to within half an inch of the rim, press it down moderately firm, then water with a fine rose, so as to settle the surface, and on this sow the seeds, not too closely, or the young plants become crowded and consequently drawn up before they are large enough to pot off. Cover the seeds very lightly, and place them in a temperature of 65°. As soon as the young plants appear place them close to the light, screen them from the mid-day sun, and supply them with water, giving them a little air during the day. When the leaves are an inch long move the plants singly into 3-inch pots, using soil similar to that in which the seeds were sown, and at once replace them near the light, raising the temperature as the days increase in length. By the end of June they will require shifting into 4-inch pots, using the soil without sifting, and treating them as has just been recommended. When they bloom the

best kinds ought to be marked for propagation and the inferior ones discarded.

AFTER FLOWERING is over give less water, discontinue shading, and admit more air, so as to ripen the growth. When the leaves have died down the soil should be allowed to become quite dry; keep them through the winter in a temperature of 50°, but cooler than that for any length of time is not safe. They generally winter best when the bulbs are allowed to remain in the soil and pots in which they have been grown, but as they become large, and are in pots of a considerable size, this is not always convenient; in that case the roots should be stored in paper bags filled with dry sand to preserve them from the air, otherwise they shrivel, and thereby receive serious injury. To give

A SUCCESSION OF FLOWERS through the summer a portion of the plants may be started about the middle of February, and a further supply in March. Let the pots be proportionate to the size of the tubers—about 7 inches in diameter will be large enough for the second season. In potting just leave the crowns of the tubers on a level with the surface of the soil, and immediately they are potted, place them in a temperature of 60° at night, allowing it to become 5° or 10° warmer by day; if not put in heat as soon as potted, the roots will rot. The soil ought to be in a slightly moist state when used, and little water should be given until growth has commenced. Treat them throughout the season as to heat, shade, light, and moisture as recommended for the preceding summer. As already pointed out, their satisfactory flowering will depend upon their receiving abundance of light; a shelf over a pathway within a few inches of the roof is the best place for them. In such a situation not only do they get the requisite amount of light, but they also receive more air—both essential as regards securing short, sturdy growth. This summer they will bloom well and their tubers will increase considerably in size, yet it is in the third and fourth years after sowing that they will make the finest display. When the tubers get large they may be divided, retaining to each portion some of the buds with which the crown is furnished; but the most general method of propagation and by far the most expeditious is by

LEAF CUTTINGS. If the leaves are taken off in summer when fully matured, with a portion of the stalks attached to them, and this portion is inserted in 4-inch or 5-inch pots, drained and filled with half peat or loam and sand, with half an inch of sand on the top, and kept in a brisk heat, slightly shaded and moist, they will form healthy bulbs before autumn. If the variety to be increased is scarce, several may be produced from single leaves by cutting the midrib through on the under side in four or five places. Then lay the leaves flat on the soil in pots or pans prepared as above; over each place where the midrib has been severed secure the cut parts to the soil with a pebble about the size of a cockle, and at these points small tubers will be formed which, when the leaves have decayed in the autumn, will require to be wintered and afterwards grown on in every way as recommended for the plants raised from seed. The following named varieties are all well worth growing:—

ERECT FLOWERING KINDS.—Alfred de Musset, bright red, striped with lilac; Duke of Edinburgh, tube white, throat deep violet, shaded with maroon; Panthère, blue, spotted with white, throat white and massive; Scarlet Gem, white tube, throat spotted with lilac, limb deep scarlet; James Brand, throat creamy yellow, spotted with violet, lobes violet; Don Luis of Portugal, white tube, throat spotted carmine, zone violet, white limb; Magenta Queen, tube deep red, base of limb deep crimson edged with magenta; Mr. Thomas Binney, red throat, limb crimson; The Czar, tube white, limb purplish violet; A. Haut, blue spotted on a white zone; Byron, white, amaranth lobes; Chateaubriand, white lobes, throat delicate rose.

PENDENT VARIETIES.—Alice, limb mauve, throat yellow; Angeline, tube rose barred with white; Mogul, tube spotted with red, crimson-purple

limb; M. Alpland, white tube, violet spotted throat, purple limb; Eblouissant, bright red, throat white; Delicata, outside of tube white, inside violet, base of lobes margined with white; Grand Monarch, tube white, throat violet spotted with white, limb deep crimson; Ne Plus Ultra, white, with crimson throat spotted with carmine; Bird of Paradise, lilac throat, white spotted; M. Grivet, throat spotted with maroon bordered with violet, mouth spotted with violet; Mrs. William Bull, red flaked with white; Washington, deep vermilion; Wilhelmine, white mouth banded with blue, throat spotted with rose.

INSECTS.—Gloxinias are not usually much troubled with insects. Thrips will, however, sometimes attack the leaves, in which case sponging and fumigation are the best remedies. If aphides make their appearance on the young flower-stalks they can be best destroyed by means of fumigation. T. B.

GARDENIAS.

FEW plants are such general favourites as Gardenias, and few have so many properties calculated to render them generally useful. Considerable numbers of them come from China, the East and West Indies, South America, and one or two from Sierra Leone, of which the singular *G. Stanleyana*, so very unlike the generality of the other species, is a noteworthy example. With one or two exceptions, they are all evergreen shrubs, mostly possessing a dense, compact habit of growth. The species held in high estimation are comparatively few, but these few are deservedly prized for their exquisite fragrance, and for the freedom with which their blossoms are produced during a considerable portion of the year, especially in the spring, when sweet-scented flowers are scarce. They are also particularly well adapted for bouquets and the decoration of vases on account of their soft milky-white colour and agreeable perfume. The unopened buds and newly expanded flowers of *G. citriodora*—quite distinct in appearance from the other members of the family—are largely used in place of Orange blossom, for which they form a by no means indifferent substitute. To have Gardenias in flower in winter the plants require to be prepared by well maturing their growth in autumn, but they should never be allowed to become quite dormant through want of warmth. They are easily grown, and are remarkably free bloomers, but there is one point in their cultivation that demands special notice, and that is that where required to be grown in anything approaching a condition that will fully exemplify their flowering capabilities, they must be kept free from the attacks of insects, such as mealy bug, a pest with which they are great favourites, and which, if once allowed to obtain a footing, will give an unlimited amount of trouble.

THE PROPAGATION of Gardenias is easy if cuttings from half or fully ripened shoots are made in March, at which time they can be had in that condition from plants that have been kept in a brisk heat through the winter for early flowering; insert them singly in small pots drained and half filled with a mixture of equal parts of peat and sand, finishing off with fine sand and covering with a propagating glass. If placed in a temperature of 70° and kept moist they will root in a few weeks, when the glass may be removed. In May move them into 3-inch or 4-inch pots. They will grow in either peat or loam, but the former, where it can be had of a fibrous character, is best. If peat of a heavy, close description only is obtainable, it is better to grow them in turfy loam; break the fibrous parts up into small pieces, and add one-sixth of rotten manure and as much sand as will keep the whole porous; in all stages of their existence this is necessary, as they require a plentiful supply of water when growing freely. Pot them firmly, and place them where they will receive plenty of light in a temperature of 70° by night, allowing 10° more in the daytime. Give air as required in the early part of the day, and shade from the sun during bright weather. Close early in the afternoon, and syringe well overhead.

As the shoots extend pinch out the points of the strongest, so as to cause them to break back; they will then grow rapidly and make roots fast. By the end of June the stronger growers will have filled their pots, and should be at once moved into others 2 inches or 3 inches larger. The treatment just given will apply to all the varieties hereafter recommended to be grown, except the small *G. citriodora*, for which 4-inch or 5-inch pots will be sufficient the first season. Let the soil now used be somewhat more lumpy, and add to it a proportion of rotten manure and sand similar to that previously employed.

AFTER POTTING do not give quite so much water to the roots until they have fairly got hold of the new soil; pinch out the points of all the strongest shoots, and tie them down in a horizontal position, which will induce them to break back as well as push additional growth from the points; continue the treatment as already recommended, closing the house in the afternoons through July and August, so as to cause the temperature to rise for a couple hours to 90° and give liquid manure every other time they are watered. Managed thus, they will grow both vigorously and rapidly. At the beginning of September the temperature may be reduced a few degrees both by day and night; they may also have more air, shade being only needed in the middle of the day when the weather is very clear. None of the species require much support, but during the latter part of the summer it will be found advisable to apply a few sticks, so as to open out the shoots a little—treatment which will much assist them in ripening the wood and in inducing the formation of flower-buds; reduce the heat as the power of the sun declines, and for the two concluding months of the year they may be kept in a night temperature of 55° with 10° more warmth during the day; this will stop them from making much progress.

FORCING.—If required in flower early, a portion of the plants must be placed at the commencement of the year in a night temperature of 65°, with an increase of 5° in the daytime, keeping them near the glass and the soil moderately moist; this will soon induce the bloom-buds to swell, and they will then open in succession, those on the strongest leading shoots being the first. In cutting the flowers, no more of the wood than can be avoided should be taken, as generally from both sides of the bloom-buds they will push growth, which will set and produce a second crop of flowers. The same plants will keep on opening a succession of flowers for a considerable time, but others should be brought in at intervals to keep up the supply. Such as are wanted to bloom later on in the spring must be kept at a temperature similar to that recommended for the end of the year until the days begin to lengthen in March. They may then be placed where they will receive an increase of heat similar to that suggested for the early flowering portion. As they go out of bloom, both those that flowered early and those that bloomed latest ought to be well cut back, and if they have any insects upon them they should, when thus denuded of soft growth, be thoroughly washed with or dipped in some insecticide strong enough to kill both the full-grown insects and their eggs. This washing may with advantage be repeated two or three times in the course of a fortnight before they have commenced to make fresh growths, and they should be kept in a temperature sufficiently high to push them on. As soon as they have broken freely turn them out of their pots and remove as much soil from the balls as can be taken away without destroying many roots. Give a 4-inch or 6-inch shift, according to the size required, increasing the temperature as the season advances, shading when needful, and giving air and syringing daily as in the preceding summer. When the pots get filled with roots manure water must be liberally supplied, and any shoots that take an undue lead should be shortened. They will not require stopping this season, as they are naturally of a bushy habit, and if the shoots are kept tied out they will generally break of their own accord as well as push up numbers of strong

growths from the bottom. In the autumn, as before, keep them drier and discontinue both the use of the syringe and shading, giving more air and less heat, and wintering as previously advised. After flowering they may again be cut back, the soil partially removed, and new material substituted, using larger pots; if smaller plants are considered preferable, the old ones may be destroyed, others of less size selected; but to accomplish this fresh stock should be struck each year and grown on as already recommended.

The following kinds are all good and well deserve attention, viz: *G. intermedia*.—For ordinary purposes this may be considered the best of all Gardenias. The flowers when first opened are milk-white, turning yellow as they get older. It is good in foliage and a free grower and flowerer. *G. intermedia variegata*.—A variegated form of the preceding in which the leaves are prettily marked; flowers the same as those of the green sort. *G. Fortunei*.—A strong growing kind from China, the flowers of which are proportionately larger than those of the above. *G. radicans*.—A low-growing, compact kind with small leaves, and bearing very pretty, highly perfumed flowers, white when first open, but turning pale yellow as they get older; a native of China. *G. radicans major*.—A larger and stronger growing variety than the preceding. *G. citriodora*.—A dwarf-growing plant, with much smaller flowers than any of the above; a desirable sort for either large or small collections; a native of Natal. *G. Stanleyana*.—A remarkable plant, very distinct from all others. It attains a considerable size, and the branches assume a flat, horizontal position. Its singular-shaped, white, purple-spotted flowers are produced on the upper sides of the shoots, and stand above the leaves. Anyone requiring a very distinct flowering plant, differing from anything else in general cultivation, will not be disappointed with this. From Sierra Leone. *G. florida*.—A pretty kind with medium-sized white flowers, very sweet-scented. Japan.

INSECTS.—As regards insects, Gardenias are particularly subject to the attacks of scale and mealy bug, which must be diligently sought for during the growing season and destroyed by sponge and brush, and also by washing with insecticides, which, however, it is not safe to use after the flower-buds are formed. If thrips or aphides make their appearance they are best destroyed by fumigation. Red spider is rarely troublesome, the continued syringing needed during the growing season generally keeping it in check.

T. BAINES.

NOTES.

HARDY ORCHIDS.—Two of the most effective of all outdoor or hardy Orchids now in bloom are *Orchis foliosa* and *Cypripedium spectabile*. A friend in America sent me a big boxful of this last-named plant two years ago, and advised me not to plant them in the usual way, but to dig for them a sheltered corner (not a shady one) among the Rhododendrons, and then to lay their mat-like masses of roots and plump buds on this newly-dug ground, pressing them down rather firmly, and then covering them with a layer of pure leaf-mould 3 inches or 4 inches thick. I followed his plan, and never had *Cypripedium spectabile* so good before. In his letter my friend particularly emphasised the fact that this species is a surface rooter, its fibres extending laterally and not downwards, so that whole mats of it a yard across are easily pulled up with the hands in its native lair. Planted out in a deep bed of leaf-mould and sandy earth surfaced with dead Sphagnum Moss, *Orchis foliosa* grows strongly and flowers well.

TROPEOLUM SPECIOSUM is so lovely and effective, that we are still attempting to establish it after many failures. I saw it yesterday glowing like a living flame on a sunny wall among Magnolias, and in one place it had left its trellis of zinc wire netting, and had rambled along the face of a Yew hedge, just stitching its leading shoots in and out so as to gain support for its wreaths of buds and fiery blossoms. In parts of Scotland it

is nearly as great a pest in some gardens as is the Bindweed or *Convolvulus*. At Ravensdale, near Newry, it has monopolised a long border of herbaceous plants and wall shrubs all to itself, wreathing dead Tulip stalks and living Lily stems alike with its fresh greenery, clambering here and dangling there on the outjutting branches of *Eugenia apiculata* and other shrubs, seemingly as delighted with its freedom as a caged monkey suddenly let loose; and yet if you try to get it to grow in your garden the task is not always easy. I have seen it in all aspects growing equally well. Perhaps it is fastidious as to soil; some trifle we do not at present recognise may determine its success or its failure; but its beauty is so unique, that I shall always try to grow it.

ABUTILON VITIFOLIUM.—For sheltered shrubbery belts on warm dry soils, or even as a wall shrub in mild parts of the country near the sea, this plant is well worth attention, and is just now bearing its great lilac *Meconopsis*-like flowers in clusters near the ends of its branches, sheltered and shadowed by its great Vine-like foliage. In the Scilly Islands I am told it is quite at home, and in the county Wicklow it attains a height of 20 feet to 30 feet, and flowers most profusely. Conspicuous as is the plant in open-air positions when well grown, its flowers are never so fresh and beautiful as when cut and brought indoors. They open out very freely in water if the whole end of the flowering branch be cut, and so treated remain fresh for several days, the buds opening out in gradual succession. We shall never quite know of the beauty of our outdoor or hardy flowers until we learn to cut them largely for indoor use; we must live with them and note all their varying charms of opening bud and perfect blossom if we are willing to see them at their freshest and best.

THE CELESTIAL ROSE.—Of all the old-fashioned Roses I have seen this is one of the sweetest and most noteworthy, a semi-double flower with fifteen to twenty broad petals of the purest rose colour, bright and fair as the inner lining of a great sea-shell, or of real pink coral, such as one can rarely see, so cunningly and so cheaply are imitations of it now made. But this Rose is a real beauty, rivaling the glint of the early Almond blossom in its pure rosininess. Apart from the clearness of its rose colouring it has a delicious perfume, fresh and piquant as that of the old Provence or Cabbage Rose itself, than which, as I imagine is generally allowed, there are none sweeter in the whole world of fragrant Roses or of sweet-scented flowers. But this "Celestial Rose," who will tell us aught of its history? Is it at Bitton, in that garden which, I am told, contains quite a bevy of dear old-fashioned Roses, both species and varieties? Altogether this "Celestial Rose" is so lovely, that all lovers of hardy flowers would welcome it in their gardens if they knew whence it might be obtained.

TALL LATE-FLOWERING PEONIES.—With Peonies, as with Tulips, we have a taller and later blooming race, having flowers of the most lovely colour imaginable, bold, round buds which open out gradually into great semi-double flowers of a rosy crimson colour, or with broad guard petals of a delicate salmon-rose tint around a mass of creamy white or sulphur-tinted petals in the centre of the flower. That they are fragrant also is another recommendation apart altogether from their showiness. When cut in the bud stage and brought indoors, the flowers of these late Peonies are most charming; no *Cattleya Mendeli* could be more pure or more delicate in colour, and no painting could well do them justice, albeit that M. Fautin has a lovely group of these identical flowers in the Academy exhibition. Although now and then seen in old-fashioned gardens on warm soils, they are not nearly so common as a sight of their beauty would lead one to expect. Of what species or race comes these tall, late Peonies? They are quite distinct from the early-blooming or P. officinalis set, and even more beautiful.

DOUBLE CRIMSON SWEET WILLIAM.—This is just now one of the most beautiful of all border plants, and is so floriferous and neat in habit, that it is universally admired by all who see it here. Its broad heads of flowers are so densely packed, that at a little distance they look like those big Cockscombs which used to be so popular in conservatories and in greenhouses of the old school. We root a batch of cuttings every summer, besides dividing up the plants, so that we now have a large stock for spare corners where there are soil and sunshine. We have also several other double-flowered Sweet Williams, but none so dwarf and effective as this double crimson variety. Growing beside Mrs. Sinkins Pink, both plants gain by the association, and large clumps amongst the common yellow *Mimulus* are also most effective. Cuttings rooted late last autumn, and only planted out a month or two ago, are now flowering at 5 inches in height; and a friend to whom we gave a stock has now a bed of it margined with yellow *Violas*—a very pretty sight indeed.

CORDYLINE AUSTRALIS.—Late winters have played sad havoc with many of our finest Australian shrubs, and with partially hardy things generally, but here and there this *Dracena* has survived. At Old Conna Hill, near Bray, in that fair county of Wicklow, which someone calls "the garden of Ireland," I am told there is now a most remarkable specimen in flower in the open air. It has 6 feet of clear or leafless stem, and is altogether 15 feet in height, its sword-like leaves being surmounted by a massive cluster of flowers, as "big as a beehive," and, as my correspondent tells me, "nearly as full of bees." The stem at its thickest part just above ground level is 2 feet 4 inches in circumference, and "as seen among Yew hedges and fine trees, and amid the other treasures of an old and well-stocked garden, it forms a noble object, with the bold headland of Bray rising from the sea below for a background." The flowers of this *Dracena* are very small individually and of a sulphur colour. They are also very fragrant, and secrete nectar in such quantities that "the bees flock to it and render a too close inspection rather hazardous."

THE BLUE PERENNIAL FLAX (*Linum provinciale*), as seen swaying to and fro in the sunshine, is one of the prettiest of plants, and well worth a place on any dry sunny border, since while it affords quite a display of its corulean blossoms, it does not shade or over-ride its neighbours in any way. It is in all ways distinct, as graceful in its slender growth as any *Asparagus*, while its blooms are plentiful as well as beautiful. Beside it, for company, we have the shrubby habited *L. flavum*, with broader foliage and yellow flowers, and the *L. grandiflorum*, an annual with crimson flowers the size of a shilling. Even the annual or common Flax (*L. usitatissimum*) is very pretty if a good broad patch of it be sown; and the white perennial Flax, although capricious in some soils, and not perfectly hardy, is so graceful and distinct, as to be well worth culture. *Linum trigynum* is perhaps the finest of the whole group and well known as a winter blooming plant in a warm greenhouse, but other than this one all the *Linums* too often are obliged to endure undeserved neglect.

TALL FOXGLOVES.—Just at this season nothing is finer as seen towering aloft high above Pinks and Pansies, high even above Irises and Poppies, than Foxgloves of the kind called the *gloxinioides* race, varieties with large bells varying from white, through all shades of peach and rose, until the typical purplish crimson tint is reached. The white, spotted, and the rosy peach coloured kinds are as, we think, most beautiful, especially those seen in bold groups spreading under partial tree shade. Although most effective, they are obtainable at very little trouble. We bought half-an-ounce of seed and sowed it here and there on bare ground in out-of-the-way places. That was in the beginning, and now we save seeds every year from our best and most distinct varie-

ties only. As soon as the seeds ripen we cut the spikes and shake the seeds about just where the plants are required to grow and bloom, and when the seed germinates too thickly we transplant elsewhere, or thin out when hoeing the borders. No plant is more stately and graceful, or adds more effect to half-wild places than a good strain of the common Foxglove.

A PRETTY FLOWERING SHRUB.—*Escallonia* of all kinds are most interesting and effective wherever they succeed well, but the white-blossomed *E. Philippiana*, which was sent out some years ago, I think from Coombe Wood, by Messrs. Veitch, is just now most noteworthy. It is of slender growth and spreading habit, its sprays of rosy buds and white flowers showing to excellent effect on a carpet of *Erica carnea*. Here it is planted out in the open border, but no doubt in cold districts the shelter of a wall, even if not absolutely necessary, would be very desirable. It seems to like the sea air, and so forms a good companion to *E. rosea* and to *E. macrantha*, the last named one of the finest of all evergreen flowering shrubs in mild seaside localities. Another effective wall shrub now flowering freely is *Indigofera floribunda*, which forms a charming companion for the above-named white *Escallonia*, being also slender in growth and a profuse bloomer. Its flowers are borne in clusters along the last year's wood, and are of a reddish purple colour.

THE DITTANY OF CRETE, or *Origanum Dictamnus*, is a very pretty plant for a dry, sunny bank in the open air or for a rock garden. Another species, called in the southern counties the little Hop plant (*O. pulchellum*), is often met with in cultivation as a window plant. Turner, whose famous "Herbal" was published in 1568, says, "I have seen it growynge in England in Master Riches' garden naturally, but it groweth nowhere ellis that I know of, saving only in Candy." Although quite hardy in warm, dry localities, it is rarely met with now-a-days, except now and then when grown as a greenhouse plant. Both species went through last winter unscathed, although quite unprotected in any way. It forms a dwarf shrub clothed with rounded leaves covered with soft, downy tomentum, and each shoot produces a spire-like inflorescence of pink-edged bracts, from which the rosy flowers protrude themselves in succession. Easily raised from cuttings inserted at this season, it well merits culture as a distinct ornamental plant, either for the greenhouse or rock garden.

VERONICA.

GARDEN DESTROYERS.

THE MEALY BUG.

(*DACTYLOPIUS ADONIDUM*.)

THERE are few, if any, of the insect pests in our hothouses, &c., that give greater trouble to horticulturists or which injure plants more than the subject of this article. When once it gets a footing in a collection of plants, it is only by the greatest care and perseverance that it can be eradicated. Every possible care, therefore, should be taken to prevent the insect entering our houses, as the female cannot fly or do more in the way of locomotion than crawl slowly; this is easier done than many persons imagine, for it is obvious, considering the habits of the insect, that if our houses are free from them, they will not find an entrance unless introduced by some means. Many gardeners are of opinion that most insects are generated spontaneously without the intervention of any parents; but this idea is so absurd, that no time need now be spent in refuting it. The greatest care should be taken when obtaining new plants from a nursery or a friend, however particular their previous owners may be, to be quite certain that there are no mealy bugs on them; and though troublesome, it is a safe plan, and one that may save much annoyance and trouble, to thoroughly clean with one of the insecticides mentioned later on every plant which

is introduced for the first time into our houses. Were this always done, there would be no chance of the plants being contaminated. Any woodwork, such as staging, &c., brought from other houses should also be well cleansed. By using these precautions not only will this, but many other kinds of insects will be prevented from obtaining access to our plants. If, however, by some negligence or misfortune mealy bug makes its appearance, do not delay attacking it, as it breeds with great rapidity. Some gardeners are fond of saying, they are soon going to put the house to rights, and then they will clean everything thoroughly; this sounds well, but it is far better to do it at once, and get rid of the mealy bug before it has time to spread, or the house may require cleansing several times before they are finally disposed of, as they hide themselves, not only in parts of the plants where they are most difficult to get at, but in various cracks and chinks in the walls and woodwork of the building. A great variety of plants are attacked by these insects—Vines, Figs, Pines, Melons, Cucumbers, and nearly all plants grown in warm greenhouses and stoves. Orchids, however, fortunately are but seldom attacked. A great number of methods and recipes have been given for destroying this insect; among the most useful are the following: When

VINES are attacked, the rough, loose bark of the stems should be removed by scraping with a blunt knife. This process should not be carried too far, as is sometimes the case, for by scraping off too much of the outer bark the more tender layers are exposed, which may be injured by the insecticide, the great object in removing the outer loose bark being to prevent any eggs or young insects remaining in a position where they might not be reached by the insecticide. Every branch and stem should then be well cleaned with a stiffish brush, and then painted over with 2 lbs. of flowers of sulphur, 2 lbs. of soft soap, and a wineglassful of turpentine, mixed into a paste with warm water; boil 1 lb. of tobacco in a covered saucepan with 6 quarts of water for an hour, strain it, and mix the liquor with the paste, and add water to make 5 gallons; or 8 ounces of Gishurst compound, 1 gallon of warm water, and add 1 wineglassful of paraffin oil. Scrub the rods with this mixture, and then add clay, lime, and sulphur in equal parts to it and paint the Vines; be careful not to injure the eyes. Half-a-pint of Fir-tree oil mixed with 6 quarts of water, and applied to the Vines with a spray diffuser, is said to be a most destructive insecticide to mealy bug. Three parts clay and one part tar mixed with enough water to form a paint is a good dressing. There has been much controversy recently in THE GARDEN as to the merits of tar dressings, but I think they are to be recommended, being harmless to the Vines and very hurtful to the mealy bugs. With Melons and Cucumbers the best way is to keep the plants as free from mealy bug as possible with a syringe or sponge, using tepid water. The plants should be destroyed and the house thoroughly cleansed as soon as possible. When

STOVE PLANTS are attacked, care must be taken that the means used to destroy the mealy bug do not injure the plants. A small stiffish brush dipped in soft soap and water is a good means of getting rid of them, if the plants are thoroughly examined and every trace of the insect removed. Spirits of wine applied to the insects with a camel's-hair brush is a very effective way of killing them. Fowler's insecticide or Abyssinian mixture, four or five ounces to a gallon of water, is said not to injure plants and to kill mealy bug. These insects being usually covered with a white cottony substance, it is not easy to destroy them by syringing or merely dipping the plants in any fluid; the liquid should be applied with some force or the plants allowed to remain in it for some time, otherwise it may not penetrate the cottony covering. Fumigation is of little or no use. Walls and woodwork of houses that have contained infected plants should be thorough cleansed, the walls repainted if necessary and well lime-washed; the wood and ironwork should be scrubbed with soft soap and water.

MEALY BUGS ARE NOT INDIGENOUS to this country, but have been imported no doubt with plants from abroad. They are said to be natives of Africa; they may be found on plants at all seasons of the year. They are very nearly allied to the scale insects, and, like them, the males are quite harmless, and, besides being much scarcer than the females, are such very different looking insects, that no one who did not know it would even for an instant imagine they belonged to the same species. The male is furnished with a pair of wings and has a well-defined head, thorax, and body; whereas the female is wingless, has comparatively ill-defined segments, and is a somewhat shapeless insect. The males are very seldom found, but whether from their small size, inconspicuous appearance, or the shortness of their existence (for having once paired, they probably die) is uncertain. I have tried in vain to obtain a specimen to make a drawing from, so am unable to give a figure of it. The females, alas, are far too common. Soon after they are hatched they are very active, and at times roam about the plants; but when they begin to lay their eggs, they remain almost stationary, although

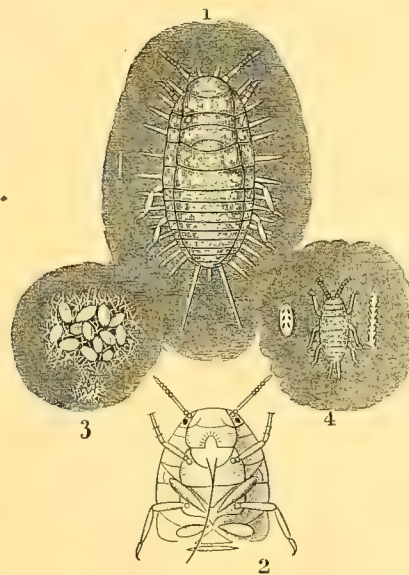


Fig. 1, mealy bug (magnified); 2, ditto, underside of head, &c. (magnified); 3, eggs (magnified and natural size); 4, young mealy bug just hatched, some days old, and antennæ (magnified).

they do not lose their power of locomotion, as the scale insects do. They then cover themselves and their eggs with a mass of white fibres much resembling cotton wool in appearance; this covering serves the double purpose of keeping the insects warm and dry; at the same time it is of service to the horticulturist, as it enables him to detect the insects easier, and it assists him in removing them. The mealy bugs grow rapidly, and, after various changes of skin, are developed into fully matured females. The male larvæ, after having attained a certain point in their growth, surround themselves with a white cottony cocoon, within which they undergo their transformations, and, having become pupæ, or chrysalides, emerge in the spring as minute two-winged insects. The mealy bug belongs to the family Coccidæ, of which the various scale insects are also members, and the genus Dactylopius, which contains eighteen species. Probably the insects known as mealy bugs do not all belong to the same species. The females of *D. adonidum* (fig. 1) are rather more than one-eighth of an inch in length, and are of a pinkish flesh colour covered with a mealy white powder. The body is divided into fourteen segments; on each side of every segment is a white process, those on the last joint being very much longer than the others. The head is furnished with a long proboscis (fig. 2), through which it

sucks the juices of the plants. The males are scarcely one-tenth of an inch in length, pinkish white in colour, and covered with a white dust. The ends of their bodies are provided with two long white threads. The wings are white, and measure two-tenths of an inch from tip to tip.

G. S. S.

5009.—Thrips may be destroyed by Tobacco smoke, washing the plants with 3 pounds soft soap, 6 gallons of soft water, to which add half-a-gallon strong Tobacco water, or by closing the house and making the atmosphere as damp and the pipes as hot as possible, then painting the latter with 1 pint flowers of sulphur, 2 pints fresh lime mixed with enough water to make a thick paint. Plenty of ventilation and moisture to the roots is generally found to be a good preventive. —G. S. S.

Pear tree borers.—C. Bray asks (p. 544) about caterpillars boring into the stems of Pear trees. The kind to which he refers is probably the caterpillar of the wood leopard moth (*Zeuzera æsculi*), which is well known for the injuries it causes to Pear and Apple trees by boring into their stems; it is of a yellowish buff colour, with several black spots on each joint of the body. It is indigenous to this country. It is quite possible that insects not hitherto known to exist in this country may occasionally be introduced with imported plants.—G. S. S.

5009.—Thrips on Cucumbers.—No pest that infests the Cucumber is so easy of destruction as this and that by fumigating with Tobacco paper, the conditions of application being that the atmosphere of the house and foliage be dry, which can only be effected by leaving the ventilators of the house open till the last moment, and using plenty of Moss with the Tobacco paper, which, whilst it adds to the density of the smoke, prevents, as a rule, injury being done to the foliage by reducing the strength of the Tobacco vapour.—W. W. H.

Turnip fly.—The note (p. 544) on the prevention of Turnip fly is sufficient to frighten all but the strongest nerved into giving up the culture of Turnips. Guano, superphosphate, Amies' manure, salt, lime, manure and liquid manure necessary to get a Turnip. Not a bit of it. At this time of the year select a shady spot—a north or east border—let the ground be well manured with ordinary stable manure, and be deeply dug, sow in drills 9 inches apart, cover in with the hand, and afterwards dust the whole ground over with soot; this will prevent birds purloining the seeds, and a fresh dusting as soon as the seeds appear will keep away fly. Position has more to do with success in Turnip culture than all else put together.—W. H.

SHORT NOTES.—DESTROYERS.

5007.—What insect does "C. W." allude to when speaking of the Rose bug?—G. S. S.

5005.—Woodlice.—I fear "Strathspey" will never get rid of woodlice until the wall is repointed, so that they will have no shelter in holes or cracks.—G. S. S.

5012.—Alder insects.—The insect attacking your Alder is a species of *Psylla*, and is nearly allied to the aphides. If practicable, syringe the tree with 1 pound soft soap, 1 pound flowers of sulphur, mixed with 8 gallons of water, or soft soap and tobacco water.—G. S. S.

5014.—Celery fly.—The larvæ of the Celery fly (*Tephritis oenopordis*) in some seasons do much mischief to the Celery crop, and as yet no effectual remedy has been discovered. When Celery is infested in this way the leaves become blistered and turn yellow, and as the grubs are underneath the blisters they may be crushed between the finger and thumb. The grubs when full grown descend into the earth and remain in the chrysalis state until the following spring, when they give birth to the fly, which in due course deposits its eggs on the leaves. Therefore, in order to prevent the attack of this pest the next year, leaves badly infested should be removed and burnt to prevent the grub attaining full development.—C. CUNDY, *Sudbury*.

FERNS.

BEST CULTIVATED FERNS.

(Continued from Vol. XXIII., p. 574.)

DRYOPTERIS.—This genus, although not very extensive, as it comprises only four species, is very interesting, principally on account of the peculiar shapes, all distinct, of the fronds of the different kinds, which are all dwarf and of compact habit. Their general appearance and outline are not at all suggestive of those of a Fern as generally understood; they all have coriaceous fronds with the sori marginal, as in the genus *Pteris*, to which they are closely related, but their veins are beautifully netted. Being of easy culture and keeping as they do their foliage on for a long time, they are very valuable plants for decoration where they form a most pleasing and thorough contrast with the surrounding plants. They require, to make nice plants, to be grown quickly, and to that effect nothing is better than a compost of a very open nature, such, for instance, as a mixture of three parts good fibrous peat and one part sand and chopped Sphagnum. In such soil the roots will have free play, and the plants will in a short time develop into handsome specimens provided they are kept well watered at the roots, at the same time taking care, however, that the drainage was not in any way defective. None of them are very partial to syringing overhead; indeed, unless they are grown in a lofty or airy structure, it is most injurious to them, and they will soon show their dislike to the treatment by their fronds turning brown, almost black, and becoming of a semi-transparent character.

D. COLLINA.—A very pretty tropical American species, seldom seen in cultivation now, although abundantly grown only a few years ago. Like its congeners, it is an evergreen species, with palmate fronds about 8 inches to 10 inches high and nearly 6 inches wide; these are of a lively dark green colour and shining. Like those of the following species, the fronds are of good, leathery texture. Stove.

D. NOBILIS.—A very noble species indeed from Brazil, whose fronds vary very much as regards both size and shape according to the age and size of the plant. In its young state it produces only single and sagittate fronds, which, however, become palmate in form as the plant gets older and acquires strength. It then forms a beautiful object, for its handsome fronds often measure from 12 inches to 18 inches in height, and nearly as much in width. These are of a bright green colour, and their centre, as well as that of the segments, is ornamented with a broad band of white, more intense in the middle and gradually fading towards the edges; their venation is particularly beautiful. It is generally considered a difficult kind to grow, but if potted in the compost above described and with the crown rather above the soil, it will be found to grow as freely as any of the genus. Stove.

D. PALMATA.—This tropical American species is, no doubt, the most extensively cultivated of the whole genus, there being very few collections where it is not found—a circumstance probably owing to its more robust constitution quite as much as to its distinct habit and more elegant appearance. In some respects it resembles *D. collina*, but it is altogether a stronger grower and larger in all its parts. The fronds are abundantly produced from a thick crown, which should, like that of the preceding species, be kept rather above the ground; the sterile or barren ones grow to about 10 inches high; they are deeply palmate, of a bright green colour, and generally measure about 4 inches through; whereas the fertile ones are of quite a different shape, being deeply lacerated inside; although also of a palmate outline, and of the same colour as the barren ones, they grow more upright, often 15 inches in height, and help to make the plant decorative by being in the centre, and generally surrounded by two or three rows of barren ones. This evergreen species also possesses another peculiarity, that of reproducing itself from bulbils found at the top of the stalk,

just at the insertion of the frond. Although the quickest way of propagating it in quantities is by spores, still these bulbils will, if pegged down in the ground and without being severed from the parent plant, make good and healthy young specimens in the space of a very short time. Stove.

D. SAGITTIFOLIA.—This Brazilian species, although the least ornamental of the *Dryopteris* in cultivation, is well worthy of a place in every good collection if only on account of its simple erect sagittate fronds borne on stems as black as those of *Adiantum*. They are leathery, of a bright green colour, and seldom grow to more than 10 inches high; being produced in great quantities, they make, if not a highly decorative, at least a charming and very distinct and compact-looking plant. Stove.

DRYARIA.—A very interesting genus, all the members of which are very peculiar in appearance, some of them being especially ornamental and forming splendid objects in the stove fernery, which temperature they all require to develop to perfection their curiously formed and strangely produced fronds of quite distinct characters. The barren ones, which are almost always shield-like, turn brown and dry up in the winter, but they do not fall off the plants. Most of them are very robust growers, producing splendid broad fronds, 4 feet or 5 feet in height, and if planted out in the stove fernery on a projecting point of rock they show themselves off to great advantage, the more so that the rhizomes of most of them, which are fleshy, have a tendency to grow in a circular form. Now, these rhizomes are the producers of the fronds which they throw out from place to place on their entire length, and form quite a massive crown. If, however, there is neither possibility nor convenience for planting them out, and the plants must be grown in pots, their fleshy rhizomes should always be kept above the rim of either pot or pan in which they are to be grown, as they will not bear their rhizomes covered at all. In this case, the most satisfactory way to grow them is to make pyramids of fibrous peat, upon which to peg down firmly the rhizomes until they begin to emit roots, after which they will require no more fastening. *Drynarias* are generally considered difficult to manage, and on that account are not grown so universally as they should be, but if the above directions for either potting or planting out are followed there is very little fear of failing in the attempt. Although they benefit by occasional syringings overhead, I feel quite persuaded that they will not stand being always damp at the roots. I find that they do best when watered at the roots only when they thoroughly require it; that is to say, that, like other epiphytial plants, they must not be watered until they are quite dry, indeed, until they begin to flag, but they must then receive a thorough soaking by being completely immersed in water for a few minutes, after which operation they must be allowed to get quite dry before it is renewed; there is no doubt that the state of permanent moisture of the ground is the main cause of failure in their cultivation. In no case should loam be allowed to enter into the composition of their soil, fibrous peat only or a mixture of three parts of peat to one of chopped Sphagnum being considered the best compost in which to grow all *Drynarias*.

D. CORONANS (*Polypodium conjugatum*).—A very noble-growing species from Malacca, with magnificent pinnatifid fronds of rigid habit, produced from short, thick, and fleshy rhizomes. When fully developed, these fronds often attain a height of 4 feet; they are also proportionately broad, as they often reach 2 feet across. Stove.

D. DIVERSIFOLIA (*Polypodium rigidulum*).—This handsome East Indian species, one of the most ornamental of the genus, does not, by a long way, receive the attention which it deserves. It is a plant of striking habit, and as highly decorative as it is of easy culture. Its beautiful pinnate fronds, which are light green in colour, grow to about 4 feet long, and as they are of a graceful pendulous habit, the plant is exceedingly well adapted for growing in baskets of large dimen-

sions. These long fronds have also a very peculiar appearance when fertile, as the round sori are stamped into them, and form elevations on the upper surface, which, being very regular and placed at equal intervals, are very pretty and effective. Stove.

D. MORBILLOSA (*Polypodium Heracleum*).—A very fine evergreen species from the Malay Islands with stiff, pinnatifid fronds of a light green colour; these are produced from a thick fleshy rhizome which delights in running over the surface of the soil; they grow from 4 feet to 6 feet in height and to about 2 feet in breadth. It is one of the easiest to cultivate and very decorative. Stove.

D. MUSÆFOLIA (*Polypodium musæfolium*).—A species from the Malay Islands which, although producing only simple fronds, makes an exceedingly beautiful plant by its venation, beautifully reticulated, being so distinctly striking, especially when grown as it should be for both the comfort and the appearance of the plant in a suspended basket near the glass where it is seen to advantage. The fronds, which are produced freely, grow to about 18 inches long and 3 inches in breadth; they are of a pale green colour and all covered with dark green veins. Stove.

D. QUERCIFOLIA.—In this rare East Indian species the fertile and sterile fronds are very dissimilar; the former grow to 2 feet in length; they are of a dark green colour and pinnatifid, whereas the latter or sterile fronds only grow to about 6 inches or 8 inches long; their shape is also different from that of the fertile ones, as they are oblong-ovate in form, sessile and cordate at the base. It is essentially an epiphytial plant growing well on a piece of wood, cork, or, better still, on a piece of Tree Fern. Stove.

ELAPHOGLOSSUM.—This rather extensive genus contains many species already in cultivation, but a careful selection has been made of a few only of the best ones which will be described below. Although from their general aspect they may appear related to the *Acrostichum*, from which group they have lately been completely separated, it is an important fact that they bear no affinity whatever to them. They all have single fronds, some smooth and some covered with chaffy scales, which should not be syringed at any time. Several kinds produce long drooping fronds and are well adapted for growing in suspended baskets; the others are erect growers and delight in a close place, so that they may be used with advantage for the planting of Fern cases. None of them care for loamy or heavy soil; they should be either planted or potted in a mixture of two parts fibrous peat and one of chopped Sphagnum and silver sand, great attention being paid to the drainage, as they require a considerable amount of water at the roots.

E. CUSPIDATUM.—A dwarf and very pretty evergreen species from the West Indies, whose sterile fronds, which grow from 4 inches to 6 inches high, are entire, simple, and linear-oblong in outline; they are thickly squamiferous all over, but particularly on the underside; the short stalks on which they are borne are also densely coated with scales of a reddish brown hue. The fertile fronds, which are not by any means so numerous, are much smaller and have their underside completely covered by the sori. Stove.

E. SCOLOPENDRIFOLIUM.—A very distinct Brazilian species, of graceful habit, and one which makes a very pretty object when grown in a suspended basket of small dimensions. Its fronds, which are produced in great abundance from an underground thick caudex, are simple, about 10 inches or 12 inches long, oblong-lanceolate in shape, and of a pale green colour. The stalks on which they are borne and the fronds themselves are thickly covered on the margins with brown chaffy scales. The fertile fronds have exactly the same appearance, and only differ in their smaller size. Stove.

E. SQUAMOSUM.—This remarkable West Indian species of the genus is seldom met with in collections, although it is most interesting and

distinct by its narrow fronds, only about an inch wide and of elliptical form, being from 6 inches to 8 inches long, and completely covered on both sides with large scales, nearly white or silvery when young, but turning to a brownish red colour when the fronds are mature, as is the case with all the other species; the fertile fronds are narrower and shorter, but otherwise possess the same character as the others. Stove.

E. VISCOSUM.—A native of the Philippine Islands, and, no doubt, the most handsome of the whole genus. Its graceful habit is quite peculiar to that species alone, for the fronds, which are not more than $1\frac{1}{2}$ inches broad, grow to about 2 feet long, are elegantly pendulous, and form a beautiful and naturally vase-shaped plant of a greyish green colour; it does remarkably well when grown in a suspended basket, in which it shows itself off to perfection. Stove.

FADYENIA PROLIFERA.—A very curious plant from Jamaica, and the only species known in cultivation, but it is so thoroughly distinct from any other Fern, that no mistake can possibly occur as regards its classification by whoever has seen it once. This eccentric-looking little plant bears fronds of two totally distinct forms and habits; the fertile ones are erect, linear, ligulate, about 4 inches or 5 inches high, their underside covered with large, reniform sori. The barren fronds are prostrate, lanceolate, and only about 3 inches long; these bear at their apex young plants which root, and, without being disconnected from the parent plant, produce plants having all the characters of a fully developed specimen. It is very free growing, and succeeds well in a compost of three parts peat and one of loam and sand, with abundant moisture at the roots. Stove.

PELLÆA.

ROSE GARDEN.

ROSES UNDER GLASS.

5012.—According to my experience, Roses permanently planted out under glass are all the better for being fully exposed by the removal of the top lights from the beginning of June until the end of August. In the Exeter Nurseries, where Roses are planted out in long span-roofed pits, they are treated in this way, and nowhere else have I seen such successful results. The raised beds in which your correspondent says his Roses are grown have contributed their share to his want of success. Under such circumstances it is doubtful if the plants have had sufficient water. I find that even when planted in level borders the quantity of water which they require is somewhat alarming; therefore plants in raised beds would require considerably more—no new experience, however, in the case of vigorous growing subjects planted out under glass and dependent upon the cultivator for every drop of water which they get. Of course if the roots could get all the water which they require, plants in raised beds would grow as well as on level ground, but the chances are against them when in any way elevated. As regards

GENERAL TREATMENT, I find that Roses are not difficult to manage. A deep, fairly good border is necessary, and if composed of good fibrous loam, no manure will be necessary; but if not, one-fourth part rotten farmyard manure should be added to it; except in low-lying situations, no drainage is required. This I have learnt from experience. At one time I erred by giving too much drainage, and the plants suffered in consequence. With regard to planting, if they have been grown in pots they can be put out at any time, but I prefer to plant during the winter months when the plants are at rest. Then the roots can be disentangled and spread out to occupy more space than they otherwise would do. A good deal may be done towards securing success by selecting the most suitable positions for growth; such positions must enjoy a full share of light. In a properly constructed and internally well-arranged house entirely devoted to Roses there will not, of course, be much difficulty in selecting proper positions for the plants, but even in that case the cultivator

must exercise judgment. If the roof is too much shaded by climbers, Roses beneath them will make weakly growth, and produce but few flowers. In my case, having a large, unheated house erected for Peaches, we grow a good many Roses in it. In every available space along the front and ends where they are sure to get plenty of light we plant a Rose tree. Supporting the roof of this house there is along the middle a row of iron pillars, against every one of which we have a climbing Rose, and as soon as they reach the roof we train them on the rafters, which are about 8 feet apart. Thus managed, their shade is not in any way detrimental to the Peach trees grown beneath them; nor do they in other respects seriously interfere with them. The only part of the season during which we dislike their presence amongst the Peaches is while the latter are in blossom. Then we have to discontinue syringing for a time, and the Roses are sure to get some amount of green fly upon them. These, however, soon disappear when the Peaches go out of bloom and the garden engine is applied vigorously every evening.

THE SUMMER MANAGEMENT consists in giving the roots plenty of water, tying in such growths as require it, and removing dead flowers. We leave, indeed, our Roses to grow pretty much as they like in summer. We certainly should not think of pruning them, unless it be cutting away a few useless branches. On account of their being somewhat more tender than Hybrid Perpetuals, Noisettes and Teas are the most suitable for growing permanently under glass. In a light, airy house all Roses may be grown with a fair amount of success, but if I had my own way I should exclude Hybrid Perpetuals altogether, and especially those of scandent habit, from a Rose house, for they are the most unsatisfactory of any. For training under the roof or for forming bowers in a proper Rose house the following may be selected without fear of disappointment, viz., Reine Marie Henriette, a capital grower, a quality happily belonging to several others of equal merit; it flowers freely, is fairly fragrant, and as a red Rose there is a delicacy of colour about it that makes it quite charming. When this variety was introduced I somewhat underrated its value, but longer acquaintance with it has caused me to alter my first opinion respecting it. Chesnut Hybrid is a strong growing Rose and delightful as regards fragrance and freedom of flowering; Duchess of Edinburgh resembles it in colour, and is a fairly good grower, but in other respects not equal to the two preceding; Climbing Devoniensis, a rampant grower, is only suitable for very large houses; Maréchal Niel, Gloire de Dijon, Céline Forestier, and Solferino are also adapted for training or festooning under the roof. For pillars 6 feet or 8 feet high the following is a useful selection from the Tea-scented sorts, viz., President, Niphetos, Catherine Mermet, Marie Van Houtte, David Pradel, and Safrano. For growing in bush form one could hardly make a mistake in selecting from the Teas. My choice would be Devoniensis, Madame Falcot, Lamarque, Letty Coles, Adam, Belle Lyonnaise, La Tulipe, Eliza Savage, and La Boule d'Or. I have only now to refer to

THE PRUNING; this should be done in December. For the first two years very little pruning will be necessary; afterwards, it is best to thin out some of the old wood, and leave in young to take its place. Such vigorous growers as Chesnut Hybrid, Gloire de Dijon, and Reine Marie Henriette will flower fairly well if pruned back within three or four buds of the old wood, but when practicable the strongest of the young branches should be left with just a little shortening back, as they will invariably produce the largest flowers. J. C. C.

How to have fine Roses.—One of the largest and finest Rose gardens with which I am acquainted is that of the Hon. Judge Gough, Rathronan, near this town. I visited it a few days since, accompanied by some gardening friends, and was astonished, when so many, like Mr. Fish, are complaining, and with reason, to find all the

Roses here—on the Manetti, Brier, and their own roots—clean, vigorous, unusually so, and with great heads of promising bloom buds, while every expanded bloom could then and there be placed on an exhibition table. This is not exaggeration, and the secret of the success I proceeded to learn. They were all lifted when some 20 years of age, root pruned, and supplied with new soil, said the head gardener.—W. J. M., *Clonmel*.

COMPOSTS FOR POTTING AND BORDERS.

ABOUT this season of the year gardeners of all degrees, and numbers of amateurs, no doubt will be exercising their minds on the subject of soils and composts for storing for future use. With gardeners in private places, with perhaps their employers' fields and moors to go to, it is principally a question of selection; but with amateurs in various circumstances—people with houses in towns, or small gardens in the country containing a few glass houses and plants—the main problem is, Where is the soil to come from? Among the inexperienced, particularly, the most erroneous notions exist on the subject of soils in plant culture, and far more importance is attached to the matter than need be, thanks chiefly to the mysterious teachings of old gardening books. Here I shall try to explain the nature and uses of the various kinds of soils and other materials used in the garden, hoping thereby to help the reader more effectually than has hitherto been done, and according to his particular circumstances.

LOAM.—This is the principal element in nearly all potting composts and borders. Loam varies much in quality, some samples being heavy and some light, with many shades between. Hence the word is rather misleading in the sense in which it is generally used. There are clayey loams, sandy loams, light loams, and heavy loams. The first is a strong soil, suitable for wheats and some other subjects, but seldom good for horticultural purposes, being apt to bake, cake, and become hard. The second (sandy loam) is more generally useful, but often wants enriching; while light loam usually consists of sand, clay, and vegetable mould in about equal proportions, which render it very suitable for various purposes, without the addition of anything else. The best loam is procured from the surface of old pastures, being rich in the food of plants, derived from animal excrement and vegetable fibre, the latter in a state of decomposition, being a manure in itself. As a rule, the colour of loam is a pretty good guide to its quality. For garden purposes, it should not be too light-coloured nor too dark, but just of a dull brown colour, something like snuff or cocoa, and friable in texture. Loam like this is common in mostly all localities, in old fields, about hedgerows, roadsides, and wherever the soil has been long undisturbed. Loam usually and necessarily forms the staple of all good garden soils, but is oftener found least adulterated on farm lands, as well as richest in quality; and a perfectly good article for one's purpose may generally be found in such places, only needing sifting to free it from stones and rubbish. Loam of this description, if stored under cover, will dry and become fit for use in a short time, and may be reduced or enriched to any degree by the application of leaf mould, sand, or manures, according to its quality.

PEAT.—Like loam, peat differs much in quality. Kent peat, of which two sorts are sold by the trade, chiefly for Orchids and other special subjects, is of excellent quality for many purposes. The Orchid peat consists chiefly of Fern and other roots, which, in their half-decomposed state, form a rough fibry turf. The other sort is blacker and of closer texture, but contains much rough white sand, which keeps it open, rendering it suitable for some pot plants as it stands. Good peat is, however, easily found on mostly all moors and commons; and if it is not exactly of the quality desired, it can soon be altered by the addition of sand. Peat is plentiful in morasses, where it usually consists of decayed Sphagnum Moss, often many feet deep. It is this kind of peat that is dug out and dried for fuel in many parts of

Scotland and Ireland, but it is not very good for horticultural purposes. That which is found on the higher and drier hillsides, where the common Heath thrives, is the best, and should always be chosen. The Sphagnum Moss peat will do, however, for many common purposes outdoors, and is used in immense quantities by nurserymen for their Rhododendron beds and the like, mixed with common soil. This kind of peat in a dried state is now being imported from the Continent in the shape of peat litter; but we have plenty of it at home equally suitable for the purpose. Peat is exceedingly useful for many purposes in plant culture. Most plants will grow in it well, and some species, like Heaths, Azaleas, and Rhododendrons, prefer it to loam, while it may with advantage be added to nearly all composts. When well drained plants root freely in peat, and the roots keep active and fresh in it longer than in any other compost. It takes the place of leaf mould, and does not encourage the production of worms like that material, which is a great advantage. A quantity should be stored for use in any garden, and before using it should be thoroughly chopped up, and every particle of the soil rubbed through a fine sieve, in which condition it is fit for adding to other soils or using by itself. Pure peat and sand in equal quantities, sifted fine, form one of the best composts for fine seeds. It never cakes, and the weakest seedling can push through it. A little loam may be added to it for such purposes, but composts for covering seed-pans and boxes should consist of peat and sand alone. Peat that is not naturally sandy, like Kent peat, should never be used in a lumpy, rough state, so commonly practised. It soon goes black and sour, and no roots will thrive in it. This is the case with the moorland peat we use here, but by breaking it up thoroughly and adding sand and charcoal dust to it in quantity it answers for anything. Nothing is more deceiving than a rough, peaty compost. You may add sand to it in quantity, and at the end of the year it will turn out of the pot so black and sour, that one wonders where the sand has all gone to. The real explanation is, that it never was in it, the turfy lumps having only been coated over with sand, and not mixed with it at all. Broken well up, it requires a large quantity of sand added to it to alter its texture sensibly; in fact, black soft peat can hardly be overdone with coarse silver or river sand. Peat may be added to all loams freely; I never heard of it doing any harm, and for reducing heavy soils to a friable condition it is preferable to leaf mould, provided plenty of sand is given as well. It may also be added to garden ground with advantage, especially in conjunction with lime, which acts upon it beneficially, like other vegetable substances. Some of the best and cleanest crops of Potatoes I ever saw came off ground manured in this way.

LEAF MOULD.—Like peat, leaf mould enters largely into nearly all composts for propagating and potting plants; unlike the former, too much of it may be used. Many plants that do not grow in peat naturally will thrive in it nevertheless; no plants succeed well in leaf mould alone. The best mould is formed of tree leaves only, but much that is used consists of decayed hotbed manure, which, although not differing in appearance from pure leaf soil, is richer in character, and usually much infested by worms, for which reason it is not so good for plants, as it is sure to encourage these pests. It does very well for potting coarse rooting subjects, but peat is preferable if clean leaf mould cannot be procured. In fact, we should prefer peat as substitute for leaf mould for nearly everything. Light loams are not much benefited by leaf mould, and it should be sparingly used. For Vine and fruit borders generally it should never be employed, except as a mulching for the surface, for which purpose it is excellent in many ways if used in the rough state. When buried in the soil of borders it is very apt to create fungi, especially when bottom heat is used. We once saw a Vine border turned out that was completely run with the threads of some fungus that smelt very offensively, and injured the Vines. Mould from Beech

leaves is particularly objectionable on this account, as the husks of the nuts soon become masses of spawn. It is the pieces of rotten twigs and sticks that create the fungus principally; the leaves themselves soon decay. For pot purposes, leaf mould should be thoroughly decomposed, by letting the leaves lie in a large heap a couple of years or more.

SAND.—This is one of the most indispensable ingredients in all composts, and may take the place of either peat or leaf mould for lightening heavy soils. The heaviest loam can be reduced to an open and friable condition by the application of sand, and for many strong-growing subjects, like Pelargoniums, no other addition is needed. Silver sand is most commonly used, and there are several kinds of it. Reigate silver sand is the best, either the coarse or the fine, but large quantities are shipped to Hull of a kind called "Calais sand," which is perfectly good for most purposes, though some gardeners do not like it, because of its fineness. River sand, from clear rivers, is as good as the best silver sand, and we know gardens where no other kind is ever used. It would be pure waste of money buying silver sand at so much a ton when good river sand could be had for nothing, as it can be near many English and Scotch streams and rivers. The quality can always be tested by striking a few cuttings of various plants in it. If a plant will root readily in the pure sand, or if seeds will vegetate in it freely, it will do for mixing with all composts also. The red sands, so abundant in some parts of Nottingham and other parts of England, are also quite as good as silver sand; for fruit trees and plants of all kinds not only grow freely, but thrive in these when manure is added. Some of the finest Grapes we ever saw were grown in soil consisting almost wholly of red sand; and we believe the greater part of Sherwood Forest lies on the deep red sandstone. Grapes, as a rule, succeed uncommonly well in red sandy loams of this nature, and some maintain it is the best of all soils for the Vine. Sand should enter largely into mostly all potting and border composts, if it be procurable in sufficient quantity. A soil may be made poorer by its application, but it is not likely to do harm in any other way, and heavy loams are much improved in texture by it, provided the two are thoroughly mixed. For propagating purposes, sand is commonly used alone, but for most things it may be mixed with about a quarter of fine leaf mould or peat with advantage to the plants, especially when potting off is not carried out as soon as the cuttings are struck.

CHARCOAL.—Fresh charcoal that has not been used for steel-making or other manufacturing purposes is excellent for mixing with soils. It can hardly be given in too great quantities, for all sorts of plants root freely in it alone; hence charcoal dust may be used as a substitute for sand in striking cuttings; in fact, the dust is the best portion of it for garden purposes, and as the charcoal-burners give it away for little or nothing, it is usually procurable in sufficient quantity on all estates. It is one of the best soil sweeteners that can be used, as it prevents the soil from becoming sour. In one sense it also acts as a manure, and it is certain most plants thrive well in a compost containing plenty of it.

These, then—loam, peat, leaf mould, sand, and charcoal—are the five main elements of all plant composts, and their use or proportion depends upon the subjects they are needed for; but for the great majority of cultivated plants that do not naturally require one particular kind of soil, two parts of loam, one of peat or leaf mould, one of sand, and one of charcoal will prove a good compost. J. S. W.

Travelling plant dealers.—Allow me to warn readers of THE GARDEN to avoid buying plants from travelling plant dealers. I do not mean hawkers of the ordinary class, who usually give money's worth, but dealers who only stay a short time in one locality and induce people to part with their cash for worthless material. In this locality we had some time ago a visit from a

party of Carnation and Picotee dealers, who did a very good trade, as they sold at any price rather than lose a customer. The plants, too, were fine and healthy looking, too good by half for named sorts from layers; on the contrary, on examination of the root it was evident they were seedlings; nevertheless, they were furnished with large labels, printed in the boldest type, exhibiting such names as Old Crimson Clove, and others equally popular, and any number of Picotee names. I need hardly say that after several of the lots purchased had bloomed there was not a double flower among them, nearly all being single purples or dirty whites. Doubtless other flowers in season sold by such people are equally worthless.—JAMES GROOM, *Gosport*.

GARDEN FLORA.

PLATE CCCXCVI.

NORTH AMERICAN WILD FLOWERS.

THE plants that inhabit the Eastern States of North America must ever have for us more than ordinary interest. The country called New England is full of beautiful plants which have been proved to be hardy and happy in old England. Distinct from our own, they are in beauty fit to rank with the best of our wood and garden plants. They frequently have English names given them by the English who settled there a couple of hundred years ago, and though subject to greater cold in winter and greater heat in summer than in our land, they are quite as happy here as at home. Such, at least, is the case when any care is taken in their planting. They, for the most part, inhabit woody places, often open woods, but the sun in their country being greater in strength than it is here with us, a more open situation is tolerated by them. Our sketch is drawn by Miss Shackleton, who travelled for some time in America, and made a variety of pretty sketches of its native plants.

Coming to the individuals shown in our plate, the Trillium is now well known and admired in this country. It is an admirable plant for a somewhat moist vegetable soil in a shady or half-shady place. The little white Meadow Rue (*Thalictrum*) is less known, but is a most delicate and pretty plant, with white flowers over a Fern-like network of leaves. We know nothing more interesting than a little carpet of this dotted all over with its white stars. The yellow flower (*Uvularia*) is less attractive generally, but a very graceful plant for a quiet nook or a patch between American shrubs. The Pblox is not very common, but an excellent plant, and the Arum, or Indian Turnip, as it is called by the natives, is singular, though scarcely likely to be used for general cultivation.

As years go on we hope to see greater use made of these hardy American flowers in our gardens and pleasure grounds. For years our American friends never took much notice of their own woodland flowers, possessed as they were to a dreadful extent by that demon, Bedding Out. But, seeing much praise of their forgotten flowers in a journal printed in another country (THE GARDEN), and learning through it that we English had brought over their wild bog and wood flowers, and felt great pleasure in growing them, they awoke to the fact that they had plants in their woods and wastes worth growing, and now they collect and grow them.

Our experience leads us to say, however, that the wild flowers of North America have more value for us as garden plants than they have in America, where the horrid winter keeps them in its icy



A GROUP OF NORTH AMERICAN WINTER PLANTS.
ARUM TRIPHYLLUM, TRILLIUM GRANDIFLORUM, THALICTRUM,
ANEMONOIDES, UVULARIA, SIBBALDIA, AND OTHERS.

arms for months after our garden turf is happy with Snowdrops, and perhaps with the handsome blooms of the Blood-root (*Sanguinaria*) of the American wood. With us the spring is generally early and slow, struggling often with wind or frost, but always in the end triumphant. Even when apparently beaten for a time, it is full of promise of bud and blossom, realised by the first fair morning. "They grumble much about their climate," said the present American Minister, the Hon. J. Russell Lowell, "but it is a beautiful one!" So he remarked to an American friend who came over last year. He had been down staying at a country house in Yorkshire about the end of February, and saw the early glory of the Crocus and Primrose as they peeped out of the ground. Two months later the same plants would probably be beneath the snow wreaths in the Northern States. So these two months are a clear gain to our gardens, where the Mayflower or trailing Arbutus is just as eager as our own plants to open its buds in spring.

SEASONABLE WORK.

FLOWER GARDEN.

CASTOR-OIL PLANTS.—To those who are in search of sub-tropical effect in the summer garden, and yet lack the conveniences for housing and wintering large growing sub-tropical plants, the varieties of *Ricinus* or Castor-oil plants will, indeed, prove a boon. Their rapid and stately growth, large foliage, and the ease with which they are raised all tend to enhance their value for the purpose just named. The varieties *armatus*, *Obermanni*, *viridis*, and *macrophyllus*, when sown in March, and grown on without check, attain a height of 8 feet by August. The seeds should be sown singly in 3-inch pots; they quickly germinate in a temperature of 65°, and should be given this heat till they need potting into larger pots, then a temperature of 60° will be ample. By the beginning of May they will be ready to pot into 8-inch pots, and at the end of that month may safely be planted out in their summer quarters. Deep tilth and well rotted manure are necessary to ensure vigorous growth. The deep bronze foliage and red-stemmed variety *Gibsoni* is not so strong a grower as the kinds just named, a circumstance which makes it all the more valuable for use as an outer line to beds of the strong green foliaged sorts. This kind also bears pinching well, and may, therefore, be grown in the form of a bush.

GENERAL WORK.—At present there is but little to be done that calls for special remark, the principal requirements being the preservation of neatness by regularly mowing lawns, clipping edgings, and weeding and rolling walks. Bedding plants will now be in their full dress, and in order that they may continue so, keep them well supplied with water, removing all useless flowers at least once a week. Trailing kinds will require the same periodical attention as to regulating their growth, either by pegging down or training to sticks, as the case may be. Single Dahlias and other tall growers planted as "sentinels" amongst lower growing plants may need a portion of their growth curtailed, both to preserve symmetry and to prevent them from encroaching too much on dwarfier plants. Keep carpet beds trim. *Herniaria glabra* rarely needs clipping, and this merit renders it the best of all plants for forming a green groundwork, edgings, and intersecting lines in this class of bedding. The dwarf Sedums and Saxifrages only require the flowers to be kept off them and to be pressed down with the hand to make them spread evenly. On herbaceous borders old flowers of Pyrethrums, Mallows, Delphiniums, Spiræas, and many others need cutting off; sticks also should be taken away, and the ground about such plants should be "pointed" over. Roses are

in full bloom, and almost daily now there are numbers of decaying flowers, that for the benefit of the plants would be better off. Shorten also vigorous shoots, keep the plants well watered and washed, and then expect a good autumn bloom.

PROPAGATING.

HARD-WOODED PLANTS, such as Heaths, Epacris, Chorozemas, Boronias, and similar subjects, may in most cases be struck from cuttings during the summer months, although among them are to be found some that require great care in order to ensure success. The best cuttings are the young shoots that push forth after flowering, especially if the plants have been cut back; but even then it is better to take shoots of weak growth than stout succulent ones, which are very liable to decay. As it is absolutely necessary to keep them perfectly air-tight, bell-glasses should be used for that purpose, and the size of the pots will, of course, depend upon that of the glasses employed. In preparing the pots, invert a small one over the hole in the bottom; then fill up with broken crocks till within 1 inch of the top. The crocks should be clean, and gradually diminish in size from the bottom to the uppermost layer, to facilitate which a good practice is to pass them through sieves of different sizes, and keep each lot separate. The top portion should be those that pass readily through a sieve with $\frac{1}{4}$ -inch mesh, but, as the dust must be extracted from them, one still finer must be employed. A space of half an inch or 1 inch, according to the size of the cuttings, must be left for the soil, which should consist of two-thirds peat and one-third sand, the whole finely sifted. The pots being firmly filled with the above to within a little of the top, a thin layer of sand should be added and the whole slightly watered, using for this purpose a fine-rosed pot.

IN TAKING THE CUTTINGS, where not too long, all that is necessary is to strip them off and remove the bottom leaves to the extent necessary for insertion, but if too long to be treated in this way the top only must be cut off at the length required. In removing the leaves a sharp-pointed pair of scissors must in some cases be used, or in others let the top part of the cutting be held firmly, but gently, in the left hand, and let the leaves be stripped off one by one with the right hand. This effects a saving of time, but should only be used when the leaves come clean away from the bark without tearing or injuring it in any way; if they hurt the bark, of course the scissors must be used to remove them. Before putting in the cuttings press the bell-glass slightly in its place; the imprint in the sand will serve as a guide in inserting them, otherwise they may be put in too near the edge, and thus get pressed down by the glass. Put them in rows at a sufficient distance to stand clear of their neighbours, and take care that they are made thoroughly firm, especially at the base. When a potful has been put in, a thorough watering must be given to cause the sand to form a smooth, unbroken surface. This watering may either be done with a fine-rosed watering-pot, or if the cuttings are so small and slender that the weight of the water alone would cause them to overbalance, the better way is to set the pot when completed in a pan of water, not of sufficient depth to float over the surface, but still enough to enter by the bottom and give the soil a good soaking. After watering leave the glasses off for a little time to dry the foliage, then put them in securely and shade from sunshine. Where there is not a propagating house for this class of plants, the next best place is a cold frame, one or two lights of which may be partitioned off for that purpose, and treated accordingly. The bell-glasses must be wiped and removed for a little while each morning, and a strict watch must be kept for the least symptoms of decay, on the approach of which a little more air may be given, but not more than is necessary, as the soil soon dries, and frequent waterings are hurtful. If attended to in this way a fair measure of success may be reasonably anticipated, but of course constant care in the matter of shading,

watering when required, and drying up superfluous moisture will be necessary till they are rooted. When that happens give air by degrees, and gradually harden them off; then pot in small pots and grow on, taking care to stop them when necessary, as the foundation of a good plant is formed when in a young state.

INDOOR PLANTS.

CONSERVATORY.—Now when the whole of the spring flowering, hard as well as most soft-wooded, plants that bloom during the earlier part of the season have done flowering, stove plants in bloom will come in most usefully to take their places, as if associated with the hardier kinds of Palms, Tree Ferns, Cycads, and other fine-leaved plants, and tastefully arranged, they have a very fine appearance, and will make a display equal to that which existed in spring. Where many of the occupants of conservatories are permanently planted out, such a re-arrangement as is here recommended can only be partially effected. At this time of year, when insects increase very fast, corresponding attention must be paid to destroying them, or it will be impossible to keep the stock in a healthy condition. Sponging by hand is a slow process, and seldom more than partially effective. It is much better where it can be done to take the plants out of the houses and syringe them freely with insecticide, as if the work is well done all the interstices in the leaves and bark where the eggs and larvæ are hid are reached. Care should be taken to keep roof plants as free as can be from such insects as brown or white scale or mealy bug, for where these exist to any extent on climbers overhead they are certain to be communicated to every plant underneath them on which they will live. It is well as far as possible to select climbers for roof decoration that do not afford acceptable food to these pests, for although there are but few plants on which some or other of the numerous insects existant will not live, yet there is much difference in this respect.

LILIES.—Where a good stock of these are grown in pots they are most useful in conservatories; plants of *L. eximium* that have done flowering must be well supplied with water so long as the foliage remains green; they may then be planted out in well prepared soil, as they are not likely to bloom much a second time where at all forced until they have had a season or two to recruit their strength. *L. auratum* and other species require to be similarly attended to in the matter of water, also to be kept free from aphides, as on the retention of the leaves until the bulb growth is fully completed depends their well-being in future. *L. giganteum*, though mostly planted out in the open ground, will, if well managed, attain a larger size and produce more flowers in a pot; but it does not usually increase so well in this way by the production of suckers. Where this fine Lily is grown in pots, we have found it best to turn it out of them immediately the blooming is over, giving plenty of water if dry weather ensues. Plants of the different varieties of *L. speciosum* should have the stems supported by sticks before they get too far advanced, and in carrying out this operation with Lilies, care ought to be taken not to injure the bulbs; through want of caution in this much mischief is often done.

ABUTILONS.—A sufficient stock of these should always be kept up. Independent of their decorative value as pots plants, their continuous habit of flowering is not surpassed by many things which are as easily grown. Their ability to flower through the winter if accommodated with a little extra warmth is a still further recommendation. The white variety *Boule de Neige* is so useful for cutting, that it deserves a place everywhere where winter flowers are in demand. It blooms in a very small state; plants of all the varieties struck from cuttings put in now and wintered in small pots will make useful blooming stock next summer.

GENISTAS.—Small or medium-sized examples of these are much more useful than large specimens; their easy propagation and the little difficulty involved in their after treatment is such as

to make them deserving of much more general cultivation than they receive. Presuming that the plants are now out-of-doors, any shoots that show a disposition to outgrow the rest should be cut back, but no attempt ought to be made to keep them too formal by pinching in the whole of the branches, as is sometimes done, which gives them an over-stiff appearance. In the case of young, thriving examples of these Genistas, where the pots are small and have got full of roots, they should be frequently supplied with dressings of light manure or manure water, and as they are liable to the attacks of red spider they ought to be syringed every evening in dry weather.

FERNS.—Where there are large structures devoted to Ferns, and a portion of the larger species are planted out, attention from time to time should be given to keeping the larger growing kinds from encroaching too much upon the weaker-habited sorts. This is especially needful where many of the stronger sorts with creeping rhizomes exist. These if strong and not checked soon extend in all directions; this can be corrected by cutting the fronds, which so far reduces strength as to prevent their spreading too fast. The rhizomes or creeping stems may also be shortened, which will cause them to break back and induce a closer, more compact condition. One of the mistakes committed in the cultivation of the tree species of Ferns is giving them too much root room, either when planted out or when grown in pots or boxes; in both cases when accompanied by more artificial heat than requisite it invariably induces a greater extension of the fronds than is admissible within the limits of a plant house, unless where it is much larger than usual, the result being that the strong growers smother the weather ones, and the interest attached to the collection is reduced by the smaller number of kinds grown. But where plants of these larger growing kinds have had their roots confined within a limited space for any considerable length of time they should have frequent soakings with manure water during the growing season; when sufficiently supplied in this way they can be kept for years in a satisfactory condition. Liquid manure, or moderate dressings of some of the light manures now so much in use for applying to the surface of pot plants answer well for most of the small growing kinds of Ferns, such as the *Adiantums*, *Pteris*, *Davallias*, and others of a like character. In Fern culture no more artificial heat should be used than is absolutely necessary, for it not only makes the fronds unduly tender, but also renders them much more susceptible to thrips. Where these are present it is best to dip or syringe with tobacco water, as when fumigation is resorted to strong enough to kill the thrips it usually is more than the plants can bear.

FRUIT.

CHERRIES.—If any of the trees require potting, let them be well cleansed and shifted as soon as they are clear of fruit. Use good friable loam and lime rubble in a rather dry state; ram it very firm, leaving plenty of room for water and mulching when all is finished, and return them to the house for a week or two. If the balls are thoroughly moist at the time they are potted, one good watering to settle the soil, followed by daily syringing, will most likely suffice for the time they are kept under glass; but while guarding against getting the new soil too wet equal care must be exercised in preventing the roots or foliage from suffering. If large trees of late kinds are still carrying fruit which it is desirable to keep for any special purpose, some kind of shading will be needed for the front of the wall case, and a good covering of rotten manure, while keeping the roots cool, will be ready for washing in as soon as the crop is gathered.

PLUMS.—When the early kinds in pots show signs of changing for ripening discontinue syringing, but keep them well supplied with water, and, if convenient, separate them from others which are less forward. Keep all the pots well mulched with good rotten manure, and supply the roots with diluted liquid at every watering. Use pure

soft water for syringing, as Plums show every spot of matter left by the sediment from that which contains lime. Ventilate freely, as Plums do not make rapid progress in a high temperature, and the free admission of air adds greatly to the beauty of the bloom on the fruit. See that established trees of Jefferson, Golden Drop, and others are thoroughly mulched and supplied with water. Keep the foliage free from aphids by fumigation, and syringe twice a day in fine weather.

LATE PEACHES.—Where it is thought desirable to retard the ripening of fruit in the latest houses until September or October, all the ventilators should be set open by night and by day until the flowers begin to open, and again after the fruit is set in order to delay the stoning process. It is hardly necessary to say that the houses from which this late fruit is obtained should have hot-water pipes running round the sides for keeping out frost when the trees are in blossom, and again for supplying dry heat after the crop is gathered, otherwise such excellent kinds as Walburton Late Admirable, Barrington, Sea Eagle, and Prince of Wales Peaches, Stanwick Elruge Nectarine, which never cracks, Victoria, which few can ripen on open walls, and Albert Victor, cannot be expected to ripen their wood and perfect their buds before the winter sets in. Some years ago when we had a number of large trees in pots and tubs we used to make it a practice to place suitable kinds out-of-doors in a sunny, sheltered situation about the end of June, but fresh arrangements now enable us to gather quite as late from vigorous young extension trees trained under the roof of a house in which we winter standard Bays and Aloes. The latter were taken out for the summer before syringing—never a heavy item in cold houses—affects their growth. The dry fire-heat after they go back to their winter quarters seems to suit all round alike, and the constant watchfulness so essential to success in pot culture is avoided. Many people are impressed with the idea that the planted trees give the finest fruit, but we have not found it so, particularly during the time the planted trees are extending; indeed, Peaches, Nectarines, and Pears of the largest size may be grown upon pot trees when they are kept under glass, and constant feeding of the highest quality is judiciously given to them.

MELONS.—Plants in pits and frames swelling off fruit will now take an abundance of water at the roots. During unfavourable, cold, wet seasons it is not advisable to water overhead in these structures, where the plants are more subject to canker than when grown in houses, and spider does not make so much headway; but advantage may be taken of a fine afternoon for flooding the bed with water at a temperature of 85° to 90° without wetting the foliage, and closing about half-past three, when the atmospheric moisture will produce conditions highly favourable to the rapid development of the fruit. Pay particular attention to the preservation of the old leaves, as they cannot be interfered with without producing a check, and give them full exposure to sun and light by cutting away all lateral growths and keeping the glass clean. Elevate the fruit on inverted pots on a level with, but not above, the foliage, as some kinds are liable to become discoloured when they change for ripening if night airing is neglected. Attend well to the linings by turning and renovating with fresh manure before the heat in the bed shows signs of declining, cover with good dry mats, and give a chink of night air to prevent an accumulation of rank steam and condensation of moisture on the fruit. Refer to previous calendars for directions as to the management of Melons in houses and heated pits. Get out young plants before they become pot-bound, and make a good sowing of some quick-fruited kind for coming in in October. Meantime prepare a light, well-ventilated, efficiently heated pit for the reception of the plants. If bottom-heat pipes are provided, the fruiting pots should be plunged within their influence when extra warmth is required for setting and ripening the fruit, but until the nights become longer fermenting material will produce a moist heat, in which

Melons will revel through the early stages of their growth.

CUCUMBERS.—If a heated compartment, perhaps now filled with Melons, will be at liberty in about three weeks, the present time will be favourable for sowing a few seeds of Telegraph or some other favourite kind for autumn fruiting. Be careful to thoroughly cleanse the house, as Melons invariably leave an unwelcome legacy behind them. Also prepare the necessary fermenting material for giving bottom heat. Have it well worked before it is taken in, and defer plunging the fruiting pots or making the ridges until all danger of burning the soil has passed away. Make frequent additions of light, rich turf to the roots of plants which have been in bearing for some time, feed copiously with clear liquid, and water occasionally with warm clarified lime water to keep the hills free from worms.

FRAMES.—The plants in these now in full bearing will require unremitting attention if they are to be kept in good order for any length of time. Dress them over three times a week, and earth up with lumps of rich turf and old lime rubble as the roots find their way to the surface. Attend to the linings, as want of bottom heat is often the forerunner of canker and mildew in frames where the plants have been started well and afterwards neglected. When the oldest plants show signs of exhaustion take one or two lights in hand, cut out all the fruit and old leaves, peg the Vines down on the hills, pack the joints with pieces of fresh turf, and keep the frame close, moist, and shaded until new growth sets in.

KITCHEN GARDEN.

DISEASE in the early section of Potatoes has made its appearance in some places. Cutting off the tops underneath the surface is a better way of saving the tubers than lifting at this busy season; therefore lose no time in doing this, as delays are dangerous, and no Potatoes are more likely to be affected than Myatt's. Champions and other late sorts are as yet all right. We are now busy gathering bush fruits and Strawberries, the latter a very heavy crop. When the weather is damp we fill up every available inch with spring and autumn Broccoli, leaving the Kales till later on. Our first lot of Brussels Sprouts are 1 ft. high and growing strongly. Keep the ground free from weeds among all crops, hoeing or using the cultivator as the case may be. Among Peas, Standard, Marie, and John Bull are now in full bearing; the last is a trifle longer in the pod than the others, and the quality good. If one has these three and Omega for use in August and September, few others will be needed. If Endive is not yet sown it may be put in now; nothing is gained by sowing very early, as the young plants generally run to seed. Shallots are ripening fast; ours are planted in drills filled with burnt refuse, and in this no grubs or other vermin ever attack them, not even mildew, and the result is a clean, healthy crop.

Germination of Primula and Rhododendron seeds.—In a recent issue of THE GARDEN (p. 557) are some remarks regarding the germination of Primulas, more especially such kinds as produce their flowers in a whorled scape. Of the seeds of *Primula japonica* therein mentioned I have sown large numbers with very varied results. In the case of seeds saved by myself and sown immediately they were ripe, fully one-half germinated within six weeks; then a few continued to make their appearance till the following summer when the bulk of those remaining came up. When seed was ripened in the summer and kept till the following spring before sowing, in nearly every case it remained a year before germination took place, but sometimes a few made their appearance at irregular intervals before that time and some afterwards. In the case of seeds kept about eighteen months, *i.e.*, ripened in the summer and kept till the second spring, I never succeeded in getting any to grow, although I tried them in different ways. Another whorled kind, *Primula verticillata*,

germinates quickly if sown as soon as the seeds ripen and the same result generally attended seeds kept till spring, but in the latter case the young plants come up at irregular intervals throughout the summer, although mostly under exactly the same treatment they germinated at once. This difference in their time of lying in the ground before growing might possibly depend upon the ripeness of the seeds. Regarding hybrid Rhododendrons I have observed the unusual length of time the seed takes to ripen even after the appearance of the pod would lead one to think it was thoroughly ripe. Having once been deceived by gathering a pod before it was ripe, I now, when approaching that stage, envelop the pods in fine gauze and allow them to remain till the seeds are shed, thorough ripening being thus insured without any risk.—H. P.

KITCHEN GARDEN.

SUMMER TREATMENT OF TOMATOES.

NOT a great many years ago, "Love Apples," as Tomatoes were then called, were oftener looked upon as ornaments than as valuable food, but now the love for Tomatoes is universal. This is as it should be. No better esculents can be grown than Tomatoes; and, although in instances here and there they can be grown and gathered all the year round, it is only in the summer time when the great majority of small garden owners can have them. Special attention should therefore be devoted to them now if an abundance of fine fruit is to be obtained before the end of September. In favourable localities large quantities of Tomatoes may be grown out-of-doors in summer. In exceptionally favourable seasons we have had them in open quarters tied to stakes, but, as a rule, this plan cannot be generally depended on; growing and training them against a wall with a south aspect is the surest of all modes of making them succeed. A special or whole wall should never be given up to them, but every bare spot between trees should be covered with them. It is

NOT YET TOO LATE TO PLANT, but in many cases the plants will have been out for some time, and it is these which will now require attention. As a rule, growers are inclined to put a great deal of manure on their Tomato ground, and this, especially at first, causes the plants to make a large quantity of superfluous growth which is unfavourable to fertility. It is also a mistake to allow young plants to grow out of all shape and bounds before restricting them; careful stopping and training from the first is best. In some instances one main stem will be sufficient to fill up the vacancy, and in others there may be room for two or three; but the stems should never be closer than 12 inches, and side growths, which are always ready to push out, should be rubbed away when quite small. This will admit plenty of light and air to the main stems, and clusters of flowers and fruits will be formed at every few inches apart all along the main branches. When the weather is too wet or too cold for the fruit to swell freely or ripen off, a frame-light should be set on end over each plant, which from this will be found to receive great assistance. If too tall for the lights to cover, the latter should be raised upon bricks.

OLD PLANTS grown in pots or boxes, in houses or pits, to produce fruit throughout the spring, frequently become straggly and bare at the bottom at this time, but all such may be turned to a profitable account if taken out and nailed to a south wall where they will have shelter and sunshine. After being there for a short time the growth will not look so well as when newly brought out, but they will soon recover and be even more fruitful than before. At present we have some fine fruitful plants treated in this way and doing well. These plants, it may be stated, were not turned out of their pots when taken to the walls; being pot-bound, they are more fruitful than if they had been, and they can be well fed when it is desirable to do so. Where no other place is available for their growth, a fine lot of summer Tomatoes may be grown in

FRAMES. These may be planted out like Cucumbers, or they may be grown in pots, which should be placed at one end of the frame and their growths trained near the glass. This is done by suspending a small trellis, made of wood or wire, just inside the frame. From 4 inches to 6 inches is about the right distance to have it from the glass, and the shoots should be trained thinly over it. As there are many empty frames now, they might be profitably employed in this way, especially in northern and cold localities. Manure water is most beneficial to all Tomatoes during the summer time, but it should only be given to plants which have their rooting space well filled with active feeders and their branches bearing heavy crops. To give manure water to plants with hardly any fruit on them only encourages the production of superfluous growth, which is useless.

CAMBRIAN.

Peas podding.—I object to Mr. Muir (p. 10) inventing statements for me that I never wrote, and then answering them. I have not written that "Veitch's Perfection Pea is superior to the Ne Plus Ultra," as Mr. Muir says I have done. On the contrary, I said that that Pea was less prolific, but sweeter. The rest of Mr. Muir's statements on Pea culture are trite, and he does not seem to convince your readers of the worthlessness of Ne Plus Ultra, deservedly described in the latest edition of the "Gardener's Assistant" as the "very best of all late Peas." I will not accept the entirely different habited Peas he names in comparison with the Ne Plus Ultra; and, waiting for the time when Mr. Muir will name or produce, as he said he could, Peas like it that—pod to the ground, I leave the subject for the present.—J. S. W.

Picking Peas.—A good many years have elapsed since I first began to experiment with Peas with the view of testing their powers of continuous or successional bearing. I found in the majority of cases picking off the seeds whilst green, when accompanied by good culture, caused new growths to push out, which bore a larger number of blossoms than were produced at the first, though smaller, and the Peas in the pod were fewer; still the colour and flavour were all right, and the second crop was a profitable one, or I should not have left it, as it was incumbent upon me to make the most of everything. But to make Peas worth keeping for the second crop they must be planted thinly in the rows, and the rows must be isolated in order that the sun may shine all around them. In addition they must be mulched and the pods picked green, *i.e.*, in the condition in which they are generally gathered for table. The question, of course, arises, Is it worth while to leave Peas for a second crop? Well, I can only say I expect to gather green Peas daily, Sundays excepted, from this crop till the end of September, or longer if required; and the second crop from such kinds as Huntingdonian will, I know, prove useful, generally beating the late sown round Peas; in fact, I have left off sowing the earlies for a late crop.—E. HOBDAV.

Magnum Bonum Potato.—While readily admitting the superior experience of "A. D." amongst Potatoes generally, and also the perfect right he has to criticise any remarks which I may venture to make upon the subject, I still think that he might, with propriety, admit that others besides himself may arrive at a sound conclusion without "rushing" at it. What about the Magnum Bonums last season? Did they prove as disease-resisting and as valuable as of old? I say decidedly not; and, consequently, if that kind cannot be relied upon during an unfavourable season, we ought to discard it in favour of others equally as heavy cropping and with much less haulm. It has been recently shown in the pages of THE GARDEN that appearance rather than ripeness and quality greatly influences the market prices for fruit, and I happen to know that it is exactly the same with vegetables. Those, therefore, who have to study their employers' tastes must not be influenced by the experience of market growers, more especially with regard to the selection of varieties. The

Scotch Champion is an ugly Potato, and as a consequence does not sell so well as the better-looking Magnum. I have always liked the Ashleaf-like flavour of the latter, and besides it is a better keeper than the Champion. But now, in addition to being liable to disease, it proves in our heavy clayey loam much inferior in quality to the Champion, and in this garden, as in others near here, it is almost superseded by Reading Hero for a late supply. While the Champions remain good no other Potato is admitted to my employer's table. For latest supplies during the past winter we had the Magnum, Reading Hero, and Schoolmaster. The last is not good when we usually eat Potatoes, about September, but it greatly improves by keeping. This season the rows of Schoolmaster are the most promising we have, and I am pleased to say the Magnums are improving considerably, though, as yet, not what they should be. Reading Hero certainly forms haulm of an extraordinary length, but it is very woody and branches but little—in fact, does not in bulk equal the Magnums when at their best. "A. D." is in the midst of market growers, while I am surrounded by cottagers, all of whom have large gardens, and the Potato crop is of the greatest importance, bread, cheese, and Potatoes being nearly the only food of the majority. Those who grew Champions in preference to Magnums last season had good reason to congratulate themselves upon so doing. In conclusion, I may say that I have not the slightest wish to refute the assumptions of "A. D." He may be perfectly satisfied with the judgment in question, but my neighbours will not readily agree with him that my conclusion was "rushed to on small premises."—GROWER AND EXHIBITOR.

Mushrooms in boxes.—While we were erecting a new Mushroom house last winter supplies of Mushrooms of the best quality I have ever seen were grown in boxes half filled with short stable and cow manure, and such material also as turfy soil was had recourse to to make up the desired quantity. The beds were formed in the boxes in the ordinary way, and placed in a shed. Whether it was the material in which the Mushrooms grew, or their being left to themselves in the boxes, I know not; but after growing this much-esteemed esculent for many years with invariable success I never was so well satisfied with it as during this season. The stems were immensely thick, and supported unusually large Mushrooms before they appeared through the soil. It is a mistake to put a very shallow surfacing of soil over the manure, as in that case very thin Mushrooms are produced, though thin ones may in some cases be desirable. Strong heat is conducive to weakly growth, and under such conditions the duration of the supply is cut short. At present we have good pickings of Mushrooms from the surface of Asparagus beds on which old Mushroom manure was used as a dressing. A ridge placed in the manure yard at present yields useful supplies. Slugs and maggots are their great enemies.—M. T.

Asparagus.—Will the writer in the *Chronicle* on the Asparagus lately shown at South Kensington deny that a great revolution is being effected in Asparagus culture, and that, too, in spite of the adverse criticisms of parties who ought to know better? At one time we were under the impression that Asparagus was an expensive crop to grow, the site of the bed requiring elaborate preparation. Now, all this is changed, and I am convinced that it is an easy matter to grow good Asparagus with no more expense than would be incurred in the case of a bed of Onions. Beds formed some years since in the old fashion are now comparatively worthless, but those since formed after the method frequently described in the pages of THE GARDEN are surprisingly profitable. What our employers prefer should be our guide in the matter of growing Asparagus, as in all other garden matters, and in my case I find that I cannot grow Asparagus too large. What at one time sufficed will not meet with favour now, and only the largest and best bleached examples go into the dining room. If these were not eatable, I should soon hear of

it. As it is, our Asparagus is highly commended, and to THE GARDEN I owe my best thanks for being the indirect cause of the improved method of culture adopted.—GROWER AND EXHIBITOR.

Early Peas in boxes.—It is an old practice to sow Peas, for an early supply in November and December, on a sheltered border; but where the soil is of a damp character, and rats and mice troublesome, it often happens that much labour and little profit is the result. Sowing the seed in boxes and raising it in a cool, airy temperature, excluding frost and rain, is perhaps the plan which is now most generally adopted. The best Peas for planting out during the first or second week of March we have raised in boxes without the aid of glass at all; and those which became fit for use the third week in June, this season, were sown at the beginning of the year in shallow boxes and placed in a shed till the plants were well through the soil. Then they were removed under the shelter of a wall, where protection was given them by means of mats during severe weather. The plants raised under such conditions were stiff, green, and vigorous. When planted in March they had a quantity of leaf mould applied to the roots. Though the spring is said to have been unprecedentedly cold, the Peas never showed the slightest signs of distress, but continued growing with vigour, and have produced an abundant crop. Raising the plants under a hardy system from the first, and aiding them with abundance of good material at the root when planted in the open ground, are points well worthy of due consideration where Peas are required early and abundant.—M. T.

FLOWER GARDEN.

HARDINESS OF PHORMIUM TENAX VARIEGATUM.

I HAVE had this Flax ten years in the open air, having brought it myself from New Zealand. For the last seven years it has been placed in a sheltered garden and in well-drained soil, but succumbs, so far as the foliage is concerned, to any really severe frost. It had reached 5 feet in height when the severe winter of 1880-81 levelled it, in spite of protection, to the ground. Since then it has had more efficient protection, and this year is again over 5 feet in height. When small, the best protection was a barrel with the bottom out placed over it and filled in with Cocoa-nut fibre till the plant was entirely covered; this was then roofed in to keep the fibre dry, and thus as much as 20° of frost was resisted. This last winter I managed with mats and dry leaves to keep it safe, but, on the whole, I cannot call it very satisfactory, or advise amateurs to try it, for it does not increase fast under either the exposure or smothering to which it has been subjected. I can never hope to flower it. It is well suited to the Isle of Wight, where it flourishes and flowers too. Still, though not thoroughly hardy, it might with care be made, even as far north as the middle of Essex, a handsome plant; and anyone who had seen a good bush of it, with its handsome Aloe-like spikes of crimson flowers, could hardly fail to at least try to grow it. GUITH.

Witham.

HARDY PLANTS AT FERRIBY BROOK.

CISTUS FORMOSUS, which has stood uninjured with slight protection against a south-east wall for several years, has bloomed profusely. It is about 4 feet high, and from 80 to 100 expanded blooms might have been counted upon it each morning. *C. algarvensis*, its companion plant, is 5 feet high; it blooms late and promises to be equally fine. A fine plant of that gem, *Cistus lusitanicus*, growing in the open border, was a splendid object last year; it was almost killed by the bitterly cold winds of March. *C. crispus* perished in the open borders; it is an exceedingly beautiful kind, but not hardy in Derbyshire. *C. florentinus*, a pretty white flowered kind, is blooming with me, but I have not tried it in the open. *Geranium armenum*

is one of the greatest ornaments of my garden; it is a vigorous species and requires plenty of room and generous treatment. *G. Endressii*, *lancastricense*, *ibericum*, and *sanguineum* are blooming profusely. *G. subcaulescens* has not done well here, but I saw it blooming profusely a few weeks ago in the richly stocked garden of the Rev. Harpur Crewe, at Drayton, near Tring. The alpine *Phloxes* have been remarkably fine—*pilosa*, I think, the best of all; *stellaris* suffered from the cold March winds, but it is now growing vigorously; *Nelsoni* does not stand the winter so well as most others; *setacea* and *s. atropurpurea* are very hardy and have bloomed profusely. *Lilium Parryi*, a stately species, is doing well this season; it is 5 feet 6 inches high, and has thirty-four expanded blooms and buds on a single stem. *Cypripedium spectabile* and *Orchis foliosa* are also doing well; both these interesting plants may be easily grown in a moist, shady nook. Several kinds of *Thalictrum* are in bloom; they are very graceful plants and do best in damp soil. I must not forget the *Aquilegias*, some of which everyone who has a garden ought to grow. The following are fine kinds, viz., *cœrulea*, *chrysantha*, *canadensis*, *Skinneri*, and *truncata*; the last I have unfortunately lost. I have some beautiful hybrids in bloom, particularly a red-spurred variety of *chrysantha*. J. WHITTAKER.

Variegated Yuccas.—I was much interested in seeing in the 30th of June number of THE GARDEN an account of a variegated variety of *Yucca gloriosa*, exhibited by Messrs. Veitch. I have a similar plant raised from seed sown last year. Do you know if Messrs. Veitch's plant is a seedling? Mine answers the description given. The only drawback is that while some of the leaves are finely variegated, others have only slight marks upon them, but this may improve as the plant gets older. I have also a variety of *Viola odorata* that originated with me about two years ago. The leaves are often more than half white, while the other part is of a beautiful glaucous blue; its flowers, which are single, are plentifully produced, but rather smaller than those belonging to green-leaved plants. Are there any like it in cultivation?—F. L. SCHANDORFF, Denmark.

The double white Rocket.—On a recent occasion I cast doubts on the Eglington double white Rocket as being the old paper-white which I once grew. With true Scotch practicalness, however, and with much courtesy, Mr. Gray sent me from Eglington Castle a box of spikes of the Rocket in question, and I hasten to say that it is undoubtedly the true old variety. It is absolutely pure in colour, not a trace or stain of pink or lilac in it. The individual flowers are much smaller than those of the French white, and have very short footstalks, while it also possesses the peculiar foliage of the old kind, viz., erect, stout, and dark green in all, while the foliage of the French white is the exact opposite. Whether it is owing to locality or culture, or to a little of both I cannot say, but I have not before seen this old variety with such large spikes as those which Mr. Gray sent me, though still they are not so massive as the French white. When I opened the box I was charmed to see the face of my old friend once more, and I rejoice to think that in Mr. Gray's hands it will not speedily become extinct.—FREDERICK TYMONS, Cloghran, Co. Dublin.

SHORT NOTES.—FLOWER.

Monstrous Foxglove (*J. C., Uckfield*).—The drawing which you send us represents a somewhat common monstrosity in the Foxglove. Several similar examples have been brought under our notice this season. We doubt if seedlings from it would perpetuate the monstrous condition.

Catananche cœrulea.—This is quite hardy with me. I have it growing in poor sandy soil both on a south and on a north border, where it has withstood the hard winters of the last four years unharmed. I grew *C. lutea*, but it proved to be worthless, so I discarded it.—J. W. F., Yorks.

Sowing biennials.—If an early bloom is required, of course they should be sown early, as suggested by "A. D.," but we do not want an early bloom, and the middle or end of June is quite time enough to sow in order to have them in flower when the London season arrives, the time when country gardeners like their places to look best. Our Canterbury Bells last year were excellent, but through being sown early they flowered early in June. We found them useful for cutting, but they would have been of more value to us if they had been later. It is true a good second bloom can be obtained by cutting off the seeds when the flowers fade, but the second bloom, though as gay as the first, does not possess the same freshness. The same thing occurs with Foxgloves and Delphiniums; use the knife freely among them, and new spikes of flowers will arise. I frequently cut away at them for this very purpose, but even then the first bloom is the freshest, and this is so with everything.—E. HOBDAV.

Sidalcea malvæflora.—The plant which is described on p. 6 of THE GARDEN by this name is one of the hardiest and most easily cultivated of mixed border plants, and will thrive in any soil or situation, growing if chopped to pieces with a spade and replanted at any time of the year. As it does better with division, I consign a large quantity to the rubbish heap every autumn for want of demand, though it is a fairly good plant in its right place. In a large wild garden near Colwyn, in North Wales, it is naturalised successfully by the side of a mountain stream. It is called at Kew *Sidalcea oregana*. I have another form of far more slender growth, with more deeply incised leaves, cut, in fact, quite to the centre, and a very lax spike of pale pink and larger flowers. I sent these two *Sidalceas* together to Kew to be named, and the name came *Sidalcea oregana*. Not believing that they could be identical, I sent them again, and got a polite note assuring me that, different as they seemed, they were forms of the same species. I have never taken the trouble to test either from seed, which they ripen plentifully. *Sidalcea candida* is a white-flowered variety, with tall spikes of flowers as large and as white as those of *Malva moschata*. It runs so at the root, that what was last year one plant is now represented by at least a hundred in my garden.—C. WOLLEY DOD, Llandudno.

5027.—**The Mediterranean Lily** is no doubt *Pancratium maritimum*, which blooms in August in sandy spots on the south coast of France. Its handsome white flowers exhale a perfume which is delicious in the open air, but too powerful for most people in a close apartment. Never having seen it bloom in cultivation, I can only suggest that it might succeed if grown in warm sea sand (from 70° to 75° Fahr. during summer), with all the light our sun will give it, and its leaves scrupulously protected from frost-bite. With insufficient heat and superabundant moisture, it might tend to increase by separation of the bulb rather than to send up its flower-stem. The "Bon Jardinier" advises growers to take up the bulb in September and replant it in October, but only every four or five years, if one wishes to get it to flower. Perhaps a small dose of sea salt might strengthen its health under artificial treatment. It gets plenty of salt in its native *habitat*. But whether salt is absolutely necessary for its successful cultivation, or whether it merely has the power of resisting its influence can only be determined by experiment. I shall be thankful if anyone can inform me how to persuade *Boussingaultia basseloides* to flower either as an outdoor wall climber or indoors as a window creeper.—E. S. DIXON.

Aster alpinus.—Mr. Wolley Dod's experience of this charming little alpine, though quite the reverse of my own, is evidently one of those instances of mystification which now and then occur in the cultivation of alpine plants, and this with not always the choicest or most miffy. In the case in point we have a comparatively common plant, easily raised from seed, and readily increased by division going wrong, though I have

always found it to do well in any border soil consisting of sandy loam. It recalls to memory some of those unaccountable failures over which soils seem no have no control. One is puzzled as to what to advise Mr. Dod to do. If, however, he has not tried seedlings, I should recommend him to

TREES AND SHRUBS.

THE KENTUCKY COFFEE TREE.

THIS is a perfectly hardy, free-growing subject, quite dissimilar in general aspect from any other



Young Kentucky Coffee Tree
(*Gymnocladus canadensis*).

Flowers, fruit, and foliage of Kentucky Coffee Tree.

obtain fresh seeds and raise some plants from them. One plant Mr. Dod is fortunate in growing to perfection, and that is *Primula capitata*, a real boon to us, especially as it seeds with such freedom. This Primrose, in endless instances, perishes through damp. —E. JENKINS.

tree which flourishes in the open air in Great Britain—the large, handsome bluish green twice pinnate leaves, which in young vigorous specimens often measure as much as 3 feet in length by 2 feet across at the base, giving it a decidedly tropical appearance. It succeeds in almost all

soils and positions, is one of the easiest trees to transplant, and supports drought well. On the dry gravelly soil of the old arboretum at Kew there was a fine example of this tree, which, we learn from that recently published and very useful book of reference, Smith's "Dictionary of Popular Names of Economic Plants," was a hundred years old in 1864, and was besides of particular interest on account of its being one of a collection of trees presented by the then Duke of Argyle (Walpole's tree monger) to George III. on the establishment of the gardens. The veteran ex-curator should, however, have used the past tense, as the tree died and was removed several years ago. Under widely different conditions we have seen the Kentucky Coffee tree flourishing in a northern county in an exposed position on a cold and retentive clay bank. Anything, in fact, short of absolute stagnation in the soil it seems to withstand readily enough, so the tree is one which should be freely planted for effect in parks and pleasure grounds. Under favourable circumstances it attains a height of 60 feet or more, the accompanying illustration being a representation of a full-grown specimen at Syon, which forty years ago measured 57 feet in height, with a head 47 feet through and a trunk 3 feet in diameter.

In London's "Arboretum" a considerable number of measurements are given, and the following statistics are extracted from that work. It would be of great interest if readers of THE GARDEN would forward to the editor the present sizes of these trees, so that their progress could be recorded for the interval which has elapsed since the publication of Loudon's famous work.

England.—In the environs of London, at Whitton, eighty-seven years planted and 60 feet high; at Kenwood, twenty-five years planted and 20 feet high; in Kent, at Cobham Hall, twenty-five years planted and 20 feet high; in Surrey, at St. Anne's Hill, thirty years planted and 45 feet high; at Claremont, 45 feet high, the diameter of the trunk 18 inches, and of the head 35 feet; at Farnham Castle, forty-five years planted and 25 feet high, the diameter of the trunk 12 inches, in poor soil on chalk; in Oxfordshire, in the Oxford Botanic Garden, forty years planted and 35 feet high, the diameter of the trunk 1 foot 2 inches and of the head 15 feet; in Worcestershire, at Croome, forty years planted, and 60 feet high, diameter of the trunk 18 inches, and of the head 30 feet.

Scotland.—Edinburgh Botanic Gardens, 15 feet high; Glasgow Botanic Garden, twelve years planted and 13 feet high.

Ireland.—Glasnevin Botanic Gardens, 24 feet high, diameter of the trunk 6 inches, and of the head 7 feet.

Continent.—Paris Jardin des Plantes, sixty years planted and 55 feet high, the diameter of the trunk 20 inches and of the head 40 feet; Botanic Garden, Toulon, twenty years planted and 25 feet high; near Metz, sixty years planted and 65 feet high; Sans Souci, Berlin, thirty years planted and 30 feet high; in Italy, at Monza, twenty-nine years planted and 40 feet high.

Although the Kentucky Coffee Tree produces in this country its terminal racemes of somewhat conspicuous whitish flowers freely enough, it probably rarely or never fruits. Imported seeds, however, furnish an easy mode of propagation, and, besides, pieces of the roots cut up into lengths of 4 inches or 5 inches and placed in prepared beds kept moist develop into plants sometimes 3 feet or 4 feet in height the first year. On the other hand, some of the pieces may hardly start at all during that period, but still retain their vitality, so should not be disturbed or destroyed. The name Kentucky Coffee was bestowed on the tree by the early settlers in Kentucky and Tennessee on account of their using the roasted seeds as a substitute for coffee.

The distribution of the species in a wild state is given in Professor C. S. Sargent's "Catalogue of the Forest Trees of North America" as follows: "From Western New York and the province of Ontario south to Tennessee; west to Wisconsin, Eastern Nebraska, and the Indian territory." The same work describes the wood as rose-coloured

close-grained, compact, very tough, with little sap wood; susceptible of a high polish, although cross-grained and difficult to season and work. Its specific gravity is .609. It attains a height of from 60 feet to 80 feet, with a trunk sometimes 2 feet in diameter.

IDENTIFICATION.—*Gymnocladus canadensis*.—Lam.: Encycl. Meth., i., 73. Michx.: "Arbres Forestiers de l'Amérique Septentrionale," ii., 241, tab. 51. Gray: "Manual of the Botany of the Northern United States," 145. Koch: "Dendrologie," theil 1, p. 5. GEORGE NICHOLSON.

Royal Gardens, Kew.

FORMATION OF YOUNG PLANTATIONS.

IN continuation of my remarks on this subject (p. 554 of last volume), allow me to say that the trees to be planted should be put in in the proportion of two Scotch Firs to one of Larch; the clay left on the edges of the pits in autumn should be mixed with an equal proportion of bog; leave about one-half of the mixed material in the pit, and on the top of that place the young trees, spreading the roots out carefully and finishing by drawing the remainder of the soil over them, tramping firmly round the collar of the plants. Care should also be taken never to plant too deeply, as trees in cold bog always thrive best when planted rather above than below the surface level. Large plants should never be employed for bog planting, as from its light spongy texture, even when mixed with soil, it lacks sufficient firmness to support them in an upright position in exposed situations, and therefore they become a source of trouble and expense in tramping and setting them upright till such time as the roots have become established. In inland districts, in which planting is contemplated on an extensive scale, it is a good plan after the plants come from the nursery to grow them for a year in a home nursery previous to planting them out, so that they can always be had fresh lifted, just as the planters on the moor want them; and as the roots are thereby never exposed for any length of time, they begin to grow away at once—in fact, they scarcely stop growing. Although

THE LARCH is more valuable and will yield a quicker return than the Scotch Fir, it is not adapted for bog planting by itself, but when associated with Scotch Fir, the two not only shelter each other, but likewise serve in some measure to drain the bog, thereby aerating it, assisting decomposition, and rendering it fit for the Larch, a thing which it is incapable of doing for itself, at least but to a limited extent. Under Scotch Fir and Larch combined the bog gradually gets dryer and firmer year by year, until at length the smaller drains get completely dry, and, except in places where there may happen to be a spring, they require no more attention as regards keeping them in repair. When some ten years planted, the side branches of the trees will begin to encroach upon one another; they will, therefore, need to be carefully thinned, but as at this stage of growth they will only be about 10 feet long, it is evident, from the smallness of the scantling, that they can be of but little use either for estate or for other purposes, and the probability is that were they cut they would lie and rot. Under such circumstances my practice has been to carefully mark all intended for removal at the first thinning, but, in place of having them cut out at once, I stem-prune them by removing two or three tiers of the side branches with a hand-bill. In this way the trees to be left are allowed room for development, and the stem-pruned ones, after standing a few years longer and attaining a height of from 12 feet to 14 feet, may then be cut as required, and will prove useful for fencing and other purposes. The trees removed at this

THINNING should consist entirely of Scotch Fir, reserving the Larches until such time as they shall have acquired larger dimensions, by which means everything will be made use of to the best advantage. In a great many cases young plantations are spoiled at the commencement from want of timely and judicious thinning. When once

allowed to spindle up into long bare poles—the result of overcrowding—I know of no class of plantations so easily ruined as those upon peat bogs. As bog retains about six times its weight of water, even after being drained, it may easily be seen what a struggle young trees must have in it until such time as they get established. Then they are equal to the task of dispersing the stagnant water. The sun being also a powerful drier-up of moisture, all herbage ought to be cut away in order that a bare surface may be exposed to its rays. Where thinning has been neglected and the trees allowed to spindle up and lose their side branches from want of a free circulation of air, the case is a serious one indeed, as leaves and branches are the only means by which water could be extracted; and when we consider that for every pound of woody fibre formed some 300 pounds of water must be evaporated, some idea may be formed of the value of leaves as land drainers. When neglected plantations of this class are attempted to be thinned, as soon as an opening is made the wind is sure to upset quantities of the trees left for a crop, and those not upset will get bark-bound through exposure. Being only furnished with a tuft of green branches at the top, they are incapable of making further progress, the bog under them becomes water-logged, a great many of the trees die outright, and those that remain are starved and comparatively worthless. My opinion has often been asked regarding such plantations, and my advice has invariably been to stub them up and plant afresh, and where the mode of management described in this and my former paper on the subject has been followed I have never known or heard of a single failure.

J. B. WEBSTER.

TREE NOTES FROM FLUSHING, N.Y.

TO THE EDITOR OF THE GARDEN.

SIR,—I wish you could see now our specimen of *Magnolia parviflora*, a new species which we received some years ago from Japan. The tree is about 8 feet high, and the leaves, which are fully formed before the flowers appear, are 6 inches long and $3\frac{1}{2}$ inches broad; on it are 125 buds in all stages of expansion. Some are the size of an egg, while others are fully expanded, making a flower 6 inches in diameter. The most charming form is that of a cup, the heart-shaped petals, 2 inches in diameter, forming a perfect curve over the stamens and pistil. The petals are of a very pure and creamy white without a trace of colour. The sepals have a slight pink colour. The mass of stamens is 2 inches in diameter, and they lie horizontally and compact, half of each being a well-defined deep vermilion, and the other half a scarlet-tipped orange. The pistil rising from these stamens is $1\frac{1}{4}$ inches long and three-eighths of an inch thick, with light green and scarlet tints. This *Magnolia* has the combined fragrance of Banana, Pine-apple, and Winter Green, and one flower will perfume a room. With its beauty of form and colour, and its exceptionally delightful fragrance, I think I am not extravagant in pronouncing it the most charming hardy flowering tree that I know. I should like you to see also our

JAPAN MAPLES, for which we think this region is the home. For the convenience of ploughing between them, we cultivate them in rows 200 feet long and 3 feet apart, and the luxuriant mass of colour as you look upon them from the end is something to be remembered. I have massed a number of kinds upon a lawn with grand effect, but I am very fond of two kinds planted in a group—the japonicum aureum and the polymorphum sanguineum. The rich gold of the one makes a charming contrast with the blood red of the other,

through which the sun shines as through a glass of claret. The atropurpureum is very nearly equal to the sanguineum. On a bright summer afternoon I stood under one of the latter nearly 10 feet high, and, looking up through the leaves, made transparent by the red light, the effect was very charming. The cold of the past winter had no effect upon these Maples, while Retinosporas were badly hurt, and even the Norway Spruce and in some instances our native Hemlock were entirely killed. We have great hope of the

PINUS MASSONIANA AUREA, also from Japan, and quite hardy. The line between the green and gold is sharply defined, and the gold has a lively tint like that of the Golden Yew in its best state. A tree of this 50 feet high will have a striking appearance. I do not see in English papers much mention of *Quercus concordia*, which is here one of our most charming deciduous trees. Such also are two of our native plants—*Stuartia pentagyna* and *Andromeda arborea*—which are not common in England. Our weeping Hemlock would also be an acquisition for you. S. B. PARSONS.

THE LABURNUM as a tree.—We have no need to praise this for its beauty—recognised by all—but it is not generally known how good are its claims to treeship. It is usually seen as a low flowering tree. In the garden at Coolhurst, near Horsham, we were charmed to see the Scotch Laburnum a tree about 40 feet high. In flower at the time, the distant effect of its golden branches seen through the other trees was very fine. It was sheltered by other trees, otherwise it had taken its chance in the usual struggle for life in the grove.—V.

WISTARIA freely trained.—Nobody knows the value of this shrub who sees it only as it is trained over the top of a wall or along the side of a house. No doubt walls, houses, old trees, and the like form its best support, but its picturesque beauty is not seen unless its shoots are allowed to grow freely away from the supports. We have never seen this so well illustrated as at Coolhurst, where the *Wistaria* grows boldly away from roof and wall, and is beautiful in its picturesque branching. When a splendid creeping shrub like this is obtained people seldom get the best out of it, but plant a single specimen in any vacant spot.—J. M.

EUCALYPTUS coccifera.—The very fine specimen of this tree at Powderham Castle, of which mention was made in THE GARDEN (Vol. XVIII., p. 650) has bloomed this year, and Mr. Powell, the gardener, kindly offered to supply blossoms of it to all who might care to have them. Amongst other applicants, of which there were many, was M. Chas. Naudin, Villa Thuret, Antibes, who, in thanking Mr. Powell for them, says: "We have the species in France, but young and not yet flowering. It is very particular in its juvenile state, and then easily recognisable. Certainly it is one of the most hardy of the genus."

Solanum crispum in Lincolnshire.—In your notice of this plant last week you speak of it as half hardy and as an admirable plant for wall culture in the warmer parts of the country. It is certainly half hardy in the sense of its dying down in severe winters, but in that sense only, for nothing apparently in the way of cold can kill it outright. I have had it now in my garden, not an over-sheltered one anywhere, in an exposed place on a wall looking due east for the last twenty years, and it is now as fine as ever. In moderate winters it keeps green, but in severe seasons it dies down to the ground, springing up, however, as soon as the warm weather returns to the height of 10 feet or more in a very short time. It is in flower all the summer and deserves a place in every garden.—F. M. BURTON, *Highfield, Gainsborough.*

Elm exudation (W. S.).—The black substance found in the Elm tree is not wax, but a hardened exudation from the tree analogous to the gumming exudations on Plum and Cherry trees.—G. S.

Ornamental hedgerows.—On the Hampshire coast the hedgerows are now a treat to behold. Annual clipping and shearing are but little practised hereabouts, the arable land being mostly enclosed by hedges composed of a mixture of wild Roses, Bramble, and Elder, altogether different from the trim Whitethorn hedges of Kent, but, from an ornamental point of view, very pretty. First one comes on a mass of Bramble intermixed with blossoms of the Dog Rose or Brier, lovely wreaths; then an old stump of Elm covered with Ferns; and next an Elder bush, possibly the worst material for forming hedgerows to be found, but certainly not devoid of beauty, the long shoots of last year's growth having lately been quite bent down with large heads of white blossom. Garden hedges, too, are very beautiful in this locality. They are mainly composed of Euonymuses of variegated kinds, Laurustinus, Sweet Bay, and other plants that succeed near the sea; and amongst them are planted old-fashioned Roses, such as the Maiden's Blush, the Cabbage Rose, Monthly or China Roses, and other sorts that do not figure on exhibition tables, but when seen in masses are truly lovely, filling the atmosphere with grateful perfume. The old-fashioned small-flowered Fuchsias of the gracilis and Riccartoni section also figure largely in hedgerows hereabouts, and are now covered with buds.—J. GROOM, *Gosport*.

NOTES FROM FRANCE.

POT ROSES.—A market grower in the neighbourhood of Paris has a method of treating pot Roses which is said to insure their flowering a second time with a vigour and profusion almost or quite equalling the first display. By the system followed the plants are subjected to a forced rest as soon as the flowers fade, which is accomplished by keeping them under cover, and for a time almost entirely withholding water. In the course of a month or so they are pruned, shaken out, and fresh potted, or simply watered with manure water, when they start away into growth again, and bloom finely at the close of the summer or early in autumn when Roses are scarce. In this way the plants are in blossom at those seasons of the year when the outdoor plants have either not commenced to flower or are nearly past, and are resting just when they are least needed. It may be thought that this treatment would be so far exhaustive as to render the plants of but little value for another year; but we are assured that this is not the case, and that scarcely any difference is perceptible between plants which have thus bloomed twice in the year and such as have been allowed to recruit in their own natural way. This, if true, is by no means so surprising as it would be in the case of many other plants, as we know some Roses flower abundantly naturally in the autumn, and push into growth with undiminished vigour the following spring. We see this in the case of such kinds as the old Glory, Aimée Vibert, Adam, Céline Forestier, the Chinas, and others, which never under good culture seem to get tired of producing bloom. We also know that the large class of Hybrid Perpetuals yield, with liberal treatment, a more or less good and profuse secondary bloom. In any case those who may grow pot Roses would do well to try the experiment.

AMARYLLIS AULICA AND VITTATA.—A French amateur thus describes his method of growing these: To have these Amaryllids in their full beauty, a corner in a cold house should be devoted to them, taking out the soil to a depth of 1 foot, and filling up with light soil composed principally of decayed wood or leaf soil. The bulbs are then planted about 1 foot apart, burying them to the collar only. When they have done flowering water is withheld so as to bring them into a state of perfect rest, no more being given until they throw up their flower-spikes. When thoroughly established these Amaryllis make a fine display, and give a rich return for the labour they incur.

STREPTOSOLEN JAMESONI.—At a recent meeting of the French National Horticultural Society,

M. E. André exhibited flowering shoots of this new shrub, and which is said to be one of the finest introductions of late years. It was introduced by M. André, and shown by him for the first time in 1882, when it obtained a first-class certificate. It is thus described by M. Lemoine, of Nancy, who is now distributing it: "This plant has oval leaves, alternate, and of a fine deep green, forming a bush from 3 feet to 6 feet in height, well furnished to its base with foliage. Each branch bears at its extremity a dense panicle composed of about forty flowers, which are when first opened pale, but afterwards change to a brilliant cinnamon-red. The culture of this plant presents no difficulties; it is hardy in the south of France, and is content in the north with the protection of a cold house. Its flowering time commences in March and is continued until July. Planted in the open ground in summer, it forms strong bushes, which flower splendidly the following spring. Grown in pots, it develops vigorously and grows into compact specimens if stopped from time to time during the growing season. It is of easy propagation." From the above it would appear that this *Streptosolen* should form a desirable addition to our list of cool greenhouse plants, and when better known will probably rank high amongst them, being so showy and of such easy culture.

JOHN CORNHILL.

EXHIBITIONS.

CRYSTAL PALACE ROSE SHOW.

JULY 4.

THERE was a general consensus of opinion on Saturday last amongst rosarians that this Rose show—generally a good one—was finer than any that have taken place at the Palace for some years, and it was also considered superior even to the grand show held a few days previously at South Kensington, under the auspices of the National Society. Of course the Palace show was not on such an extensive scale as that just referred to, the schedule not being so comprehensive, but throughout the whole exhibition there was higher quality among the exhibits, and the classes, especially those set apart for amateurs, more numerous represented. The greater excellence of the blooms was no doubt attributable to the weather being cooler and more favourable to the production of first-rate flowers. The few days immediately preceding the South Kensington show were so hot and sultry, that the best blooms—those on which exhibitors had reckoned upon for the show—were spoiled; consequently most of them had to send second-rate ones. On this occasion northern exhibitors especially showed to advantage, for even the short time that intervened between Monday and Saturday had made a great improvement in their blooms. The exhibition contained about 6000 trusses, and the long lines of boxes, which stretched along the whole length of the building, were hemmed in by dense crowds throughout the afternoon.

NURSERYMEN'S CLASSES, five in all, were well filled, and the collections, amounting to some thirty-three, represented most of the important Rose nurseries in the country. The list of prize-winners, given in our advertising columns, corresponds nearly with that of the South Kensington show, except that the positions of the exhibitors in some of the classes are changed. For example, in the principal class for six dozen trusses, the best collection came from Messrs. Paul's Cheshunt Nurseries, while Mr. B. Cant was next; indeed, throughout the whole show it was evident that Mr. Cant's blooms, which at South Kensington carried off nearly all the principal prizes in the classes in which they competed, were getting past their best. The Cheshunt collection was indeed a grand one, for throughout the whole of the six dozen blooms there was not a faulty one—a plain indication that Messrs. Paul's Rose grounds were just in their prime. The collection represented an admirable selection of the finest of the well-known exhibition sorts, besides some new or little-known kinds, such as Ferdinand Chaffolt, Guillaume Guillemot, Julie Touvais, White

Baroness, Pride of Waltham, and Madame Isaac Perrière, all of which give every promise of being real additions to the now long list of exhibition Roses. Mr. B. Cant had in his second collection a fine bloom of the new Madame Georges Schwartz, a very large full flower of fine shape and of a lovely rose-pink. Among other noteworthy blooms in this collection was a wonderfully fine Sultan of Zanzibar, the finest we had ever seen, being some 4 inches or 5 inches across, and of a splendid deep rich crimson, showing well what a grand Rose it is when well grown. There were also admirable examples of the beautiful new white Merveille de Lyon and Dr. Sewell, one of Turner's finest dark sorts, and Madame Julie Dymonier, a new delicate pink Rose of excellent quality. In Mr. Turner's third collection was a splendid Lord Clyde, still one of the finest show Roses; Mrs. Jowitt, a very bright crimson Rose, with all the qualities of a first-rate exhibition flower; and the finest flower of the new Mrs. Harry Turner, also a Slough production, we have seen. The colour is an intensely brilliant crimson-scarlet, shaded with maroon. It is among the finest of all Mr. Turner's dark varieties. There were three other collections in the class for seventy-two, and six also competed in that for four dozen trebles, which together made an extensive display. Messrs. Paul showed the finest forty-eight trebles, which, collectively, were even finer than the collection of seventy-two singles. Next was a good collection from the King's Acre Nursery, Hereford, while Messrs. Turner and Keynes were equal thirds. Mr. B. Cant had a good collection in this class, but was disqualified on account of having four blooms of one sort—a singular occurrence, seeing that Mr. Cant is such a veteran exhibitor. Notwithstanding the oversight, he was very highly commended for his fine collection. In the next class for two dozen trebles it was a great credit to Messrs. Jefferies to send all the way from Cirencester the best collection, beating both Mr. B. Cant and Mr. F. Cant and several others from the home counties, no fewer than sixteen collections of two dozen single trusses, it being just the class to suit the resources of the smaller nurserymen who do not grow specially for exhibition, but send the pick of what they have in the general way. These sixteen competitors came from all parts of the country, and among them were several who are not habitually represented at exhibitions. The winning collections from Mr. House, Peterborough, Mr. Mattock, Oxford, and Messrs. Low, Clapton, were indeed very fine; and, having regard to the fact that they had so many rivals, there was all the more credit due to these prizetakers. The Tea and Noisette varieties, a dozen treble trusses, were also shown admirably by eight nurserymen, the most successful being Messrs. Mitchell, of Pitdown Nurseries, Uckfield, whose collection was uniformly fine, the varieties shown being Souvenir d'Elise Vardon, Niphetos, Maréchal Niel, Souvenir d'un Ami, Madame Margottin, Catherine Mermet, Rubens, Josephine Malton, Jean Ducher, Souvenir de Paul Neyron, Madame Willermoz, and Innocente Pirola—a capital dozen sorts. There were some splendid blooms shown in the other collections, among them being the new Madame Cusin, from Messrs. Paul, Cheshunt. It is one of the deepest coloured of all the Teas, being of a soft carmine-crimson when at its best. It is a real acquisition and will be sure to become popular.

THE AMATEURS were in strong force, and more numerous by far than at South Kensington, the few cool days previous to the show being apparently just what was wanted for the production of high quality blooms. Collectively, the amateurs' collections were exceptionally fine, especially having regard to the small number of plants they have to cut from compared with the acres that nurserymen grow. In the principal class for four single trusses there were eleven collections, and heading the list of prize winners was Mr. Slaughter, of Steyning, the winner of the National Society's challenge trophy. He admirably sustained his reputation on this occasion as the champion amateur Rose exhibitor of the season, as his stand scarcely contained a bloom that was

not first rate, and the selection, too, was excellent. He had the finest La France in the show, and splendid examples also of Innocente Pirola, Marie Baumann, Marie Rady, Catherine Mermet, Reynolds Hole, Comtesse d'Oxford, Alfred Colomb, E. Y. Teas, Alba rosea, J. S. Mill, Etoile de Lyon, Captain Christy, Star of Waltham, Etienne Levet, Senateur Vaisse, A. K. Williams, Louis Van Houtte, Lord Macaulay, Countess of Rosebery, Prince Camille de Rohan, and Jean Ducher; not very much inferior was the second collection, from Mr. Whitwell, of Darlington, last season's champion exhibitor. On this occasion this northern grower was in fine form, and had his rival's collection to travel some hundreds of miles instead of the short journey from Steyning, it would probably have been only a matter of a toss-up between the two. The third collection was from a long-distance competitor, Mr. Grant, of Ledbury, who is fast coming to the front as an amateur Rose grower and exhibitor, though not specially favoured with a genial climate. A fine collection from near Banbury was highly commended, and that award might have appropriately been accorded to one or two of the others, which were uncommonly good. In the next class for three dozen trusses, two Reigate collections figured prominently, Mr. Sargent being first and Mr. Ridout third among sixteen competitors. The class for two dozen trebles was not a large one, there being only three competitors, Mr. Grant being a good first. In the two classes for a dozen Hybrid Perpetuals and a dozen trebles of Teas and Noisettes, the Rev. J. H. Pemberton, of Havering-atte-Bower, carried off the first prizes in each case, showing remarkably fine examples. In the five classes set apart exclusively for amateurs, there were no fewer than fifty-three collections.

THE OPEN CLASSES, some fifteen in number, were set apart for new varieties, collections of particular sorts and colours. Among the five collections of eighteen trusses of Maréchal Niel, the finest, from Mr. Farren, showed this popular variety in its highest perfection as regards size and form as well as colour. The best eighteen trusses of any Tea or Noisette variety were from Messrs. Keynes, who had a superb lot of Niphetos. Innocente Pirola, from Mr. B. Cant, and Jean Ducher, from Mr. Prince, were the other prize-takers among the seven collections shown. Among the nine collections in the class for a dozen and a half trusses of Marie Baumann or a Hybrid Perpetual of a similar colour. Mr. Turner was first with a splendid lot of A. K. Williams, which was preferred by the judges to the boxes of Marie Baumann, shown by the second and third competitors. There were but two collections of eighteen trusses of Prince Camille de Rohan or similar coloured sorts, but the Prince was not shown by either, both competitors having Abel Carrière in fine form, particularly Messrs. Paul, who were first. François Michelin was the subject of a similar class, and this fine Rose was shown splendidly by the Cranston Company for the first place, while Etienne Levet took the other two prizes. Five other competitors showed in this class. Captain Christy was shown admirably by Mr. Prince, and in the same class were Duchesse de Vallombrosa, La France, Comtesse de Serenye, and Marguerite de St. Amand, which were considered similar in colour. The collections of Roses of particular colours were not restricted as regards the number of kinds shown. The best collection of

PINK ROSES came from Mr. B. Cant, who had Marguerite de St. Amand, William Warden, Captain Christy, Catherine Mermet, Marie Finger, Duchesse de Vallombrosa, La France, Elie Morel, Adam, Comtesse de Serenye, and Mons. Noman. Messrs. Cranston's second collection included Mad. Eugène Verdier, Mdle. Marie Cointet, Mad. Gabriel Luizet, and Baroness Rothschild. In the other two collections were Lady Mary Fitzwilliam, one of Bennett's new hybrid varieties, Marquise de Castellane, Mrs. George Dickson, François Michelin, and Her Majesty. Seven collections were shown in this class.

WHITE ROSE COLLECTIONS were shown by seven also, the best, from Mr. Prince, having Alba

rosea, Madame Willermoz, Niphetos, Innocente Pirola, Mad. Hippolyte Jamain, and Anna Ollivier. In the other collections were Mad. Lacharme, Devoniensis, Mad. Bravy, Boule de Neige, Violette Bouyer, Mdle. Bonnaire, Mabel Morrison, Coquette des Blanches, all excellent white sorts, the five last being Hybrid Perpetuals.

YELLOW ROSES in collections were shown by seven. Messrs. Paul, who were first, had Caroline Kuster, Céline Forestier, Madame Margottin, Maréchal Niel, Marie Van Houtte, Jean Ducher, Madame Furtado, Perle des Jardins, Bouquet d'Or, and Anna Ollivier. The other collections were made up of much the same sorts, there not being

Préfet Limbourg, Sultan of Zanzibar, Prince Camille de Rohan, Charles Darwin, and Louis Van Houtte.

NEW ROSES were not numerously shown, there being but two collections of twelve varieties put in commerce previous to 1880. The first prize was taken by the Cranston Company with a very fair collection made up of the following sorts, all of which are Hybrid Perpetuals: Hélène Paul, a large, full flower, almost pure white, there being but a flush of pink in the centre; Violette Bouyer, similar to the last, and also a beautiful addition to the list of white Roses; Souvenir de Madame Berthier, large and full, and of a beautiful crim-



Full-grown specimen of Kentucky Coffee Tree (*Gymnocladus dioica*). (Page 29.)

such a long list of yellows to select from as in the case of other colours.

CRIMSON sorts were shown best by Mr. B. Cant, who had fine blooms of A. K. Williams, Duke of Wellington, Camille Bernardin, Mrs. Laxton, Marie Baumann, Le Havre, Duke of Teck, Alfred Colomb, Fisher Holmes, Sir Garnet Wolseley, General Jacqueminot, and Ferdinand de Lesseps. Among the other four collections the preceding sorts were included, besides Monsieur E. Y. Teas, Marie Rady, Dr. Andry, Auguste Rigotard, Charles Lefebvre, Richard Laxton, Leon Renault, Madame Alphonse Lavallée, Mrs. George Paul, Madame Victor Verdier, Duke of Edinburgh, Rosieriste Jacobs, Avocat Duvivier. There were but three collections of velvety crimson sorts. In the best collection were Horace Vernet, Reynolds Hole, Fisher Holmes, Prince Camille de Rohan, Abel Carrière, Xavier Olibo, Duke of Wellington, and A. K. Williams. Among the other two were Prince Arthur, Jean Liabaud, Dr. Sewell, Pierre Notting, Jean Souper,

son; Mad. Marie Roederer, as shown a poor variety, bad in form and dull in colour; Pride of Waltham, one of the loveliest of new Roses, and sure to become a standard variety; Ernest Prince, very inferior; Julia Dymonier, a promising sort, of a pale rose-pink; Mons. Alfred Dumesnil, an excellent flower of a rich crimson; Madame Montet, one of the best of blush-pink varieties; Comte de Flandres, of a dull plum-crimson colour; Crown Prince, similar, but better in form; and Madame Pierre Margery, an admirable sort in every respect, the colour being a pleasing deep rose-pink. The other collection came from Messrs. Paul, of Cheshunt, and consisted of Ulrich Brunner, which we have alluded to several times this season as being a promising sort; Pride of Waltham, Madame Montet, White Baroness, unquestionably one of the finest white Roses known, as it has the size and other excellent qualities of the pink Baroness Rothschild and the purity of such as Madame Lacharme; Comtesse Adrienne de Germiny, in

the way of Marie Baumann, and quite as bright in colour; Hélène Paul, Violette Bouyer, Guillaume Guillemot, George Moreau, Madame Isaac Perrière, Mrs. Jowitt, an admirable novelty, and Brightness of Cheshunt, a variety of the stamp of Duke of Teck, and others of that brilliantly-coloured class that have been sent out from the Cheshunt Nurseries. Its colour is most vivid and the form is excellent. The absence of new Tea or Noisette varieties in these collections was somewhat remarkable. The best new Rose (twelve trusses), not in commerce previous to 1880, was shown by Messrs. Paul, Cheshunt, who had a dozen splendid trusses of Pride of Waltham, a Hybrid Perpetual sent out recently by Messrs. Wm. Paul & Son, Waltham Cross. It is somewhat in the way of Comtesse d'Oxford; the flowers are large and full and of great substance. The gradation of tint is lovely; the outer petals are pink, and gradually deepens towards the centre to a splendid rose-crimson. It was shown numerous throughout the exhibition—a pretty good criterion of its worth. Mr. Bennett, of Shepperton, exhibited several of his new seedling Roses, conspicuous among which was Her Majesty, of which were shown some two dozen splendid blooms, very large and of excellent colour. There were also Princess of Wales, a lovely Tea variety, with blush pink reflexing petals; Heinrich Schultheis, the very fine Hybrid Perpetual certificated at South Kensington a short time since; Earl of Pembroke, and others, including one to which a

FIRST-CLASS CERTIFICATE was awarded. This was named Mary Bennett. It is a Hybrid Tea remarkable for the faultless shape of the bloom, the substance and beauty of the petals, and the splendour of the deep, yet clear, rose-pink colour. It was thoroughly deserving of the distinction accorded, and it was the only Rose certificated on this occasion.

ROYAL HORTICULTURAL.

JULY 10.

THE exhibits on this occasion were somewhat numerous, and included several new plants, among which the following were awarded first-class certificates:—

LILIUM SZOVITZIANUM PALLIDUM.—A most distinct and beautiful Lily, differing from all the forms of the species in the flowers being of a very pale yellow copiously speckled with purple. It was exhibited by Mr. G. F. Wilson, Heatherbank, Weybridge, who showed the ordinary yellow form for comparison.

NOTOSPARTIUM CARMICHAELLÆ.—A singular, but extremely pretty shrub belonging to the Pea family. The branches are leafless and Rush-like, and bear numerous clusters of tiny Pea-shaped flowers of a deep rosy pink. Numerous cut flowering twigs of it were shown by Messrs. Veitch, and had an uncommonly pretty effect. Native of New Zealand.

LILIUM BLOOMERIANUM OCELLATUM.—A very handsome variety of *L. Humboldti*, differing chiefly from the type in the large turban-shaped flowers being of a deeper yellow and profusely spotted with eye-like dots of a reddish brown colour. Exhibited by Mr. Ware, Hale Farm Nursery, Tottenham.

CATLEYA SUPERBA SPLENDENS.—A really splendid variety remarkable for the intensely deep maroon-crimson colouring on the labellum, which is broader than ordinary. The sepals and petals are, moreover, of a much deeper hue than usual. A fine specimen in great beauty was shown by Mr. Ebbage, gardener to Mr. Bockett, Stamford Hill.

LOBELIA PRIMA DONNA.—A variety of the dwarf bedding (*Erinus*) class, and a most distinct one in point of colour, which is a rich plum-purple. It is of dwarf compact growth, and the dense tufts shown were smothered with blossoms. It will be a valuable bedding plant. Exhibited by Messrs. Carter, High Holborn.

MILLA BIFLORA.—A rare and beautiful Mexican bulbous plant, an old introduction, but seldom met with, especially in flower. It is a very distinct

looking plant with grassy foliage and tall flower-stems carrying white star-like flowers some 2 inches across having remarkably long slender tubes. Shown by Mr. Ware.

DAVALLIA BRACHYCARPA.—A bold, yet elegant, Hare-foot Fern, reminding one of *Asplenium Fabianum*. The fronds are long and wide, and gracefully reflexed on all sides of the plant, and being finely divided have a light and pleasing appearance. Exhibited by Messrs. Veitch.

BEGONIA GOLIATH.—A double-flowered tuberous variety with enormous flowers, the largest yet seen in this country, more resembling those of a very double Hollyhock than a double Begonia. The blossoms form perfect rosettes some 4 inches across, and are of a bright cherry-crimson. The habit of the plant is dwarf, and bears strong affinity as regards foliage to *B. Veitchi*. Shown by Mr. Bealby, Roehampton.

LOBELIA SWANLEY BLUE.—Considered to be an improvement on the hosts of blue varieties of bedding Lobelias now in gardens. It is a very compact dwarf grower, the dense tufts being masses of turquoise-blue flowers. Exhibited by Messrs. Cannell & Sons, Swanley.

NEMOPHILA ATOMARIA ATRO-CERULEA.—A variety having bright azurean blue flowers with white centres, encircled by a zone of black—a combination of colours having an extremely pretty effect. The typical form of this half-hardy annual has whitish flowers; therefore this new variety is very distinct. It is dwarf and floriferous. From Messrs. Carter.

LOBELIA FLORRIE WOOD.—Another new bedding variety with pure white flowers, produced plentifully on dense dwarf tufts. It is considered to be superior to all the older white varieties. Shown by Mr. H. James, Castle Nursery, Lower Norwood.

ONCIDIUM NIGRATUM.—Not a showy, but a pretty and most interesting species, introduced some years ago from British Guiana, but still a rarity in collections. The plant bears a long, slender, much-branched flower-stem, carrying a profusion of small flowers, the sepals and petals of which are white heavily barred with chestnut-brown, while the crest of the labellum is a bright yellow. Shown by Messrs. Veitch.

PELARGONIUM ABEL CARRIERE.—An Ivy-leaved variety, with perfectly double flowers produced in massive trusses and of a glowing cherry-rose colour. It is one of the finest of a beautiful race of plants which are only beginning to be known in gardens. From Messrs. Cannell & Sons, Swanley.

A group of well-flowered specimens of *Odontoglossum vexillarium* *Klabochianum* was shown by Mr. Vicary, gardener to Mr. J. T. Peacock, Sudbury House, Hammersmith. This variety is remarkable for the deep rosy purple colour of the blossoms, which are smaller than the ordinary form, and, what is most important, flowers several weeks later, thereby considerably prolonging the flowering season of this charming Orchid. From Mr. Peacock's garden also came *Agave Shawi*, A. Vicary, and A. Gauthieri—all handsome and rare succulent plants.

Mr. G. F. Wilson, Heatherbank, Weybridge, exhibited some fine specimens of Kämpfer's Iris (alluded to on p. 15) besides some fine flower-stems of the hardy *Crinum* *capense* and a few Lilies, including a very deep red-crimson variety of *L. elegans*, *L. candidum*, and the rare little *L. avenaceum*, one of the most difficult of all Lilies to manage successfully. The flowers are turban shaped, red, like the true pomponium, and copiously spotted with black. The foliage is disposed in regular whorls on the slender erect stems.

A few plants besides those certificated were shown by Messrs. Veitch, among them being the following: A very fine specimen of *Lilium auratum* *platyphyllum*, a new variety with very broad foliage and enormous flowers, with wide sepals and petals; *L. auratum* *virginale*, the rare variety, having pure white flowers, except the golden band down the middle of each petal; *Athyrium Filix-femina* *kalothrix*, a very elegant variety of the

Lady Fern, with finely cut fronds; *Begonia lineata*, a small growing plant with shield-like leaves of a bronzy green, marked with silvery white dots; *Escallonia Philippiana*, a pretty hardy Chilean shrub of dwarf, dense growth, bearing a profusion of small white blossoms; *Masdevallia Carderi*, a new species in the way of *M. Houtteana*; and *Phalenopsis maculata*, a pretty small flowered, but not a very showy species. Besides these were a few hardy herbaceous plants and an extremely fine collection of seedling varieties of *Iris Kämpferi*, some three dozen in number, including some very large flowered sorts, and representing a great diversity of colour.

From the Swanley Nurseries, Messrs. Cannell & Sons exhibited a numerous gathering of cut flowers and plants, among which were *Campanula persicifolia coronata alba*, one of the finest of all the hardy species; *Achillea Millefolium rosea*, a variety of our native Milfoil or Yarrow, having the flowers of a beautiful rich rosy purple instead of white; *Enothera speciosa*, a lovely Evening Primrose with large, white blossoms, plentifully produced—one of the finest of hardy perennials; *Petunia Beautiful Star*, with flowers prettily marked with star-like stripes; *Lobelia Tait's White*, an admirable bedding sort; and a double *Tropæolum* named *Gloire de Bordeaux*, in the way of the older *Hermine* *Grashoff*. Besides these there were a few new double Ivy-leaved *Pelargoniums* named *Albert Crousse*, *Isidore Ferel*, and *Mdme. Boncharlet*, all beautiful sorts, and improvements on older kinds. Among a fine collection of cut spikes of *Delphiniums*, also from Swanley, we singled out the following named sorts as being the finest: *Dick Sand*, the same as certificated a fortnight ago; *Mdme. Chate*, *Sphere*, *C. Glym* (light blues), *Roland*, *Hamlet*, *Mdme. H. Jacotot*, all either dark blue or purple.

A grand specimen of *Lilium giganteum* was shown by Mr. Noble, Sunningdale Nursery, Bagshot. The spike bore sixteen huge blossoms on a stem 9 feet or 10 feet high and some 2 inches in diameter. The same exhibitor also had cut blooms of a fine new dark Rose named *Duchess of Connaught* and a large gathering of spikes of the lovely *Spiræa palmata*, which seems to flourish uncommonly well in Mr. Noble's nursery planted in a moist *Rhododendron* soil in a low, cool spot. It was a great treat to see such a glorious exhibition of this plant.

The new *Mascarenhaisia Curnowiana*, or red climbing *Jasmine* of Madagascar, was shown by Messrs. Hugh Low & Co., Clapton, who introduced it a short time ago, and to whom a first-class certificate was awarded for the plant by the society last year. It was fully described and figured in last year's GARDEN, and the fine specimen shown on this occasion fully bore out our predictions that it would make a very elegant and pretty stove climber. Messrs. Low also showed a specimen of *Grammatophyllum Ellisii* bearing a spike carrying thirty-one blossoms. The exhibitors were accorded a cultural commendation for this fine specimen Orchid.

Some new double Begonias were shown by Mr. Bealby, Roehampton. Besides that certificated were *Agnes Sorel*, with large double flowers of a light rose-pink, and *Rosamonde*, of a deep rose colour. Both are of a vigorous dwarf habit. A beautiful and delicately-coloured variety of *Catleya Mendeli* was shown by Mr. H. James, Lower Norwood. The flowers were not large; the colour was white, delicately washed with a pale mauve-pink, and with a dash of yellow in the throat. The flowers were also sweetly scented. It was named *rosea odorata*.

A collection of tuberous-rooted *Regonias*, including several new seedling varieties, was shown by Mr. Barron, from the Society's garden at Chiswick, besides a full collection of the varieties of *Achimenes*, numbering several dozen varieties. A collection of Sweet Peas was also shown from Chiswick, to which allusion is made in another column.

The chief attraction of the meeting was another extensive collection of cut hardy flowers, exhibited by Mr. Ware, Hale Farm Nursery, Tottenham,

who was awarded a silver Banksian medal. This collection was unquestionably the finest that has been shown in this or any other season, and admirably and plainly revealed what a wealth of beauty may be had in the flower garden in mid-summer without having recourse to tender plants.

FRUIT AND VEGETABLES were not numerous, Melons being the chief among the fruits. Mr. Gilbert, of Burghley, sent a couple of fruits of his new green-fleshed seedling called Burghley Pet, for which he received a first-class certificate last season. The committee confirmed the certificate, and were of opinion that the Melon fully maintained its character. Mr. Carmichael, gardener to Mr. Oakes, Bury St. Edmunds, showed a seedling called Captain Larks, a large oval-shaped and netted fruit with reddish and very thick flesh of delicious flavour. Mr. Herrin, Chalfont Park, Gerard's Cross, sent a fine example of his new seedling named Chalfont Favourite, a green-fleshed fruit, said to be a cross between Victory of Bath and ascarlet-fleshed seedling. A large oval-shaped variety named Graaf Reinette was shown by Mr. Robert Veitch, of Exeter. Mr. Carmichael received a cultural commendation for a very fine dish of Bellegarde Peaches, all large and well coloured fruits. A dish of seedling Strawberries was shown by Mr. Fitt, Cassiobury Park, Watford. The fruits were large and of an intensely deep colour, quite distinct from any ordinary variety. The committee were of opinion that the variety was identical with the old Empress Eugénie; the flavour was poor. There were other seedling Strawberries and Raspberries shown, but were not commented upon by the committee. A large, many-crowned Pine-Apple was shown by Mr. Nicholas, of South Molton. Mr. Bloxholm, Brickhill Manor, Bucks, exhibited some fine examples of Veitch's Superb White Cos Lettuce, for which he received a vote of thanks. A remarkably fine and extensive collection of Cabbage Lettuces, numbering some thirty varieties, three or four heads of each, was exhibited by Messrs. Veitch, from their seed grounds, Middle Green, Slough. This assortment, we imagine, represented every sort of Cabbage Lettuce known. It showed plainly how nearly alike fully one-half of the varieties are, at least in appearance, and with most of the others there appeared to be a distinction without a difference.

NOTES AND READINGS.

ASPARAGUS CRITICS.—*Punch's* street-vendor's reply to the boy who complained that his dainties had made him ill was, "Ye arn't accustomed to 'igh livin'," and a similar explanation of the note on Asparagus in the *Chronicle* a couple of weeks back suggested itself at the time I read it. The author of the note does not appear to be either an eater or grower of Asparagus, but wanted to say something about those prizes, and to do this, under the circumstances, in a deft manner and without exposing himself was a ticklish task. It is no condition of the prizes offered that the growers were to "heap soil upon Asparagus plants" in the way mentioned, but the hint comes queerly from the editorial columns of a contemporary whose editor, in that extremely rare "epitome of gardening," says some soil or manure should be heaped on annually, that being about the only cultural fragment epitomised! If we wished to guess at the real author of the paragraph, we should say he is not in the Asparagus line at all, and that he kept one pen for your contemporary, another for other papers, and a third for private correspondence.

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FLORISTS AND THEIR FOIBLES.—I cannot allow the Rev. Mr. Tymons to close this little controversy in the assumption that his questions are unanswerable; but it was necessary, before complying with his demands, that he should first tell us to what section of florists he belonged, to prevent him begging the question afterwards, for it is clear his notions are rather elastic on that point. Since he declines to do this or comply with the first essential in fair discussion I am

compelled to class him with the florist proper, in whom he interested himself at the outset, but whom he calls "the person" now. First of all, as Mr. Tymons poses as a fair and logical critic, may I ask him if he recast my statement (p. 445) in order that he might frame his questions accordingly? and if not, why did he not quote me as I wrote it, which would have been the proper and easiest course? At p. 595 he puts these words between inverted commas as mine, but which are not mine: "None of the races of popular hardy flowers made any great strides in improvement until they were taken out of the florists' hands." This way of putting it enables him to "demand a detailed list," &c.; but my words were: "It was only when the *work* was taken out of their hands and conducted on broader lines that any great strides in improvement were made," and this I reiterate.

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THE WORK TAKEN FROM THE FLORISTS was the work not of cultivating a few special subjects on special lines, holding special shows, hedged round by special rules, but the work of raising, improving, and distributing pretty and useful garden flowers without any regard to the florist's "standards" and "laws," and with which such things as pins, thrums, pips, paste, &c., had nothing to do, which did not require the aid of tweezers, dressers, gum, or any assistance of that kind. What are the flowers that have been taken out of the florists' hands, or rather, what are they that the "florist proper" has not given? If we take up his own books and lists on the subject, it cannot but strike the reader that the whole world of garden flowers almost are outside of them, for florists' flowers, according to their own reckoning, make a short list indeed, and it is only a few of these they seem to spend their time amongst. If Mr. Tymons will turn to Mr. Douglas's book on "Florists' Flowers" he will find the most recent lists include only about fifteen species and varieties! The author of "Hardy Florists' Flowers" ought to know, and, according to him, these fifteen sorts constitute the whole floral system in which the florist revolves during his lifetime. The author of the book, in his preface, describes these few subjects as "the plants popularly designated as 'florists' flowers,' and the writer of the introduction—another florist, the Rev. Francis D. Horner—clearly distinguishes florists from all other gardeners and cultivators when he expresses the wish that "florists were again as numerous and as strong a body as to have some periodic work all their own wherein to record experiences," &c., from which I infer they are but poorly represented among modern horticulturists and raisers of garden flowers who fill modern gardening papers.

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OUTSIDE of florists' lists are Violas, Primroses in endless variety, Polyanthus, border Auriculas, Pinks, single Dahlias, Geraniums, Begonias, Potentillas, East Lothian Stocks, Delphiniums, Asters, Marguerites, Iris, Peonies, Forget-me-nots, Lilies, Anemones, Verbenas, Daffodils, Lobelias, Heliotropes, Salvias, Amaryllids, Cyclamens, Lupines, Candytufts—in short, nearly all the popular hardy flowers we possess which have either been introduced or improved by those who are not "florists proper." My case is proved by the history of the Carnation and Pink alone. So long as they were in the hands of the florists, i.e., those who professed to grow them with special care and laid down rules to regulate their form, the public and the gardeners were cut off, so to say, from these noble flowers. No one would fail to see a certain degree of merit in a number of men devoting themselves to the culture of a flower like the Carnation, and setting up rules according to their lights. But we have to consider the question from the human standpoint, and to see what harm as well as good these people did. It is a matter within the knowledge of anyone who has observed the state of our gardens, that so long as the florist's notion of a Carnation obtained, the plant was not in general cultivation at all! It was too fearful a business for the general gardener with his many cares to

face the ordeal of compost, pot, stick, frame, choice bed, and all the rest of it. He did it occasionally by special encouragement from his master, but the matter was really outside of the public and general gardening sympathies. People never doubted in early days that the florists were right in their notions of form and their flattening and smoothing out of the petals; they simply kept "out of it," finding the play not worth the candle.

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BUT by-and-by, however, among the many heresies propounded by THE GARDEN was this: That the cherished form of the florist was in itself *ugly* as compared with the natural forms which the flowers assume themselves! This was the artist's and the human point of view. The form produced with such painful care was declared poor compared with the bold forms which flowers assume themselves in a good border, with their fine play of light and shade in the broken surface. Seeing a change in public taste, some of our best nurserymen, such as Messrs. Veitch, have begun, even in London, to pay attention to the Carnation as a border flower, selecting the hardiest and most vigorous forms with good bold flowers. Border Pinks, too, are taken up and well grown by others, and one may now see a garden embellished with handsome and fragrant Pinks in summer as beds, edgings, and groups, coming in also admirably for the house. It is surely clear, from signs such as these, that we have outgrown the florist and his notions. He is, in fact, almost "out of collar," large as are the paper collars for each Carnation flower put up by Messrs. Douglas, Dodwell, and other rigid florists. Each flower at their shows is set in a piece of cardboard, while no attention is paid to the flowers the public really want, and which can be grown without the florist's science. I am glad we have lived to see beyond this; grateful that, among the endowments which scientific and other busybodies have persuaded the State to support with its money or house in its public buildings, there is not a society of florists established at Burlington House, spreading false and foolish notions of colour and form in flowers.

PEREGRINE.

FRUIT GARDEN.

MARKET FRUITS AND MARKET PRICES.

Is it a fact that hard, uneatable Peaches are sent and sold in English markets? If any person ever made such a mistake as to supply such fruit, it is one they would not be likely to repeat, as the price returned would soon teach them that such fruit would not pay. We all know there are certain kinds of Peaches, Grapes, and Strawberries that are much more in favour with growers than others, for the simple reason that they travel better and keep longer, and, therefore, in cultivating such, growers only study their own interest. I have been to Covent Garden and others of the principal English markets many times, and what I have seen in the way of fruit and vegetables has been of the best. Indeed, I should be very glad if I always had them as good. I was through the centre row of Covent Garden about a month back, and the Peaches, Grapes, and Strawberries displayed there were superb; Peaches highly coloured, fully ripe, and packed in silver paper and Moss in single layers in shallow boxes were without spot or blemish, and Grapes seemed to have travelled equally well, lying in and tied to the sides of cross-handled baskets, with only a little Moss covered with soft paper and a piece of stout brown paper tied over the tops. No doubt the handles were a great protection to the Grapes, as the baskets would be sure to be kept that side up instead of being pitched about anyhow in transit, as is too often the case with goods sent by rail. I know a grower who carries his Peaches up to town with him, and he assured me that he was making half-a-crown each of them through a salesman, a fact which shows that good fruit fetches a good price. The sorts of Strawberries best suited for market work are John Powell, Vicomtesse Héricart de Thury, President,

and British Queen. These are all firm in the flesh, good croppers, excellent in quality, and tempting in appearance, all properties that take with the public. J. S.

PEACHES AND APRICOTS OUTDOORS.

As regards vigour and hardiness, small-flowered Peaches are, I think, more trustworthy than those of the Noblesse type and others having large flowers; the small flowers, as a rule, set more freely and escape injury from cold better than large ones. I have long been of opinion that heavy, elaborate coverings, unless they can be lifted off during the day, are of very little use in preserving the crops, and they may, by keeping light and air from the tree, do serious injury. By way of experiment, I have, for a good many years past, left one or more trees unprotected, and the result has been, at least, equal to the most elaborate protection. I am not saying this to deter anyone from using protection, though certainly there are grave doubts in my mind as to the value of the protection which excludes light and a free circulation of air. What, I think, we want is a race of small-flowered hardy Peaches which will bear a low temperature, and which under good treatment, such as spreading out the wood thinly on the wall or trellis and keeping down insects, will ripen their shoots well and bear strong blossoms. It would be a great benefit to fruit growers if someone with plenty of wall space would get together all the known varieties of Peaches obtainable and grow them well, but give them no protection beyond that of the simplest kind—such as a few light feathery branches of Yew, with an old fishing-net thrown over them, to keep the wind from dislodging them. By this means some data might be obtained as to the right kinds to plant. I look upon the Peach as being harder than the Apricot; and if the trees were kept clean and the wood thin, the Peach would not often fail to bear. The white flowers of the Apricot are more tender than those of the Peach; they expand earlier in the season, and, taking the average of years into account, they are exposed to a lower temperature. I do not remember to have seen Apricot trees so thin of fruits as they are this year. Those who covered heavily are just in the same position as those who left them exposed. This is not all due to the severity of the weather at blossoming time; doubtless a good deal of the scarcity is owing to that cause, but a series of bad years have been against us. The summers have been in a great measure sunless, and these Eastern fruit trees want sunshine to grow in and to ripen their wood if they are to carry healthy blossoms, which alone can produce first-class fruits. Peaches are a heavy crop in this neighbourhood, and the trees are healthy and clean, thanks in a great degree to the early use of tobacco powder. The Peaches, flowering later than Apricots, escaped, and set a very full crop. The young wood should now have its final thinning, and be nailed or tied in close to the wall. I do not think every inch of wall surface need be covered with foliage; so much young wood is not needed for a crop; and when the warm rays of the sun can reach through to the wall, warmth is generated at the back of the branches, which greatly aids the ripening of the wood.

E. HOBDAV.

Growing Strawberries in pits and frames.—Referring to this subject, Mr. Douglas says (p. 4), "I do not mean to say that good fruits cannot be grown on plants planted out in pits and frames." Further on he says, "may I ask 'J. C. C.' if he really has been successful in cultivating Strawberries in that way?" To simply answer the question in the affirmative would hardly be so satisfactory as to give independent testimony. I therefore refer him for the answer to Mr. Page, who was at one time, if not now, gardener at Coombe House, Croydon. Under his care I have seen such crops of ripe Strawberries in May, grown under the system described, as would, I feel sure, please even Mr. Douglas. I think, however, that

Mr. Douglas might have tried the plan before he endeavoured to make it appear doubtful. I say this in the interest of those who are not in the same position as Mr. Douglas and myself as regards growing Strawberries in pots.—J. C. C.

Thinning the Apple crop.—The recent rains have come at an opportune moment for the Apple crop, which this year is generally a bountiful one. Where very heavy, and the trees of a manageable size, the inferior fruits should be taken off, as one good developed Apple is of more value in a commercial point of view than two or three inferior ones. Indeed, inferior Apples in good Apple seasons are almost valueless. To thin the fruit on large orchard trees will probably be impossible, but a good deal may be done by mulching and using liquid manure to enable the trees to swell their fruits to a good and useful size without unduly distressing the trees, a result certainly worth an effort to secure, especially in the case of the late keeping fruits.—E. HOBDAV.

NOTES FROM HECKFIELD.

PEGGING DOWN DAHLIAS.—That we may not be quite out of the fashion, we have this season planted the single varieties of Dahlias in large numbers, and instead of staking them they are being pegged down, a plan which by way of experiment we tried on a few plants last year, and, being considered successful, the same plan is now being practised on a larger scale. The central plants are staked, the next ones pegged, not close to the ground, but the outer plants as close as possible, and thus circular beds present a pyramidal or cone-like aspect. The merits of thus treating Dahlias are that the ground gets quickly covered, and the various colours intermixed have a far more pleasing effect than if each variety was kept closely bunched to its own stake. The thought has just occurred to me that another of the just now fashionable plants might well be associated with single Dahlias, namely, Sunflowers, particularly the dwarf double varieties, to serve as standards amongst the pegged-down Dahlias.

BEDS OF WIGANDIAS, CASTOR-OILS, AND SIMILAR PLANTS.—In order to get the greatest amount of growth in the shortest time, we are now mulching beds of these with about 3 inches in thickness of cow manure, and in order to hide its unsightliness, as well as to keep birds from pulling it about, a covering of Cocoa fibre refuse is spread over the manure. Previous to applying the mulching, each plant was staked, so that these beds will now need but little, if any, further attention all the season. Other beds, such as those of Cannas and Solanums, are mulched, if one may so use the term, with live plants consisting of Gnaphalium lanatum, Coleus, Sedums, and Mesembryanthemums, and these now need pinching, pegging, or pressing out, as the case may be.

"CARPET BEDS."—These are seldom spoken of in THE GARDEN except by way of ridicule, and I will not provoke you, Mr. Editor, further than to say that I only use the term "carpet" for want of a better word, as personally I have quite as strong an objection to carpet bedding as yourself—that is, when it really is as flat as a carpet. This style of planting I cannot like, and will not do it; and though I have no hope of your conversion to even my notions on carpet bedding, I think you will admit that they are a great improvement on what is generally known as such. Our terrace garden is a geometrical one, and so we think the general treatment should be the same; hence our so-called carpet beds are geometrical in design. But here the carpet ends, as over the entire design we have either standard plants or blocks of tall-growing plants side by side with dwarfier kinds; and so treated the most formal design does not present an objectionably formal appearance. These standard plants are now being given the necessary supports to keep them upright, and the blocks of tall plants are being kept within bounds of the pattern by pinching, whilst low-growing groundwork plants that do not yet cover the surface are being spread out by pressure with the fingers, and Her-

niaria, Mentha, and others are clipped with sheep shears. We have this season used Sedum acre elegans variegatum largely as a groundwork, and grand it looks; its creamy white appearance harmonises perfectly with all the varieties of Alternantheras.

SPIRÆAS.—At the present moment nothing in the hardy plant beds equals these for elegance and showiness. *S. Aruncus* is a gem of the first water; we have plants of it from 4 feet to 5 feet high, covered with long feathery and drooping spikes of white flowers. *S. venusta* makes a capital companion plant; this also is quite 4 feet in height, but the flower-spikes are more upright, and the flowers a rich rosy pink. *S. palmata* and *S. Filipendula fl.-pl.* are also now in magnificent bloom, and should be in every collection of hardy perennials. Our plants are growing in light, but deep loam that has been well manured; they are exposed to full sunshine, and they evidently like their quarters, though the general impression is that they are shade and moisture-loving plants.

CLIPPING BOX EDGINGS.—We always defer the doing of this work till the edgings get so untidy that, for our own credit's sake, it can be deferred no longer, the reason being that if left till well into July once cutting serves the whole year. This year the growth has been more profuse than usual, and we have just completed the cutting, but having been done so early we shall, a month or five weeks hence, have to give them another trim up. Is it generally known that defective parts can at any season be mended by putting in cuttings of the tree Box?—of course they must be kept well supplied with water.

JAPANESE CYPRESSES.—These are not yet appreciated, or at all events not so generally used for ornamental purposes as their merits warrant. We have the varieties *Retinospora pisifera* and *R. pisifera aurea* alternated in two long borders, the groundwork for the green variety being *Sedum acre elegans variegatum*, and for the golden kind *Herniaria glabra*, the panels between each plant being filled in with *Alternantheras*, variegated *Mesembryanthemums*, and tricolor *Pelargoniums*, and each border is backed up with a mixture of *Pelargoniums*, *Violas*, *Marguerites*, *Heliotropes*, *Sedum spectabile*, and single Dahlias. I need scarcely add that the Cypresses are the conspicuous feature, and produce an effect infinitely superior to any that could possibly be produced were only ordinary bedding plants employed. The shrubs are kept in compact form by lightly clipping out the points of the new growths twice during the season; they should be clipped now and a second time about the middle of August.

W. WILDSMITH.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

- 19.—Evening Fête in Royal Horticultural Society's Gardens, Chiswick.
- Aberdeen Annual Summer Show.
- 21.—Manchester Rose Show at Botanic Garden.

BOTANICAL MAGAZINE.—An index to the first 100 volumes of the *Botanical Magazine* has been prepared by Mr. E. Tonks, of Birmingham.

MUSHROOM CULTURE: ITS EXTENSION AND IMPROVEMENT.—One of the country series of farm, garden, and rural books for general use, produced under the direction of Mr. W. Robinson, has just been published by Messrs. Routledge.

A NEW PUBLIC PARK has just been opened at West Hartlepool. It is known as the Ward-Jackson Memorial Park, the land (about 17 acres) having been bought as a memorial to the late Mr. Ralph Ward-Jackson, to whom much of the development of the thriving young town of West Hartlepool is due.

PROPOSED NATIONAL SCHOOL OF FORESTRY.—A meeting of the committee of the proposed International Forestry Exhibition was held on the 20th ult. in Edinburgh, Dr. Cleghorn presiding.

Mr. R. Hutchison, Carlwrie, reported that, in response to the request forwarded to them, a very large number of noblemen and gentlemen had kindly consented to become patrons of the exhibition. He proceeded to say that the object of the show proposed to be held in Edinburgh next year was to endeavour to make it the starting-point of a national school of forestry, an institution which this country very much required. At present students intended for work in India had to proceed to schools on the Continent for instruction, whereas there was ample scope for study at home. There could, he thought, be no more fitting occasion than the year in which Edinburgh celebrated her tercentenary for the holding of a great exhibition, and thus bring before the notice of the public the wealth of our forest products. The authorities of Edinburgh were anxious to have the arboretum at the Botanic Gardens put in a thoroughly equipped condition, and there was no way in which this could be better advanced than by the holding of such an exhibition. Already a guarantee fund of £700 had been subscribed. The Marquis of Lothian was elected chairman, and a small committee was appointed to select the executive committee.

SEA EAGLE PEACH.—Of this variety, Messrs. Rivers, of Sawbridgeworth, showed some wonderfully fine examples at the Crystal Palace show last Saturday. It is one of the handsomest of Peaches, somewhat in the way of Princess of Wales, another of the Sawbridgeworth seedlings, also shown finely by Messrs. Rivers. The Sea Eagle is very large, somewhat pale in colour, of high flavour, and unquestionably one of the best Peaches now grown. It is finding favour everywhere, and some of the best fruit growers esteem it highly. Another large Peach shown from Sawbridgeworth was the Nectarine Peach, said to be a first-rate late variety. It has a smooth Nectarine-like skin, and colours highly.

CHAMBER'S ENGLISH, FRENCH, AND GERMAN DICTIONARY (John Murray: Albemarle Street) is a valuable little book well suited for travellers. It comprises in parallel columns, in the English, French, and German languages respectively, a selection of words likely to be useful to tourists. It consists of 724 pages, yet they have been compressed into a sufficiently small volume (6 inches by 3 inches and 1 inch thick) to be easily carried in the pocket.

SELECT CHERRIES.—At the Crystal Palace, on Saturday last, Messrs. Rivers exhibited a collection of Cherries from their houses as fine as Cherries could possibly be produced, being large, even sized, and of high colour. Than these it would be difficult to make a better selection. Of Bigarreus there were Jaboulay, Napoleon (now well known), Gros Cœur de Schreken, and Ludwigs. Of others there were Black Hawk (a first-rate sort); Bedford Prolific, in the way of Black Tartarian; Emperor Francis (a fine late sort), Geante d'Hedelfingen, and Early Rivers, a black, very hardy kind, a seedling from Early Purple Guigne. These formed a most attractive and tempting display.

LAW.

RATING GREENHOUSES.

W. PAUL & SON v. EDMONTON UNION.—This was an appeal by Messrs. W. Paul & Son, of Waltham Cross, against their new assessment by the Edmonton Union. They were in 1881 assessed at £180 (£165 rateable), and this year, although there had been no addition made to the property, the assessment had been raised to £345, consequent on a revaluation of the greenhouses by the union.

Mr. Douglas Walker was for the appellants, and Mr. Castle was specially retained for the respondents.

Mr. Walker pointed out that in the new valuation Mr. Paul's land had been put up to £5 an acre, whilst some on account of being liable to be flooded, and some through being used for growing Coniferae, was not worth that sum. The rateable value of the land (32 acres 3 roods) at £5 an acre

came to £165, which with £38 (rateable value of offices and buildings) came to £203. That left £142 for the greenhouses, which made the £345. The great question was the value of the greenhouses. There were twenty-one houses, a considerable number close by the high road, and the parish had rated them most unjustly. Mr. Walker then cited cases in support of the following principle, which he contended was applicable to the matter in dispute—viz, they would first consider what a hypothetical tenant would give for the land, and then what more rent he would pay because of the convenience offered him by what existed on the land—in this case by the greenhouses. He then contended that the value of the greenhouses was very small because of the great cost of keeping them in repair.

Mr. Castle did not dispute the principle. The appellants were entitled to deduct insurance and the cost of work necessary in order to maintain the greenhouses in a fit and proper state to earn the rent.

Mr. Walker said the houses had been valued at £1462; and, taking 10 per cent. on the present value as the rent, they arrived at £146 19s. as the rateable value. Going back to the expense of keeping up the houses, Mr. Paul paid a man £1 a week to paint and repair, £52; and there was the cost of materials, insurance, &c., which left £28 2s. for the rent, which he contended was the outside value of the houses to an incoming tenant, and as much as could be got for them.

Mr. G. F. Morris, of Protheroe & Morris, said: I value the greenhouses at £1105 15s., piping outside, £20, making £1125 15s.; pipes, £176 4s.; sheds and stabling, £89; large pump and tanks, £48; boiler, £23; making about £1462.

Mr. W. Paul said, the greenhouses cost a great deal to keep up; for the land and buildings I would take £150 a year, the tenant doing repairs, but this property is not lettable. I make the yearly cost of repairs about £108.

Mr. Alexander Adams said, I built all Mr. Paul's greenhouses but one. I should not like to keep them in repair for £100 a year. I charged 4½d. a foot for the woodwork.

J. B. Slade, clerk to Protheroe & Morris; I know cases of property let with greenhouses on seven, fourteen, or twenty-one years' lease, the tenant to repair, and with the option of the tenant to continue. We do not let many properties on such leases; we cannot get tenants.—This was the appellants' case.

Mr. Castle, in opening the respondents' case, said the matter was first brought as a kind of test case to decide whether greenhouses were part of the rateable buildings, and instead of having to fight that he was met with the allegation that the greenhouses being assessable, the valuation was excessive. He contended that the evidence of Mr. Morris and Mr. Paul was not sufficient to alter the valuation; and that the appellants had not shown that £5 an acre for the land was in any way too much. The respondents' estimate of the value was £2900.

Mr. W. H. B. Castle, fellow of the Surveyors' Institute, said he had valued Mr. Paul's property at £2944; he valued the greenhouses by ascertaining the cubic contents, 126,000 odd, and the land at £5 an acre. He said he valued glass erections at 4½d. per foot (cube), which would be superabundant 1s. 6d. per foot for modern glass erections which cost only 10d. per foot, including woodwork, 21-ounce glass, ventilating gear, brickwork, the house painted in three coats in oil, and everything finished in a workmanlike manner excepting the heating apparatus.

Mr. Edwin Fox, senior partner in the well-known firm of Fox and Bousfield, Gresham Street, City, said he had been in practice many years, and knew something of the description of property in question. Mr. Paul's land, considering its state of cultivation, was worth £5 an acre to anyone; and as far as the freehold value was concerned, they would not get land with a frontage to the high road for less than from £100 to £150 per acre; £2944 was a fair valuation.

The justices retired. On their return

Lord Salisbury said: The Bench has fixed the rateable value of the holding at £250. The Court ordered the rate to be amended accordingly, and costs to follow the event.

Grapes (J. M.).—The berries sent seem scalded. See last week's GARDEN (p. 2).

Erica hyemalis (W. B. S.).—When its season's growth has been made, let the plant be placed out of doors to ripen and harden it.

Passion Flower (W. H. M.) covered with red spider, which should be got rid of by sponging the leaves with soap and cold water, and afterwards giving daily syringings.

Hawthorn fungus (H. W. C.).—Your Hawthorn is not attacked by an insect, but by a fungus named *Rostelia lacerata*, which attacks the stems, leaves, and berries. A minute grub may at times be found on the fungus feeding on the spores, but it is in no way the cause of the swollen growth.—G. S. S.

Gloxinia buds (G. A. F.).—It has been no easy matter to examine your buds, owing to the thick felt of cotton wool in which you packed them. The smashing by the post office officials is a nuisance of secondary importance compared with the abominable wool from which it is impossible to extract a plant, especially if it be a diseased, sticky, or smashed one. The discolourations look to us like scalds or sun burns; we can see no fungoid growths.—W. G. S.

Ergot (E. R., Melbourne, Essex).—We can see no ergot on the Rye Grass sent; the very early condition of ergot resembles a small drop of exuded water from between the glumes. This liquid speedily takes a yellowish tint and becomes viscous; it then gradually pushes up the grain, which is abortive, and as the viscous material grows it becomes a black ergot. An ergot is a mass of compacted spawn or mycelium only, which gives rise to the purplish fungus named *Claviceps purpurea*. The spores of *Claviceps* on germination cause Grasses to be ergotted.—W. G. S.

Bones for draining pots.—Three years ago, having enlarged my conservatory, and so potted up a greater number of plants than usual, I ran short of crocks and used some pieces of bones instead. When the time for the spring shift came, I noticed that some plants were much finer than others, and on shifting them found that in each case it was where bones had been used. So marked was the difference, that after shifting the first few, I could tell at once before knocking the plants out of the pots whether crocks had been used or bones. This led me to put a piece or two of bone in each pot for the last two years, and the plants have done better through the winter than ever before. When you come to shift the plants, the bones look as though all the goodness had been completely sucked out of them.—UPPER TOOTING, in Gardening.

Names of plants.—*A. Boules.*—1, *Fuchsia procumbens*; 2, *Stachys lanata*; 3, *Sedum Aizoon*; 4, *Lilium elegans* var.—*A. Elder.*—1, *Salvia verticillata*; 2, *S. pratensis*; 3, species of *Stellaria*; 4, *Allium angulosum*.—*R. Stevens.*—1, *Philadelphus coronarius variegatus*; 2, *Cistus ladaniferus*.—*H. Euston.*—*Thalictrum aquilegifolium purpureum*. The other plant sent is *Maianthemum bifolium*.—*S. S.*—1, *Weigela rosea*; 2, *Doryopteris palmata*; 3, *Tradescantia virginica*; 4, *Spiraea Filipendula*.—*T. H. A. H.*—Next week.—*A. Noakes.*—One of the innumerable varieties of *Lobelia Erinus*.—*F. U. B.*—1, *Armeria cephalotes*; 2, *Oxalis Valdiviana*; 3, species of *Silene* (a weed); 4, *Allium nigrum*.—*Ash House.*—*Gymnadenia conopsea* (Orchis), *Helianthemum polifolium* (white).—*A. Legg.*—*Dendrobium Pierardi*.—*Col. Lockwood.*—*Bog Asphodel*, *Narthecium ossifragum*.—*W. Brock.*—*Cattleya Eldorado Wallacei*.—*C. A. Sub.*—The *Passiflora* is apparently the old *P. corulea*; we do not undertake to name Roses.

Grapes (J. R.).—They are what is called rusted, an evil caused in many ways, but chiefly through exposure to cold draughts when the skin is young and tender.

BOOKS RECEIVED.

The Alexandra Park, and How to Procure it Free of Cost. H. Emery, West Brighton.

Tourist Guide to the Continent. 125, Fleet Street, E.C.

Report of the Commissioner of Agriculture of the United States for the years 1881-82. Washington Government Printing Office.

A Practical Treatise on the Fuchsia, by Frederick Buss. Allen, Ave Maria Lane.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

LARGE STRAWBERRIES AND THEIR FLAVOUR.

WE have had some huge Strawberries from Mr. Gilbert (Paxtons) which were remarkably well grown and perfectly coloured. Better grown they could not be, in fact; and yet the flavour, in our opinion, left something to be desired. The Strawberry is one of those things as regards which flavour is to some extent sacrificed to appearance. All who grow fruit for their own tables would do well to ask if we cannot get better flavoured fruits than those grown for the markets. Qualities which enable a market grower to carry his fruit to a place of sale are of no consequence whatever to the private grower, who should above all grow fruit for its flavour. The wholesomeness and pleasure of eating a Strawberry have very much diminished by the poor quality of many kinds. We should raise and raise fruits till we get really good ones. This plant is so easily raised from seed, and comes into bearing so quickly, that there should be no trouble in the smallest garden in trying a few experiments until the owner found a kind that suited him in flavour. It is quite common to find fruits most unwholesome by the acid they contain. There should be a revolt carried on by all owners of gardens against the ever-growing practice of sending out new kinds because they are bigger than older ones. It generally means that they are coarser; it sometimes means that they are useless. Imagine anyone growing a Kidney Bean because it was large, seeking the very quality that all avoid who have to cook or eat it. It is a delusion that those who grow their own fruits and vegetables necessarily pay more for them than they do in the market. The pleasure of having them quite fresh and of a proper age would, however, be worth paying more for were it needed. This great advantage, which all who are happy enough to live in their gardens enjoy, might be greatly increased as follows: By a new departure, seeking and growing only things delicate and good in flavour. To grow such and gather them at the right moment, which is never done in the case of market produce, would be to experience a difference not merely in degree, but of kind. Green Peas, for example, grown thus and gathered thus would scarcely be thought of the same species as the common full-grown market "bullet."

ORDER CARNATIONS.

AGAIN the Carnation and Picotee season has come round, and in a few days exhibitors of these sweet flowers will be striving to outvie each other in showing the biggest and best trimmed blooms. These exhibition Carnations are beautiful, it must be admitted, but for our part we would rather see them growing freely and naturally in the open air without the disbudding, trimming, and other little details which the exhibiting cultivator deems indispensable for the production of fine blooms. There cannot possibly be a more lovely floral sight in the open-air garden at this season than masses of Carnations and Picotees, particularly self-coloured border varieties, always so rich and beautiful. One

of the finest exhibitions of these border kinds, and one now in perfection, is that in the Royal Exotic Nursery, Chelsea. It was a happy thought of Messrs. Veitch some three or four years ago to make an annual display of Carnations and Picotees in their town nursery; such a display cannot be seen elsewhere in London, and, besides, it conclusively proves that the culture of these beautiful hardy flowers can be grown to perfection in one of the most populous neighbourhoods of the town. The Carnation beds are in two groups on either side of the central pathway of the nursery and seen *en masse*, the plants produce an exceedingly fine effect. Here they are all planted out, and in most cases one variety occupies a large bed so that the masses of the various colours are imposing. The healthy vigour of the foliage and the extreme floriferousness of the plants, combined with the fine quality of their blooms as regards size and form, point to the fact that neither Carnations nor Picotees require such skilful cultivation as people are apt to imagine they do in order to obtain beautiful flowers. As a screen from the direct rays of the sun the plants are protected overhead by an awning, as excessive heat, combined with rain, impairs the blooms. The plants are planted out about March, but this year they received a check from the bitter weather which happened just about that time; consequently the display is scarcely so fine as last season.

The collection contains all the finest varieties of Carnations, both border and show or fancy kinds, as well as of Picotees, but as it is to the border kinds we more particularly allude, we will only enumerate a few of the newest and most striking of these. The newest sorts are Virgo, a very free flowerer and strong grower, the blooms being not large but of good form and of pure whiteness; Earl of Beaconsfield, a rose flake with large blooms and an abundant flowerer, and, moreover, possessing a strong constitution; Sir Beauchamp Seymour, a seedling raised at Messrs. Veitch's Langley nursery, and first flowered last season. The flowers are large and full, the colour a reddish orange, stained at the margins with a richer colour. It is in every sense a fine variety, and distinct from others of a similar colour. Mary Morris is a lovely variety, remarkable for its extreme floriferousness and the large size of its full flowers of a pleasing rose-pink. It is a vigorous grower and a real addition. The Governor, another new sort, has large and full flowers of a delicate bluish white, but it is not all that could be wished as regards constitution or floriferousness, at least, judging by the specimens under notice. A selection of the older sorts includes: of whites, W. P. Milner, one of the best if not the very best of all, being of a pure white, large, full, and extremely free, some plants having between forty and fifty flowers and buds; The Bride has large pure white flowers, freely produced. Of purples, or rather so-called purples, are Royal Purple, the best of its colour, which is a vivid violet-purple; Walter Ware deeper and also very fine; and another of a similar tint, but lighter than the last, is Auctioneer, remarkable for its profuseness of flower and good habit. The scarlets are more numerous, the best being The Coroner, a glowing cerise, very beautiful; Fireman, similar, but quite distinct in tint; Dan Godfrey, vermilion-scarlet; and Magnum Bonum, considered here to be the finest of all scarlets; other fine scarlets are Heaton Bank and James Wilkins; Amethyst is the best of the deep maroon-crimsons; and Gertrude

Teignor has flowers of a lovely rose-pink, freely produced. Of yellows are Chromatella and Stanstead Beauty, both clear yellows, while Florence, which was honoured with a certificate last year is of a yellowish buff, quite distinct from any other. Of the true Clove race there is the old Crimson Clove, with its deliciously scented blooms of rich crimson. Crimson Pet is in some respects an improvement on this, as the flowers are brighter and of better quality, but not so strongly perfumed. The pink or blush Clove is worthy of note, as it combines the perfume and large size of bloom of the old Clove with a delicate pink tint. One of the latest to bloom is Charmer, one of the best whites, but it commences to bloom after the others are in perfection; hence its extreme value. The above selection embodies all sterling varieties, all that have been thoroughly tested in every way, and no one need hesitate in adding them to their collection. They are all sufficiently distinct, and when planted as they are here, several dozen plants in a bed, they produce a fine effect. The visitor may also here see the cream of the almost innumerable varieties of the fancy Carnations and Picotees, which flourish uncommonly well in the open air here.

MIMULUSES IN THE FLOWER GARDEN.

WE have been surprised at the beauty of varieties of the common large Mimulus in Hyde Park, where it is used as a groundwork for a bed of Acacia. The freedom and boldness of the flowers and general softness of effect are charming. We had no idea it could be used so well as a summer flower-gardening plant, though fond of it for groups. Treated to fresh soil yearly in the way the bedding plants are, we wonder how many of our hardy flowers of free growth would be found useful in the same way. There would be little trouble in furnishing a flower garden with them! By the way, the bold older Mimulus always seemed to us a nobler race than the forms of *M. cupreus*, which have been more popular of late. The varieties we refer to are of the bolder type. Among the many beds along Park Lane the Mimuluses had the best effect in mid-July.

NOTES FROM HECKFIELD.

VARIETIES OF PEAS.—How many more "best" kinds of Peas are we to have? Surely we have variety sufficient for the most ardent worshipper of novelties; but still they come. I myself have this season had sent me half-a-dozen different kinds for trial, and have had about the same number for some years past; and, whilst none have been really bad, very few indeed have proved an advance on the best old kinds, such as Champion of England, Ne Plus Ultra, and British Queen. I make an exception in favour of Laxton's William I., which as an early Pea is far in advance of every other kind I have tried; and the same may be said of the mid-season variety Veitch's Perfection and of the late variety Sutton's Duchess of Edinburgh. This last is quite unique in quality, and when it has been "rogued" a little more, I think it will prove a standard variety for years. Of course, I do not say that there may not be other and better kinds, but that none that have been tried here have proved to be better than those above named; moreover, both in quantity and quality I am content to "rest and be thankful" at the standard attained. Only imagine it, Mr. Editor—a contented gardener!

PLANTING OUT BROCCOLI.—These we are now planting on the quarters that have been occupied with the early Peas, Radishes, and Spinach. The ground having been well trenched for the former crops, nothing is now needed, except to clear away the sticks and weeds. Shal-

low drills are then drawn 2 feet 6 inches apart, and the plants dibbled in at the same distance in the row and a good soaking of water to well settle the soil at the roots. After the first heavy rain the drills are filled in to the general ground level, the additional soil thus serving as a mulching, and rendering further artificial watering unnecessary. Firm, but deep soil is a first essential in Broccoli culture; hence the planting them on undug ground that has previously been cropped this season. By far the best heads we ever saw were grown on ground that had been occupied with Strawberries for three years; and where there are old beds of these to be destroyed, simply shave off the plants with a sharp spade and plant the Broccoli, making holes with a crowbar between the rows of the old roots; give plenty of water to start them, and earthing up completes their culture. I will not venture to say anything as to variety; they are more numerous than in the case of Peas, and I am just as chary of the new comers.

SPRING CABBAGES AND WINTER COLEWORTS.—Though it is not always profitable or desirable to continue on from year to year in old ruts or grooves, yet when a really good one has been found it is well to be content to run in it—such is my happy state with regard to Cabbages and Coleworts. We always sow the third week in this month, and as soon as the plants are ready plant out the Coleworts on the borders that have been cleared of French Beans and Potatoes, and the Cabbages on the ground that has been cleared of Onions; the rows for the latter are 26 inches apart, and the plants are put in 12 inches from each other; this admits of alternate plants being pulled out as soon as usable, and gives space for the others to grow into large Cabbages. The Coleworts are planted a foot apart each way in drills; they thus require no earthing, but simply a filling in of the drills as soon as the plants are large enough. Brussels Sprouts excepted there is no winter green so profitable or tender as this, and it is therefore worthy of special attention. Our varieties are the Rosette Colewort, and Cabbages Atkins' Matchless, Hill's Dwarf, and Cocoa-nut.

PHORMIUM TENAX.—Referring to the note at p. 28 on the hardness of this plant, I wish to say that it is perfectly hardy here, and so well does it stand that I doubt not it would prove quite hardy in the north of England. We have several plants that have stood out without any protection for several years. The foliage of all was slightly damaged by the severe frosts of 1880-81, but the roots were not a bit hurt. We have three varieties, namely, *Phormium tenax*, *P. tenax variegata*, and *tenax Colensoi*, and each kind is as hardy as the other. None of them have ever flowered, which is somewhat of a mystery, seeing that they grow away so luxuriantly. They are voracious feeders, and require great depth of soil, and the more sheltered the position the finer the foliage.

W. WILDSMITH.

NOTES AND READINGS.

NATURAL FERTILISERS.—We learn that the refuse left over from the Beetroot by the sugar-makers in France once regarded as a waste product, has lately been returned to the soil for use as a manure, as it contains all those elements which the Beet has drawn from the soil, and will produce a fresh crop without any other assistance in the shape of manure. Gardeners can well believe this, although in practice they do not observe the principle involved. The old Greek Vine growers had not agricultural chemists to assist them in their time, but they were more scientific than we are now; for, regarding the branches of the Vine as the best food for it, they buried the prunings about the roots as fast as they were cut off from the tops. In the kitchen garden gardeners can carry out the same practice easily with many things by digging in the vegetable refuse—often the heaviest portion of a crop—where it grew, instead of carrying it out of the garden, and substituting a dearer manure—perhaps of the wrong kind. The point now re-

lised most clearly by cultivators is that crops can only be successfully manured by applying those elements to the soil which the particular subjects need, a thing which the gardener has it largely in his power to do.

*

HEAVY LAWN MOWERS AND ROLLERS.—A novel law case is recorded concerning a garden roller. A customer ordered a roller that a pony could draw from a well-known maker, who supplied one that weighed some 19 cwt., and had it returned as too heavy for a pony to work on a lawn, the Court eventually deciding against the maker, because a veterinary surgeon said the roller was too heavy. How many so-called two-men and one-man lawn mowers, we wonder, would a doctor pass as sufficiently light for their work? None, we fear, at the above rate.

*

MARKET FRUITS.—Mr. Douglas disagrees with my statements on this subject, and refers to the Muscats and Hamburg Grapes in the market at present as examples of the quality preferred. The answer is that as soon as the Gros Colmar Grape is ready, these two sorts will rank second in value in the market, and I call the Gros Colmar the worst flavoured Grape grown. As for Strawberries, the biggest fruits always sell best, no matter what their flavour may be. We have Mr. Gilbert's dictum on the subject of Peaches, and I do not think anybody knows better, and the same rule, he says, "applies to everything" in the way of market produce. London provides the best supply of any town with which I am acquainted, but it is not the only market. The great fault of market Grapes and Peaches especially is that they are sent to market before they are ripe.

*

TRUE BLUES.—A correspondent the other week mentioned the little *Myosotis rupicola* as one of these, and I think also the *Lithospermum prostratum*. Both answer to the description. True blue is very distinct from the many shades that pass for blue—all more or less reddish or purple. The hardy Veronicas are almost true blues, and the little *V. rupestris*, in flower now, is one of the bluest, and a fine summer-flowering rockery plant. The deep blue of the "blue bag" is found in the old *Salvia patens*, a beautiful plant grown indoors or out. We have purple, but I think no blue, Verbenas; but the *Lobelia* affords a pretty clear and pure blue. Blue Violas are plentiful, but I am not sure they can be called pure blue. The best blues in the garden just now are Delphiniums. Theirs is a lustrous blue of the first order, shading off to purple and bronze. The stately spikes of the Delphinium are now the most striking objects in the garden.

*

POTTING ORCHIDS.—The sooner it is realised that the less potting Orchids are subjected to, the better it will be for the plants. Probably nine-tenths of the disappointments which arise in culture are due to potting or "shifting," as it is called. Nothing so much hinders the growth of Orchids as meddling with their roots, which, owing to their nature, are most sensitive of injury. To check the roots is to check growth, and to check growth is to check the formation of bulbs and leaves, and a check to these means fewer or no flowers. Planting Orchids out where practicable would be a good plan, but where the wants of numerous species and varieties have to be consulted, this cannot be done under ordinary circumstances. All the cultivator can do is to repot as seldom as possible, and to this end baskets or perforated pots are most serviceable. So long as Orchids are properly situated in regard to air, light, and moisture, it is of little consequence whether they are suspended or placed upon shelves, but the kind of pot or basket they are in is of most importance. Any receptacle that will allow the roots to ramble and run in or out is the best, and possibly the basket answers this end best, because, by a little ingenuity, a basket can be eked and added to by top dressings without meddling with the roots. I feel certain that putting all kinds of Orchids in common pots, as is

usually done as soon as imported, may be the way to preserve them for a time, but it is not the way to grow them.

PEREGRINE.

CHEMICAL CONSTITUENTS OF PLANTS.

TO THE EDITOR OF THE GARDEN.

SIR,—Ought not more attention to be given in treatises on cultivation to the chemical constituents of plants? Numerous as such books are, in very few is information on this subject to be found. Ville, the eminent French chemist, in his lectures on artificial manures (translated by W. Crookes, F.R.S.—Longmans, 1879) proves that the best results cannot be obtained from cultivation if the deficiency in the soil of the constituents of plants be not supplied. How is it possible to do this when, in many cases, even the dominant constituent of a plant is not known to the cultivator? Take the Vine as an illustration. Potash is necessary for its proper growth. Cream of tartar, or tartrate of potash, an important commercial product, is obtained solely from the lees of Grape wine, and Grapes can only derive this constituent from the soil; yet though many soils are deficient in potash, treatises on the cultivation of the Vine do not recommend that this deficiency be supplied. Ville records some extensive experiments made by him for the French Government at Vincennes in the cultivation of the Vine on land not containing potash, which had the following results: From an acre planted with Vines without any manure no Grapes were obtained; an acre of the same land manured with nitrogenous matter, phosphates, and lime, but no potash, was equally fruitless, but an acre to which the same manure was applied, except that potash was substituted for nitrogenous matter, produced 2½ tons of Grapes. Another acre treated in the same manner, but potash in place of the phosphates, gave 2 tons 18 cwt.; and another acre similarly treated, but without lime, yielded 3 tons 2 cwt.; and this same land, which without manure, or when manured with every proper ingredient except potash, was absolutely barren, when supplied with the same manure with potash produced 4 tons 15 cwt. of Grapes per acre. Hence it is obvious that, however well manured a soil may be, if it do not contain a sufficiency of potash it cannot produce a perfect crop of Grapes.

Many years ago Mr. Ingram, of Belvoir Castle gardens, strongly recommended to me pulverised granite as a dressing for Vine borders; and afterwards Mr. Coleman, of Eastnor Castle gardens, stated, in reply to my inquiry, that he largely used weathered granite from the hills in his neighbourhood for the same purpose. The excellence of his Grapes is well known. Now the average quantity of potash found in the several kinds of granite is over 5 per cent.

Ville states that potash is equally necessary to the Potato, and if it were generally used in proper proportions as a manure to that vegetable there would be little disease. It is within my knowledge that a large grower in a midland county, who used for the last two years Ville's formula for Potato manure (352 lb. superphosphate of lime, 264 lb. nitrate of potash, and 264 lb. sulphate of lime to the acre) had the finest crops within his experience, and easily took the first prizes for Potatoes at the Birmingham root shows both years.

I hope such of your readers as have studied the subject will favour you with the benefit of their experience in scientific cultivation.

Packwood, Knowle.

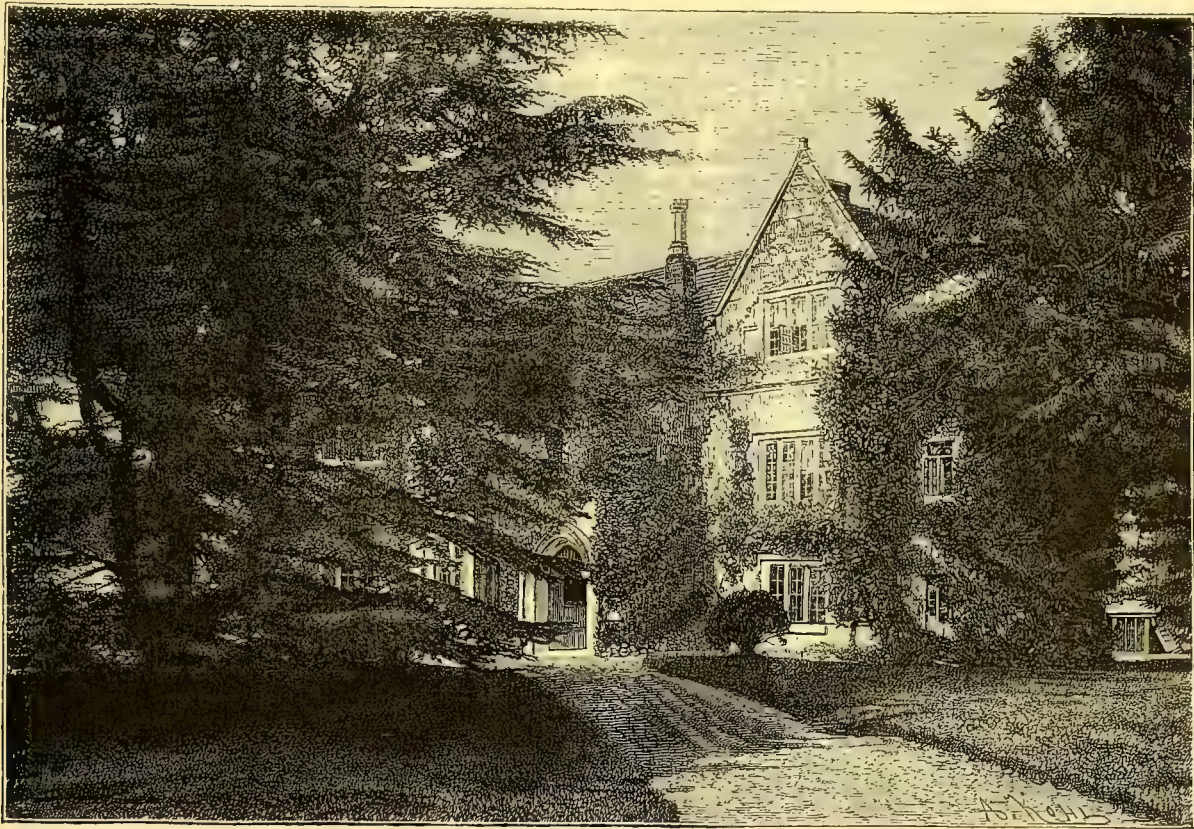
EDMUND TONKS.

ATHELHAMPTON HALL.

THIS is one of those old buildings which charm all by their quiet grace, their age, and by the beautiful colour which the stone of which they are made has assumed in the course of many generations, mainly through the agency of the Mosses and Lichens which adorn its surface. It is well to see the quiet grace of these old buildings of ours, so free from the fuss that characterises the work of the present day architect. A garden round such a house is easy to form, because in its heart there is a garden of stone and not an arid waste of gravel, steps, and other disfigurements, such as may be seen in many places that could be named. Almost any kind of careless garden looks well round such a simple building, partly because of the contrast between the quiet Grass and flowers, and the house so full of beauty and dignity. While

Pideles. Mention is made of Henry de Pydel of Athelhampton in the year 1280. He held one knight's fee in this parish of the De Londres family, they of the Bishop of Sarum, and he of the king in chief. In the year 1212 an assize was appointed to inquire if John de Pidele were seized of three hides of land in Pidele; this probably applies to the same family and lands of which we have more certain mention in 1280. The probability is that this house was built between the years 1212 and 1280 by the Pidele family; their crest (a hawk's head) is yet to be seen in the oldest of the hall windows. By marriage the house and manor passed to the Martins, an ancient and knightly family, deriving their descent from Martin of Tours, who came into this country with William the Conqueror. After remaining in the possession of the Martin family for eight genera-

The house appears to have been originally built as a quadrangle, having a courtyard in the centre and an octagonal turret at each corner; there was a well in the middle of the courtyard. The chief entrance to the house, through an octagonal porch, opens into the hall, which is stone paved, and has a dais at the upper end. The hall is about 40 feet long by 24 feet wide and 40 feet in height, with an open roof of massive Oak. About the year 1552 the house underwent most important alterations at the hands of the owner, Robert Martin; he added the large west wing, and by placing gables upon the ancient battlements gave the house an appearance of Elizabethan architecture. The handsome bay window in the hall was then added and forms the junction between that part of the house and the west wing. Robert Martin, at the same date (1552), built a handsome



Athelhampton Hall, Dorset.

it is not given to us all to have such a house, we may at all events take a lesson from it in the building as well as in the surroundings. Perhaps the best way for those who have any building to do is to build the best they can in their day, not following the so-called ancient style. But if we are to imitate anything old, let it be the best of its kind. The new creations which architects make for us are frequently shocking in the absolute (and bad) contrast they form with the quiet dignity of good old work. The cruet-stand style is not the old way, whatever they may perpetrate in that form. The house in question is at present the property of Mr. Homer, who, though engaged in agriculture on a vast scale (farming over 3000 acres), is not oblivious of the claims of the garden, and takes loving care of the old house too.

Athelhampton Hall (formerly Athelhampton) is one of the few remaining ancient country houses of England. It is situated about six miles east of Dorchester, on the River Pidele. The earliest owners (that can now be traced) of this house and manor were the De Londres and

tions, Athelhampton passed in 1595 to the four daughters of Nicholas, the last of the Martins. Henry Brune, who married the eldest daughter of Nicholas Martin, purchased the shares of the property belonging to the second and third daughters, but, failing to obtain the fourth daughter's share, a division of the house and estate was made, three-fourths going to the Brunes and one-fourth to the Floyers. By his marriage with Mary, the daughter and heiress of John Brune, the chief part of the house and manor passed into the possession of Sir Ralph Bankes, of Corfe Castle, who sold the manors of Athelhampton, Burlestone, and Southover to Sir James Long. The estate passed by marriage from the Longs to the Hon. William Wellesley Pole (afterwards Earl of Mornington). His eldest son sold it in the year 1848 to George James Wood, since whose death it has become the property of his nephew, George Wood Homer. That portion of the grand old house which at one time belonged to the Floyers was obtained by exchange effected by the late George James Wood, so that it again forms one property.

gate house or lodge directly in front of the house. This building, becoming ruinous and also interfering with modern ideas of comfort, was removed by the late owner, Mr. G. J. Wood; the stone carved window bearing the monograms of Robert and Elizabeth Martin, and an elaborately carved coat of arms of the Martins, quartered with Kelway, was re-erected at a short distance from the house. The house is in a good state of preservation, having been well cared for by its successive owners. The more modern portion, having been added with great skill and taste, harmonises well with the older part of the ancient building.

The above particulars are taken chiefly from John Hutchins' "History of Dorset," revised, however, by the present owner, Mr. Homer.

Achillea Millefolium rosea.—This is one of the most showy plants at present in flower on our herbaceous border, where it grows freely—too freely indeed, for it is constantly requiring the use of the spade to keep it within bounds. Mr. Cannell exhibited a boxful of it at the Crystal

Palace the other day, but showing the flowers in trusses by themselves without foliage does not give one any idea of its beauty as seen against the finely cut foliage. Bunches of it tastefully set up are very valuable on an exhibition stand of herbaceous flowers. It continues in bloom for two months after midsummer.—J. DOUGLAS.

REMINISCENCES AS REGARDS HEATING.

THE recent discussions that have taken place in THE GARDEN on the comparative merits of hot water, steam, and flued walls stir up memories of early days when one took a lively interest in whatever related to gardens and gardening.

In 1822 I was transferred from a garden at Bayswater, famous at that time for all that was rare and curious in the way of new plants. Bayswater in those days was a hamlet located in the green fields a mile from town. By this transfer I was placed in a garden in Yorkshire, where, I may as well explain, I was first a subordinate and afterwards chief. I was therefore a practical agent in all that I shall now try to relate. In this garden there were twelve or fifteen separate fireplaces for heating flued walls, and twenty or more connected with the hothouses. Neither steam nor hot water had then penetrated those northern regions, nor indeed had they yet come into use anywhere. True, the hot-water experiments of Count Chabannes at Sundridge Park, Kent, had as early as 1818 begun to excite interest, but it cannot be said that they had attained to any practical results. By the end of 1824 both steam and hot water had become established heating agents in this Yorkshire garden, a hot-water apparatus being applied to the heating of one of the Pine stoves. Mr. Atkinson, of Grove End Road, St. John's Wood, then a leading architect who had made some successful experiments on hot-water heating in his own garden, acted as engineer. Previous to this there had been but little if any absolute practical experience to guide one as to the requisite conditions either for setting the boiler or adjusting the pipes; in this instance, however, instead of ordinary round pipes a broad, shallow tube was used. The latter might be about 18 inches or 20 inches in width and about 6 inches in depth, with a raised rim along the edges to retain water on the surface for the purpose of evaporation. It can be no matter of wonder that this early experiment differed in its mode of application from the systems now in use. The Pine stove in question was 40 feet in length and about 14 feet in width; hence it was feared that the water in these flat pipes might fail to flow 40 feet and return to the boiler. To meet this supposed risk the boiler was placed in a recess in the back wall, about midway from either end. The flow pipes were carried under the Pine bed direct to the front, where they were united to the flat pipes, the latter being carried to either end, and a round return pipe brought the water back to the boiler. The latter consisted of an iron tank about 4 feet in length, from 2 feet to 2½ feet in width, and a little under 2 feet in depth, and covered with a movable iron lid. Such was one of the earliest, if not the earliest, application of hot water to a practical purpose. In this primitive scheme with pipes, or rather flat tubes, and boiler all on the same level—for this was one of its notable features—the circulation worked perfectly, and the heating power was quite satisfactory and sufficient. It is not pretended that any valuable lesson is to be drawn from going back and treading over again the first

steps of the original mode of heating with hot water. There are, however, occasions not unfrequently occurring where, in low situations, owing to the great expense and difficulty of outfall drainage, the customary

DEEP STOKE-HOLE becomes a main hindrance to owners of small gardens, who, but for this difficulty and expense, would be more frequently enabled to avail themselves of the enjoyment of pleasant and often coveted deep erections. I think I may, therefore, venture to say that it is not an indispensable condition that the boiler must be fixed below the level of the pipes, except where the latter requires to be worked on different levels. It is, however, seldom that in small gardens more than one stove and a greenhouse are required, and in such cases they rarely stand apart or on different levels, so that they cannot be heated with the boiler and pipes on the same level. Of course, it is by no means advised, as a rule, that the boiler and pipes should be worked on the same level, for wherever the drainage will permit of a deep stoke-hole, there is perhaps no clearer canon or profounder truth as regards heating by means hot water than the fact that the boiler ought to be placed, whether in a deep stoke-hole or otherwise, at any rate well below the level of the hot-water pipes, and, apart from extremes, the lower the better. The advice, therefore, to work the boiler and pipes on the same level is only an alternative, and as such it is certainly preferable to coming out in the morning in an ill-drained locality to find the fire extinguished and the stoke-hole half full of water—circumstances not at all so rare as some may imagine. For such conditions have broken the heart and damped the courage of many an ardent cultivator. With all deference, I may, therefore, repeat that in such cases where boiler and pipes are on the same level, making due allowance for whatever defects attend this primitive system, it is not an unreasonable hope to entertain that its adoption might occasionally prove helpful to those whose gardens and glasshouses are unhappily placed in low situations where deep drainage is defective, or, it may be, wholly absent. The system of heating by

STEAM had been in practical use long before the introduction of hot water. Messrs. Loddiges, for example, the celebrated nurserymen at Hackney, had employed steam for their great Palm house and other erections. For heating purposes steam possesses some valuable properties as well as some serious defects. Where the hothouses are unconnected and stand apart from one another, a small lead pipe will carry steam at a very cheap rate quickly, and almost to any distance, and, whatever that distance may be, the heat will always be steam heat. It is the peculiar advantage of steam over hot water that it can be carried cheaply for a long distance, either to a higher or lower level, a property of considerable value, at any rate for exceptional purposes. The famous lady, the owner of the garden now under consideration, was more than a little ambitious to be thought first in all things, not less in her garden in Yorkshire than in her "turn-out" in the "Row" and her routs and dinners in Portman Square. Deeming it, therefore, needful to the maintenance of her horticultural reputation that she should take a forward step, it was forthwith determined to erect a very large iron curvilinear domed conservatory for the culture of tropical plants. All being fully arranged, Messrs. Bayley Brothers, Holborn, were in due time accepted as the

contractors at an estimated cost of £18,000, including steam as a heating power, comprising, of course, in the fittings all the modern improvements then known. The heating arrangements consisted of the ordinary structures of coal house, boiler house, and apartments for the attendant, of whom I happened to be the first. These erections were placed at some distance from the great stove house, which, being circular, stood isolated, surrounded by the pleasure grounds. The heating apparatus consisted of two boilers about 8 feet in length; each boiler had one 4-inch pipe, connected with the pipe system within the stove, and one or both could be worked at pleasure from either boiler. It will no doubt readily occur to the mind that the action of steam is very different from that of hot water. The latter commences to circulate more or less rapidly the moment that heat is applied; on the contrary, if the pipes are cold, steam cannot travel through a pipe colder than itself, and can only progress by heating and keeping hot the pipe inch by inch, as it forces its way onward, with an intermediate space of only a few inches between the pipe at steam heat and the cold portion in front, which may be at the freezing point. In the instance in question the distance from the boiler house to the stove was about 100 feet, and when the steam was up it took fifteen or twenty minutes to raise the whole system of pipes within the house to steam heat; but this once accomplished, the heating power was instantaneous and most effective, and no mode of artificial heating could be more genial or more conducive to the growth of plants. It will be obvious from the preceding remarks that steam must necessarily be a fluctuating agent, rather wasteful of fuel, and, notwithstanding some excellent properties, never likely to come again into general use for horticultural purposes. There are, however, uses of a special character in which steam may be applied with advantage, and with the view of testing what could be done in this way as a medium for

BOTTOM HEAT, I collected a number of spare lights, and in an open quarter of the garden dug out the earth, built it pretty upright back and front, and on this laid the framework of old sashes; an inch or three-quarter inch perforated lead pipe was then laid along the bottom for the escape of steam, and over this was placed openly a small ridge of whole or broken bricks and stones. The brick and stone ridge was then covered with thin sods and turf, and one portion of this latter was covered with a ridge of earth for Cucumbers and the other portion filled up, forming a level bed on which to set pot plants, soft-wooded and other kinds for bedding purposes and for propagation. The perforated pipe laid in the bottom of the pit was then connected with a pipe carried underground from an extemporised boiler placed in the nearest stoke-hole some 40 yards or 50 yards from the pit. The size of the connecting and perforated pipes was each about 1 inch diameter. From the boiler, the steam travelled rapidly along the small underground pipe, and also through the perforated pipe, discharging itself equally throughout the entire length—about 60 feet or 70 feet. No special precaution was taken in laying the connecting pipe. A trench 2 feet or 3 feet deep was dug, the pipe was laid in the bottom and covered with the ordinary garden earth. The extreme heat of the steam so dried and calcined the earth immediately surrounding the pipe, that the latter became thus imbedded in the centre of a non-conducting ma-

terial that completely prevented all loss of heat between the boiler and pit. The ridge of broken bricks laid over the steam pipe and covered with earth became a depository of heat, requiring only to be renewed with a fresh supply of steam once a day or more or less frequently, depending on circumstances. This operation, I ought to say, was undertaken early in the month of March. It is difficult to avoid some feeling of regret that a heating agent so powerful as steam cannot be as conveniently and economically applied for heating purposes as hot water. For the growth of all kinds of plants, especially those popularly known as soft-wooded kinds, and for the propagation of the same, it seemed to me at the time, when busily interested in the matter, that steam heat applied in this way did possess some vital element for the rapid growth of plants surpassing all other modes of heating.

FLUED WALLS.—In speaking of the kitchen garden in the place under notice, the aspect was south-west, and the situation elevated and much exposed. There were flued walls of considerable extent, with a fireplace for every 50 feet or 60 feet in length of wall. The fires were applied at certain periods in spring, and occasionally also in autumn, to complete the ripening of the young wood. As flued walls they were, of course, hollow, consisting of 4½-inch brickwork on the face, and about 14 inches of stonework on the back or north side, and they were about 13 feet in height. The flue of each fireplace made three, and in some cases four, turns in each 50 feet or 60 feet in length, thus forming flues about 3 feet in depth, and divided from each other by a line of large flat, horizontal foot tiles. There were openings at the alternate ends of each turn in the flue for the smoke and heat to traverse backwards and forwards. Within, the flues were wide enough to enable the little unhappy urchins called "sweeps" (for these were what some call the good old times) to occasionally clear out the soot. Besides the use of flues and fire-heat, the wall trees were, as now, usually protected by woollen netting, and by these means the failure of fair crops of Peaches and Nectarines on open walls was not a frequent occurrence. It may hardly be necessary to remark that without the aid of fire-heat hollow walls are necessarily drier and warmer than solid ones. There was also in another part of the garden a

WALL NOT FLUED, and with an aspect about three parts east. On this wall Peach and Nectarine trees were, on the whole, not less fruitful, and much less trouble to keep clean than those on the hot walls. At a certain date the fires of the flued walls were usually lighted at night in case of frost, and, as a result, the trees became unduly excited, and more susceptible to the effects of occasional sharp spring frosts. As already stated, the failure to produce a moderate crop of fruit was regarded as an unusual occurrence, but there never appeared to be any marked gain in the results in flued walls over those not flued. In looking back to the experience of the time in relation to the

MERITS OF FLUED WALLS, I think there is very little to be said in their favour. There are, of course, walls of the kind in use at the present time, and my opinion of their use and value may perhaps be less favourable than that of others whose experience is more recent, but it is nevertheless true that nearly all cultivators of fruit who have under their care the conduct and management of fruit-bearing trees on garden walls

find that retarding growth is wiser and more fruitful as regards the desired results than promoting premature growth in spring. It will be seen by the above remarks that my experience of flued walls differs somewhat widely from that of "S. D." (p. 403, Vol. XXIII.), and not less so from the opinions of the correspondent of the *Field* (p. 468). This difference of view is by no means proof that they are wrong. But my present purpose is not criticism, but an attempt to relate, with as much accuracy as memory will permit, a few incidents of garden work of fifty or sixty years ago, in which I was myself then practically engaged. As to the opinion now so frequently expressed, that our summers have become so much colder that the culture of Peaches and Nectarines on open walls is all but hopeless, that is an interesting question, and one which for the honour of horticulture it is to be hoped may soon be lifted out of the hazy medium of mere opinion. R. MARNOCK.

ROSE GARDEN.

ROSES PEGGED DOWN.

EACH succeeding year this method of growing Roses has an increased number of adherents. Those who give it a trial soon discover the advantages which it possesses. Not only does it produce a larger quantity of well developed flowers than the ordinary bush system, but in the case of perpetual flowering varieties, a better succession is kept up. This latter, I find, can be secured by allowing the shoots to remain in an erect position after they have been shortened to the required length until they have broken and the young growths have attained a length of 4 inches or 5 inches, instead of pegging them down as soon as they have been pruned; when left for a time erect in this manner, they do not at once push growth the whole length of the shoots retained in the way that occurs when immediately pegged down to a horizontal position, but break some four or half a dozen of the eyes at the points. When these have grown a few inches, as already stated, and the shoots are then pegged horizontally, it has the effect of causing the lower unbroken eyes to move and to come on three or four weeks later than those nearer the extremity, yielding quantities of fine flowers during the interval between the first bloom of the leading shoots and their successional flowering. In this way there is so much less gap in the blooming, which, it is needless to say, is a gain with those who grow Roses for ordinary purposes. One great advantage in the case of the pegging-down system is that there is no bare ground; all is covered so thickly that very few weeds appear, and in dry weather the foliage lessens evaporation, thus reducing the quantity of water needed to keep mildew in check, as this injurious parasite in a great measure owes its presence to insufficient root moisture.

T. B.

AIMEE VIBERT ROSE.

THERE is a fascination about Roses which makes people prize them even beyond the intrinsic merits which their flowers possess; but those who have the misfortune of being under the necessity of living within the shadow and under the smoky influences of large towns are debarred the pleasure of doing much as regards their cultivation, for Roses abhor a smoke-charged atmosphere. Where, however, the conditions are such as to forbid the pleasure of growing the beautiful Tea and Hybrid Perpetual varieties that now exist in large numbers and variety, there is at least one variety that stands out a long way ahead of all others in its ability to thrive and flourish freely in an atmosphere in which no others that have come under my notice can exist, and that is Aimée Vibert, a well-known Noisette, which has other good properties besides its smoke-resisting

powers. It is one of the best and most effective climbing kinds existing, so vigorous, that even when not over-liberally treated in the matter of soil such as most Roses require, it grows luxuriantly, soon covering a large space, producing its large clusters of white flowers in abundance, and the latter are not nearly so fleeting as those of many kinds. Another advantage which it possesses for covering walls is that it retains its bright glossy foliage through the winter much better than many of the so-called evergreen Roses—no inconsiderable gain where the clothing of bare walls and similar places is an object. Although, like other Roses, it does best in a good position, still it will succeed on any aspect, provided it gets sufficient sustenance to supply the demands consequent upon the vigorous growth which it naturally makes. "One swallow does not make a summer," it is said; and doubtless to those located where they can enjoy to the full their passion for Roses, one variety would be but little appreciated. But there is many a town gardener who would feel proud of being able to succeed with even one kind of Rose, and amongst the not over-numerous varieties that succeed under such adverse conditions, I have found, as I have said, this much the best.

T. B.

The Celestial Rose.—"Veronica" inquires (p. 20) about this old Rose. It is a variety of Rosa alba, and comes very near the Maiden's Blush. Of the Maiden's Blush I have plenty, and I believe I have the Celestial Rose, but have not noticed it this summer. I should feel obliged if "Veronica" would send me a flower. I should also thank anyone who could send me flowers of the variegated Rose Parfait (Éillet).—HENRY H. ELLACOMBE, *Bitton Vicarage, Bristol.*

The Garland Rose.—We have received from Mr. Dundas, Salisbury Villas, Little Heath, Potter's Bar, a branch of this Rose, one mass of blossoms, white, tinged with pink, about the size of those of a Banksian and about as double, a truly interesting variety for those who can see beauty in small Roses as well as in large ones. Mr. Dundas says, "I send a good spray of it to show the extraordinary freedom with which it blooms in a strong soil. The blooms have been getting more crowded every day for the last fortnight, and the shoots of the year give plenty of foliage amongst the flowers. Four other Roses sent with the Garland are white Madame Legras, an improved alba; pink Madame Audot, a cross of alba and I think a Damask; Madame Zoetmans (cream), a Damask, small late blooms. The first were almost 6 inches across. The truss of four blooms is from my favourite Perpetual, Mrs. Bellenden Ker; both in growth, foliage, and scent it seems to have alba blood in its veins."

Roses on trees.—I have lately noticed some very pretty effects produced by planting climbing Roses amongst trees and shrubs, and allowing them to scramble over them as they like. No pruning is given them; merely the longest shoots are fastened securely to the nearest support, and a really beautiful display they make when in flower. Such sorts as Dundee Rambler are especially suited for climbing lofty trees; many of the old-fashioned Roses, too, are lovely trained on walls or fences, or even grown in hedgerows and allowed to run wild, the long shoots of the previous year's growth forming wreaths of blossoms. I am convinced that Roses of any kind do not need such hard pruning as they generally get. It is all very well for exhibitors, who are content to get one or two perfect blooms from a plant, to prune as they find it suits their purpose; but for the majority of people who grow Roses for effect in masses, or for blooms to fill the flower basket, I feel sure that the knife can hardly be too sparingly used. Cut out the dead shoots or weakly spray in winter, but leave strong shoots their entire length, and a beautiful effect will be the result. I have at present some plants, only planted last autumn, loaded with blossoms; they have not been pruned at all, with the exception of removing the tips, lately, that were killed by the severe weather in March, and they have as much

bloom on them as Roses generally produce when three years old, pruned in the orthodox way.—J. GROOM, *Gosport*.

GARDEN IN THE HOUSE.

HARDY FLOWERS FOR CUTTING.

WITH the greatly increased use of flowers for household and personal decoration which in late years has been brought about, there has been a marked change in the kinds that find favour with the mass of those who so use them. Time was when simple beauty in colour and form was much less appreciated than rarity and cost. The costly productions of the forcing house were often alone deemed worthy of a place in a lady's bouquet or to decorate the table. Gardenias at Christmas were held in estimation proportionate with the number of shillings or half-crowns each which they cost. The flowers of scarce Orchids were in like manner prized in accordance with their rarity, whilst hardy flowers, with the exception of such old favourites as Roses, Violets, and Carnations, met with little or no attention. All this is now, however, changed; outdoor flowers, provided they possess elegance in form with decided colours, are quite as much in demand as the greatest rarities of hothouse growth. Primroses, Daffodils, Pæonies, Pinks, Cornflowers, Delphiniums, Campanulas, Anemones, Aquilegias, Asters, Dielytras, Carnations, Hellebores, Iris, Myosotis, Spiræas, Violas, Pansies, Gladioli, Lilies, and others of a similar description are largely employed in the various arrangements in which flowers are used. I am now speaking of the well-to-do who can afford to indulge in high-priced rarities if so disposed. It is a healthy sign and as it should be to see the beauty of common flowers appreciated as it deserves, for no one will deny that amongst our hardy herbaceous plants there are numbers that vie in that respect with the choicest productions of tropical countries. To those who have not seen the effect produced by some of our commoner hardy flowers when used for the decoration of the dinner table, I should advise a trial, confining it to two or three kinds of Narcissi alone, such, for instance, as the old *N. poeticus*, with one of the large pale yellow kinds and a large deep yellow, with a limited quantity of scarlet Anemone to give the requisite warmth of colour in the arrangement, keeping each of the above by themselves; or another in which Columbine in two or three distinct colours and *Spiræa japonica* alone are used; or the white *Campanula persicifolia*, single and double, with pink or red *Dianthus* and a little Cornflower; or white and red Roses, with plenty of their own foliage and Maiden-hair Fern, which in each of the above arrangements I have seen used without stint, along with fronds of *Nephrolepis exaltata*, or Oat Grass, to relieve the surface of the flowers. Having seen tables where the above common flowers were alone used, I can speak for the beautiful effect which they had—an effect quite equal to that obtainable by means of flowers of a more costly description, and immeasurably before the indescribable combinations often seen where a score or two of different kinds of flowers are unmeaningly mixed together, the presence of three-fourths of them being destructive of artistic merit. It is doubtless true that some who use flowers will always give the preference to rarity, and such are willing to pay for it. Gardenias in January have been sold at seven shillings and sixpence each; the flowers of scarce Orchids at one time fetched proportionately high figures, but on an average these and others of a like character do not now sell for half that money. There are, however, ten times the quantity of flowers used now that there was then. The reason for their being cheap is, I should think, clearly traceable to the use of hardy kinds that, independent of their intrinsic beauty, have the advantage of being within the reach of many who either would not or could not afford to indulge in costly things of so perishable a character as flowers. T. B.

The bloom of bulbous plants in a cut state.—I got a most useful hint from THE GARDEN a year or two ago as to the advantage of cutting Daffodils in the full bud state, and allowing them to expand in water. I return this hint with another. *Gladiolus Colvillei* is another flower very amenable to this treatment. I enclose a few flowers of *G. Colvillei albus*, a charming and useful plant. I send also flowers of a pretty bulb, *Calliprora lutea*, very free growing and hardy.—STUART WORTLEY (Colonel).

White Pink Mrs. Sinkins.—This proves to be a very valuable addition, especially for those who are called upon to furnish white flowers. We have lately used it for making wreaths and for furnishing sweet-smelling flowers for our flower missions. I look upon it, indeed, as an indispensable subject where there are large demands for cut flowers. It is not only very fragrant, but the plants become one solid mass of blossom, and they continue to flower more or less all the summer. A remarkable property belonging to it is that it rarely produces more than two buds on a stem, and generally only one; it may, therefore, be cut without destroying any young flower-buds. This is not the general character of Pinks, for they form so many flower-buds on the stems, that the first flower which is open cannot be cut with a sufficient length of stem without cutting off two or three young flower-buds, which one hardly cares to do. The plant, moreover, is a good grower and quite hardy, and as early in coming into flower as the single white Pink, so well known for its early-flowering property.—J. C. C.

FRUIT GARDEN.

STANDARD PEACH TREES.

MR. MCINTOSH (p. 4) asks for information on this subject. I may remark that we grow a number of standard Peach trees here varying in height from 6 feet to 10 feet in a large lean-to house which is not heated. I have had to manage this house for sixteen years, and the only objection I have to standard trees is that their fruit is indifferently flavoured. Peach trees grow so freely under glass, and make such vigorous growth, that the fruit cannot be sufficiently exposed to sun and air to give it flavour equal to that from trees grown on walls or trellises. During all these years I have tried various plans to get good flavoured fruit, but I have been only successful in one of them, and that was at the sacrifice of getting much smaller fruit, and by severely cutting back the summer growth so as to expose the fruit to the light, and by nearly starving the trees by reducing the supply of water and eschewing any surface feeding. Under this system I certainly can grow Peaches of fairly good quality on standard trees, but the latter have to be badly mutilated in order to let in light and air to the fruit. I grant that standard trees give less trouble than trained ones, that they bear more freely, and produce much larger fruit than under any other system, but to secure these qualities, liberal feeding of the roots and only moderate summer pruning must be adopted. What, however, are the value of these advantages if the flavour is only third rate? At the same time I must not forget that we do not all look upon quality from the same standpoint; some prefer size to flavour. For myself, I should prefer a small well-flavoured Peach to a large one of indifferent quality, and to obtain this I do not object to see the trees pretty well denuded of their summer growth when ripening time comes round; but there are others who might object to see only skeleton trees, and who may question my ability to manage them properly unless they held the same views as myself. These points understood between the owner and the gardener, no one need hesitate to cultivate standard trees, and I am certain that they will find them more fruitful than those of any other form. Respecting the form of house in which to grow them, there is nothing new in planting them out in span-roofed structures, as

there are many such about the country, but whether an inverted U shape would be better than any other is doubtful. It is not altogether the amount of light admitted through the glass that is to be studied, but simply a question of how much summer growth and green leaves the cultivator will care to remove in order to expose the fruit to the amount of light and air necessary to secure the proper degree of flavour.—J. C. C.

—I would inform Mr. McIntosh, in response to his inquiries on this subject, that I have satisfied myself by experiment and observation that standard Peach tree culture, as described by me, is perfectly practicable, as well as the best plan for producing and ripening Peaches after this season; and if I had 1000 feet of houses to erect and plant on my own account I should plant nothing but standards. The reason why I do not adopt the plan where I am is because the houses are neither high nor wide enough for standards—a thing I have often regretted. Dwarf standard Peaches are quite common in orchard houses now and do well, but it is freely-grown standards I mean with large heads. It is not owing to objections to the system that there are so few examples in existence, but other causes. The examples mentioned will bear inquiring into.—J. S. W.

FRUIT PACKING FOR MARKET.

IF Mr. Groom had seen the Peaches sent to South Kensington the other day in the packing competition for Messrs. Webber's prizes, he would certainly not have penned the opening words of his paragraph on this subject which appeared last week. I have had the opportunity of being present at the opening and judging of this packing competition since it has been originated, and can assert that with good packing soft, delicate Peaches do come to market safe and without a blemish—indeed, looking as sound and fresh as if just gathered from the trees. There may be some difference of opinion as to what constitutes ripe-ness in Peaches, for whilst some hold that the moment a fruit is well coloured and can be easily removed from the tree it is ripe, others will not admit that that stage is reached until the fruit is soft and in its most juicy form. That may be by some others thought to be over-ripeness, and certainly no one should send fruit a long journey, packed in any way, when so far advanced. Mr. Wildsmith says (p. 2), "I like to pick my Peaches from the trees before some people would consider they were fully ripe, say about a couple of days before they would fall." In saying this, Mr. Wildsmith shows that he regards Peaches to be ripe when they can be easily removed from the tree, although the flesh may not have become fully soft, and that is exactly the stage in which to get them for packing. Now at South Kensington the other day there were three out of the four lots of two dozen Peaches as good as could be. These had come by rail respectively from Eastnor Castle, Hereford; Gunton Park, Norfolk; and Brentwood, Notts, all having thus travelled long distances, and yet when opened and handled by the judges they were found to be without a blemish, though ripe and full of colour. The last-named fruits were packed in a shallow box lined with Moss, but each fruit was first wrapped in a thin coating of wadding, and further of tissue paper, but each in such a way that the top portion of the fruit was exposed when the lid and top packing were removed. The packer doubtless thought that in so packing his fruit he was rendering the salesman service, as anyone could see the quality of the fruit at a glance. Messrs. Webber, however, declined to admit that such a method of packing was any advantage, as the salesman sorted or sized their fruits before selling it. Moreover, they are strongly opposed to the use of wadding at all, as being not only of a heating character, and turning the fruit out much less cool for table than Moss does, but they maintain that the wadding abstracts some of the juices and flavour of the fruit. Of course the more heating the nature of the packing material, the more rapidly will the fruits mature and soften, whilst Moss, being cool in character

rather checks than promotes rapid maturation. In

PACKING PEACHES the softest tissue paper should be used, and not too much of it; in fact, it need not be employed at all were it not found desirable to prevent the Moss particles from coming into contact with the rough coats of the fruits. In wrapping the fruits the work should not be performed on a hard table, but on a soft base, and the paper should not be twisted or made to form hard lumps, but be evenly and neatly placed all over the fruits. It is just as easy to do it thus carefully as it is to do it badly. The Moss should be fairly dry and soft, and free from all dirt. The same material may be used twenty times over, as it suffers but little through being

servant person that whilst the Grapes sent in such baskets are entirely dependent upon the way in which the baskets may be handled in transit, those packed in boxes with a Moss lining and soft tissue paper may be placed in any position side-ways, top downwards, or anyhow, and suffer nothing. The presumption in favour of the basket is that having handles they are certain to be kept right side uppermost, but that presumption may not always be justified. Boxes pack into closer space and are, when secured with screws and cords, perfectly secure. Baskets that have only a piece of stout brown paper tied over the top leave the fruit enclosed subject to damage, as if the covering of the basket gets broken during transit the fruits may be purloined. A. D.

the same time by encouraging the growth of the head of the tree, and training all the shoots out equally like porcupine's quills.—J. S. W.

STANDARD PEACHES.

I KNOW a garden where these and Nectarines are grown in the form of standards, and if I had such a house as the one they are in, which is a very high, rather flat, lean-to, with deep front sashes reaching nearly to the ground, I should most certainly adopt the same plan, as the saving of work in tying and training is enormous. All the trouble connected with the trees is confined to thinning out the shoots, and suspending the branches by slinging them up to the roof-bars when the fruit gets heavy. This saves them from drooping too low or breaking from the weight of the load they have to bear. To grow Peaches in the standard fashion, and to have the fruit well coloured and good, the house in which they are planted must be of the lightest kind, and the trees at such distances apart that they stand perfectly clear of each other, as a Peach ripened without full exposure to the sun is sure to be pale, and, as a natural consequence, inferior in flavour. The house to which reference is made has sash-bars wide apart, and in these the glass is puttied, ventilation being provided for by means of large sliding shutters in the back wall and the front sashes, which are hung on hinges and push outwards by the aid of a lever. No doubt a span house with top and side ventilators, or one like the letter **U** inverted would be much better, and not a great deal dearer if made plain, as either form would afford an increase of light and much more space, although they would of course be colder and not so suitable for use if forcing is intended, as a house against a wall is always more sheltered and snug. The mistake in building most houses is in having them too woody, and especially is this so for trees like the Peach that require every ray of light that can be given in our dull climate. Iron or metallic houses are good, and let in most of the sun's rays, but the worst part about them is they get hot and cold quickly; the metal, being a conductor, soon helps to run the temperature up or down, according as the weather is hot or cold.

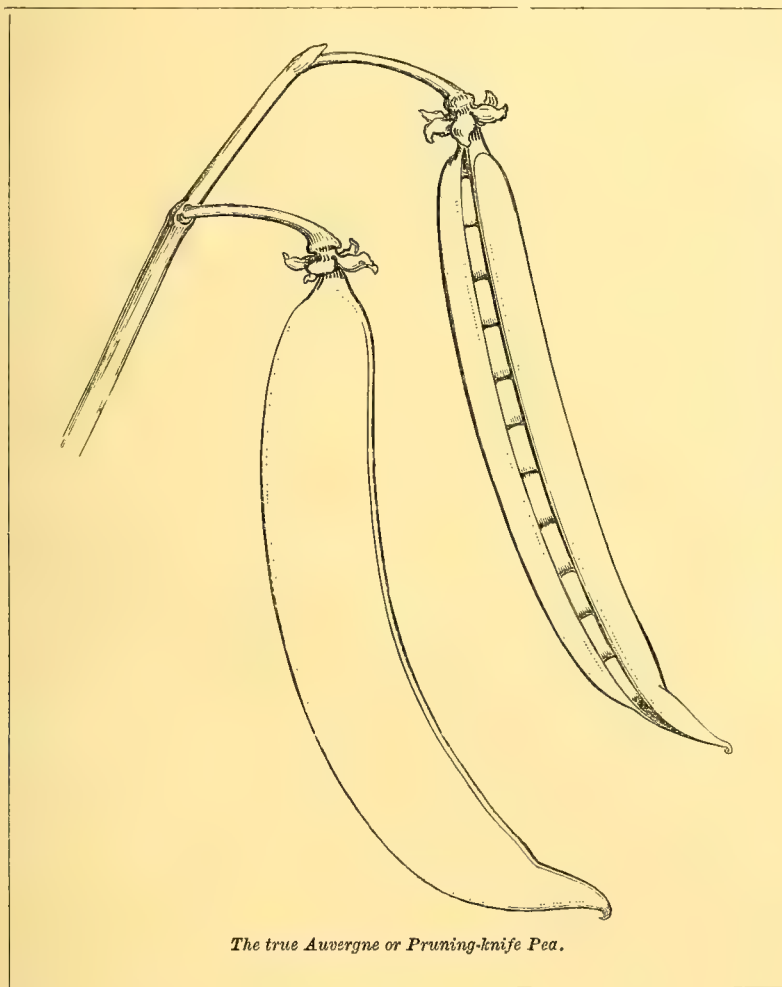
S. D.

KITCHEN GARDEN.

Auvergne, or Pruning-knife Pea.—

Samples of this Pea, from which the accompanying woodcut has been prepared, have been sent to us by M. Guihéneuf, of Nantes. He says: "I send you a few pods of the Auvergne Pea (in French *Pois d'Auvergne* or *Pois Serpette*). It is the true sort extensively grown hereabouts, and is a very large-cropping second early, and very hardy, resisting well dry weather. The pods are always curved, and contain usually eleven seeds in each. This variety is quite distinct from the Auvergne Pea (Dickson's Favourite) grown in England."

Summer Lettuces.—The plan adopted by "W. J. M." (page 570, Vol. XXIII.) of growing summer Lettuces is one which I have long practised; I have found it to be the only one that can be depended on for getting them really fine and good for salads during summer. When sown in beds and transplanted, they always receive a severe check during removal; the tap root gets broken—a great drawback, as the plants have then to depend more on the surface for their supply of food. When sown in drills and afterwards thinned out, they at once strike down and become independent of the weather, and I have always noticed that Lettuce plants that have not been disturbed seldom bolt or run to seed, which transplanted ones are almost sure to do, unless they happen to have plenty of wet. A good place in which to grow summer Lettuces during summer is a north border or other position where they can have a little shade, and if they happen to be in the open, they derive much benefit by having a few evergreen branches stuck in on the sunny side so as to break the hot solar rays; the latter make the Lettuces tough and hard. Later in the year, Let-



The true Auvergne or Pruning-knife Pea.

used. It is of a yielding nature, and grips the fruits firm without being hard; indeed, it seems to be Nature's own packing material, and nothing can excel it. It is noteworthy that the same competitors sent Strawberries in the most perfect condition, and in two cases the fruits were very fine and richly coloured; and as Strawberries are so much softer in texture than Peaches, and yet travel so far and so perfectly, it is useless to write about Peaches being, of necessity, hard and uneatable because they will not travel well when ripe. One exhibitor sent his

GRAPES in ordinary garden cross-handled baskets as was mentioned last week, and some interesting remarks were elicited from Mr. Webber as to the use to which such baskets are put in fruit transmission. He said that quite two-thirds of the fruit which came to market were in baskets, and these needed but a minimum of labour in packing and unpacking. It is obvious, however, to any ob-

Produce from one Peach bud.—Six years ago I left on a Nectarine tree one strong terminal bud, which grew into what is usually called a "gross shoot," such as is in practice stopped and pinched to keep it within bounds and make it fruitful; but instead of doing this I allowed it to grow, and cut nothing off it but what could not be found room for, laying in all the laterals and allowing the main shoot to extend. The growth from this bud the year after its origin bore about two dozen fine fruit, and the second year it filled the space allotted to it, and has borne during the last four years an average of about eight dozen fruits each year. This year it bore over nine dozen; being a leading branch, it is one of the strongest and most fertile on the tree. And yet this is nothing to what a standard tree would do. I would undertake, under the same conditions, to develop a standard tree from one bud that would produce, perhaps, two hundred or more dozen of fruits in

tues do remarkably well between Celery trenches; there they get great depth of fresh soil with plenty of light and air, which causes them to grow sturdy and strong. For the last sowing outdoors I like the Bath Cos, a very hardy kind, and so also is Hick's Hardy Green. These two sorts are the best I know of for standing the winter. The most suitable place for them then is near the foot of a south wall or warm sunny border under a fence, where, if the soil is light and dry, they will endure the sharpest weather without taking much harm. Some cultivate Cabbage Lettuces for salads, but few who know what a really good Cos is will eat them. There is no comparison between the two, the Cabbage being soft and lacking that crispness and flavour which the Cos sorts possess.—S. D.

Peat soils (p. 23).—Of Kent peat not one ton in a hundred has been sold by dealers for many years, peat from Kent having been superseded by that from Hampshire, in which plants that require peat not only grow much faster, but also last longer in a healthy condition. The peat existent over much of Hampshire is a totally different material from the black close stuff that used to be employed, and is so full of the root-fibres of coarse Grasses, as to be like a door-mat. The peat mentioned as soon going black and sour in the pots was black when put into them, if not sour, and might do for fuel, but never was fit for potting purposes.—T. B.

Peas.—How ever came Sunrise to be classed as a first early? On the 20th of November last I sowed a long south border with Peas of the following sorts—Sunrise, William the First, and Telephone. There were nine rows of each sort, and they were placed 6 feet apart. On the 9th of June I gathered 3 gallons of William the First; Sunrise came in just a week afterwards; and Telephone a week after that, thus forming a very good succession; all are good in flavour, but in this respect very distinct from each other. The best Pea with me this year is President Garfield; it is of moderate height, very free, and fills its pods out well with from eight to nine good flavoured Peas. I sowed a long row of each of the following sorts at the same time—Stratagem, President Garfield, Telegraph, Telephone, Culverwell's Giant Marrow, and Reading Giant, and, taking into consideration height, flavour, and productiveness, I prefer President Garfield to any of the others.—R. LLOYD, *Brookwood*.

INDOOR GARDEN.

DIPLADENIAS AND THEIR CULTURE.

Few plants better deserve general cultivation by all who possess a warm stove than Dipladenias. They are of moderate growth, and when well managed may, if required, be induced to flower continuously from the end of April to December. It is not, however, desirable to allow them to bloom so long, having in view the preparation of the plants for the ensuing year's flowering, yet if wanted so late in the autumn, all that is necessary is to defer cutting the plants back, and to keep up sufficient heat to induce the formation and expansion of the blooms. For bouquets, either half or fully expanded flowers of the lovely rose-coloured *D. crassinoda*, the white, yellow-throated *D. boliviensis*, or the beautiful bluish-tinted *D. Williamsi*, with its deep rosy throat, have few equals; for vases or shallow stands these and also the darker varieties are amongst the best flowers that can be used, furnishing, as they do, for a long period a daily supply of blooms of the most refined and distinct character. But in gathering them to be thus used for decorative purposes, care should be taken to cut only the individual flowers with their foot-stalks. If the whole bunch is removed it is extravagant, for if allowed to remain on the plant, flowers will keep expanding for some months. The best, most distinct, and desirable kinds have been raised from *D. crassinoda*, crossed with *D. splendens*. Some of these are much darker in colour than either of their parents.

CULTIVATION.—In this, one point should not be lost sight of, and that is the necessity of a brisk temperature. *D. crassinoda* comes from the hot low-lying districts of Rio de Janeiro, *D. splendens* from the foot of the Organ Mountains; consequently neither the species nor the varieties raised from them can be expected to succeed without plenty of heat. To flower them early in spring they should be kept through the winter little under 70° during the night. They are easily struck from cuttings made of the young shoots, either consisting of one or a couple of joints. These may be put in any time from spring to September, but after the beginning of August the wood is in the best condition for making cuttings. Place them singly in small pots half filled with fibrous peat and sand, the upper part all sand; keep them moderately close under a propagating glass in a temperature of 70° or a little over. They will soon strike. When well rooted, dispense with the glasses, and after the young growth has made some progress move them into 4-inch pots, using the best fibrous peat and a good portion of sand. Encourage them to make root and some top growth before winter, during which time they should be kept slowly moving in a temperature as near 70° as can be given them. In the spring, about the beginning of March, move them to pots 3 inches or 4 inches larger, using in all stages of their growth nothing but good fibrous peat and sand. This is more suitable for them than any mixture of peat, loam, leaf-mould, or other combination. The peat cannot be too fibrous, and after the plants are moved from 6-inch pots it should be used in a lumpy state, the pieces not being broken smaller than bantams' eggs. Good peat of this description should have mixed with it one-sixth part of sand. Drain the pots well, pot moderately firm, and do not give water until the soil has become drier than would be advisable for most stove plants. Take half a dozen sticks 3 feet in length, and insert them in the soil just inside the pot; round these wind the shoots, leaving the points well up, or they will throw out too many side breaks, and keep them through the remainder of the summer in a warm stove, for they will bear as much heat as any plants living. Syringe them overhead every afternoon, getting the water well to the underside of the foliage, as they are subject to red spider as well as to scale and mealy bug. By the middle of October move them into 12-inch or 13-inch pots. In potting this time do not disturb the roots any more than is necessary to remove the drainage; the soil should be similar to that used for the previous shift. Untwist the plants from the sticks to which they have been attached and at once put them on the

trellises on which they are to be grown; these should be made of strong galvanised wire 2 feet 3 inches through by 2 feet 6 inches in height above the pot. These trellises may appear small, but they look very bad when not well covered with foliage, and the bunches of flowers, which should never be tied in too stiffly, will project on all sides to a distance of 6 inches or 8 inches from the trellis, making the plants large enough for any purpose. The ends of the wire ought to be 9 inches longer, so as to have sufficient hold of the soil, and should be inserted just inside the rim of the pot and fastened securely by stout sticks. These should come halfway up the inside of the trellis, and be secured to it to keep the whole firmly in its place. Without these sticks the trellises are liable to swing about and injure the plants when moved. Train the shoots evenly round the trellis, taking care to furnish the bottom first. Growth from this time until the days lengthen will be somewhat slow. Through November, December, and January keep the night temperature nearly up to 70°, with a rise of 5° in the day. A good bed of tan is of great advantage to the plants, which should stand above it. Dipladenias should never be plunged. They are very impatient of any excess of moisture at the roots, and when plunged it is not always easy to tell when they require water; it also makes them much more tender by the way in which it acts upon them, and when plunged in most houses they are too far from the light. Run the shoots up thin

strings fastened from the trellis to the roof, keeping them in this position until they have begun to open their flowers. By the end of February the night temperature may be raised 3° or 4°, and about the beginning of April it can be allowed to run up to 85° or 90° in the day with sun-heat, which will answer through the summer; admit a little air, but allow no cold currents to come in contact with the plants. Close early, syringing at the same time. As the sun gets powerful, the flowers will be benefited by a little shade in the middle of the day, but the plants do not require it. When the bunches begin to open, train the shoots neatly round the trellis, so as to have it covered uniformly with foliage and flowers. Assist the plants with manure water all through the season from this time, and they will keep on throwing out fresh shoots that will show bloom when from 12 inches to 18 inches in length. Do not allow these to get twisted together, and give more air through the summer. They will, if all goes on well, continue to bloom freely through the summer. At the end of September they should be taken off the trellises, and the shoots cut back to within 6 feet of the collar, tying them loosely to a few sticks inserted in the soil. The temperature now should be about 65° by night. In three weeks they will have broken sufficiently for moving; then turn them out of the pots and reduce the ball quite one-half, removing as much of the old soil as is possible without injuring the roots. Place them in 15-inch or 16-inch pots, which size is large enough for any Dipladenia, as, owing to the annual renewal of so much of the soil, they do not require more room than this. In potting, always keep the collars of the plants well up, only just or barely covering the tuberous portion of the roots, by which means they are not nearly so liable to suffer in their most tender part. At once place them on the trellises again, and treat them in every way as recommended for the preceding year. Dipladenias can be grown somewhat cooler than has just been recommended; but to get as much and as long a continuance of flower from them each season as they are capable of, they need to be treated as above. All make beautiful climbers for draping the roof of a stove, the splendid colour of their flowers being seen to the best advantage thus hanging; but even when grown in this way they should not be planted out, as they succeed best in pots where the soil can in a great measure be removed each year. In growing Dipladenias it is necessary to keep the soil drier than is required for most stove plants. The following well deserve a place in every stove:—

BREARLEYANA has immense flowers, with from three to four open on each bunch at a time. The colour is not easy to describe. It is, when properly brought out, extremely rich, differing from any other flower I ever saw—an intense deep reddish crimson, with a lustre upon it like a dark velvety Rose. The plant has fine dark green leaves, is a remarkably robust grower, and equally free flowerer.

INSIGNIS.—A fine variety, with deep rosy purple flowers of great substance. The leaves are large, and set off the plant to advantage.

AMABILIS.—An excellent free flowering sort, the blooms distinct in colour from both the above, being deep rose, with ample foliage. One of the best plants in cultivation.

CRASSINODA.—A more slender habited plant than the preceding, with thinner wood and smaller, glossy leaves. Its beautiful rose-coloured flowers, which are produced freely, are well set off by the yellow throat. I have had a plant of this variety with 150 bunches of bloom upon it at once.

WILLIAMSII.—This is an improvement upon *D. splendens*, the ground colour, as in that variety, being pale blush, with the addition of a deep pink throat, that much enhances its beauty. It blooms freely, and is one of the most chaste flowers that we have.

BOLIVIENSIS bears delicate flowers much smaller than any of the preceding, and is very distinct from them.

AMENA.—A free-flowering variety, with pale, flesh-coloured flowers, which are produced in medium-sized bunches.

HOUTTEANA.—A distinct, pale coloured kind, with medium-sized flowers produced freely.

MAGNIFICA is somewhat like the species *D. crassinoda*, but the flowers sometimes come handsomely marbled with white.

SPLENDENS.—One of the oldest, but still a very fine kind. The flowers are white, suffused with pink, very beautiful, and borne in large bunches. It is a strong grower, with large bold foliage. From the Organ Mountains.

REGINA.—A medium grower, with blush-coloured flowers when first opened, becoming paler as they get older, but deeper coloured in the throat; a free blooming variety.

PROFUSA.—A free growing, very free flowering kind; the individual blooms very large; carmine in colour.

HYBRIDA.—Amongst all the species and varieties in cultivation this stands unequalled for the brilliant colour of its flowers, which are of the most glowing shade of crimson, large in size, and stout in texture. The plant has a robust appearance, with stout, handsome foliage, and blooms freely.

INSECTS.—All the most troublesome insects which prey upon cultivated plants are partial to *Dipladenias*; mealy bug, scale, and thrips all infest them, and require to be kept under diligent attention and frequent washing with insecticide.

T. B.

ALOCASIAS.

SINCE fine-leaved plants have become fashionable there has been a large addition to the number of cultivated species of *Alocasia*, and amongst them may be numbered many of the finest and most distinct of all subjects grown for the beauty of their foliage. Few families of plants present so much diversity in the form and colour of their leaves as do these *Alocasias*, from the bold and distinct combination of pale green and milky white in the stately *A. macrorhiza variegata*, to the shining metallic hue possessed to such a marked extent by *A. metallica*, both plants that, when they first appeared, made quite a sensation amongst cultivators. As decorative objects in the warm stove, they are unsurpassed, contrasting admirably with other fine-leaved as well as flowering plants. They are mostly found in the warmest parts of the world, where, in addition to a continuously high temperature, they are subjected to a humid atmosphere. Therefore, in order to grow them satisfactorily, they need both heat and moisture, otherwise they make but little progress.

PROPAGATION.—*Alocasias* are increased by means of suckers, which most of the species produce freely, and also by division of the creeping underground stems, as well as by small tubers that several of the species annually form. Propagation is best effected in spring towards the beginning of March, about which time the old stock requires a shift; all the species, except *A. macrorhiza* and its variegated form, I have found to do best in a mixture of Sphagnum and the best fibrous matter out of very light peat, such as that used for Orchids, to which some sand, crocks, and dry shaly manure have been added, as if anything at all close and adhesive is used, many of the kinds will make little or no progress. The small tubers formed by sorts like *A. Veitchi* do best put in shallow pans in a mixture similar to that just described until they have made a couple of leaves each, when they may be moved into little pots singly. Suckers, when taken off, should be at once transferred to pots proportionate to their size. An extra amount of drainage is required on account of their needing to be liberally supplied with water during the growing season, and likewise from the fact that most of the species are surface rooters, not pushing their roots down to any considerable depth in the pots.

CULTURE.—*Alocasias* require a brisk heat in order to grow them well; in fact, most of the species will never attain anything like their proper size and appearance without the full amount of heat needed by the greatest heat-requiring plants.

After the crowns are potted they should be kept in a temperature of 70° at night, with a rise in the day proportionate to the state of the weather, giving a little air during the middle of the day when the weather is such as to allow this to be done, but early in spring the admission of cold air so as to come in contact with the plants must be avoided. Shade at all times when the sun is bright, but let the plants be kept well up to the light. By midsummer larger pots will most likely be wanted, as most of the kinds are free-rooters, but with such species as *A. Veitchi* care must be taken that too much pot room is not given. Syringe overhead freely once a day through the growing season, getting the water well to the back as well as the front of the leaves; if this is not done, red spider will most likely attack them. Through the summer months the temperature may vary from 70° to 75° at night, and from 80° to 85° in the daytime, giving water so as to always keep the soil moist. Reduce the heat and atmospheric moisture as autumn sets in, dispense with shading as soon as the sun's power declines enough to allow this to be done, and syringe overhead seldom.

IN WINTER the temperature should be about 65° at night, with a proportionate rise by day. Nothing further is required except pot room, according to the size to which the specimens are wanted to grow. Such sorts as *A. metallica* may be grown to 6 feet or 7 feet through if desired, and weaker growers in proportion, but for general purposes smaller examples will be more useful. Each spring the plants should be turned out of their pots; all the old soil should be removed and replaced with new material. This is necessary, as if an attempt is made to keep them a second year in the same soil, most likely before the end of the season it will get decomposed and too damp, conditions under which the roots are sure to perish. *A. macrorhiza variegata* does best in good fibrous loam made very rich by the addition of one-third dry, shaly manure, like that obtainable round the outside of an old hotbed, with sand sufficient to keep it sweet. This plant should be grown annually from a single sucker of the previous year's propagation, which, if well managed, will attain a size of 7 feet or 8 feet in diameter, and in this state, with its beautifully variegated leaves, it is one of the most effective of all variegated plants. The best kinds are:—

METALLICA.—A Bornean sort, with large, shield-shaped, metallic tinted leaves, and one which may be grown to a large size.

VEITCHI.—A very handsome species, also from Borneo, having long arrow-shaped foliage, with ivory white mid-ribs, and a bluish, slate-like colour on the upper surface of the leaves, which are deep purple beneath.

LOWI.—Similar to the last in form of leaf, but the upper surface is much greener, and barred with metallic tints; it is likewise a much better grower than *Veitchi*. A native of Borneo.

JENNINGSI.—A handsome small-growing species from India, with leaves 8 inches or 9 inches long, of a rich green colour, and blotched with black or dark brown between the veins.

MACRORHIZA VARIEGATA.—A beautiful large-growing species with cordate leaves, pale green, with large white blotches, which sometimes cover half the surface. Ceylon.

INTERMEDIA.—This variety was raised by crossing *A. longiloba* with *A. Veitchi*. It has much of the beautiful greyish metallic shade of *A. Veitchi*, but grows a good deal larger.

MARSHALLI.—An Indian species in the way of *A. Jenningsi*, but with a broad silvery band down the centre of the leaves.

THIBAUTIANA.—A Bornean species something in the way of *Lowi*, but larger. Blackish green in colour, with distinct white veins.

JOHNSTONI.—A singular species, with spiny leaf-stalks and arrow-shaped leaves, green, veined with red. A native of the Solomon Islands.

ROEZLI COSTATA.—A medium-growing green-leaved species blotched with silvery grey. From the United States of Colombia.

ILLUSTRIS.—An Indian kind not unlike *A. Jenningsi*, but a stronger grower; its leaves, like that kind, are green, mottled with blackish olive.

SEDENI.—A hybrid raised between *A. Lowi* and *A. metallica*; in form most like the first-named parent. A handsome plant.

CHELSONI.—A hybrid raised between *A. metallica* and *A. longiloba*. It produces large leaves, shining green on the upper surface, purple beneath.

ZEBRINA.—A strong growing species with large sagittate leaves, green in colour and with stalks banded with blackish green, which gives the plant a handsome appearance. Philippine Islands.

INSECTS.—The regular syringing required for these *Alocasias* through the growing season will keep down the smaller insects that attack them, such as aphides, thrips, or red spider; should mealy bug by chance effect a lodgment on the back of the foliage or leaf-stalks, it must be removed by sponging.

T. BAINES.

PERPETUAL-FLOWERING CARNATIONS.

SOME of the recently introduced varieties of these are most lovely, and quite invaluable in a cut state when flowers are very scarce indeed. The single species and varieties of *Dianthus* are very beautiful. We grow them in our rock gardens; all the florists are in raptures with them. A fortnight ago they were the most beautiful objects in Messrs. Paul's rock garden at Broxbourne, and even such a good old florist as Mr. Geo. Paul could not restrain his admiration as he pointed out the delicate tracery of the most beautiful of the alpine species. But these are useless as regards the production of cut flowers; if one tries to bloom them in winter they will have none of it. They are Nature's wildlings, and do not brook the restraint of flower-pots and glasshouses. Here it is that the value of the florist's work is seen and appreciated. It has been stated that florists are narrow-minded—that they throw away the best flowers and retain the worst. I say that is not so. Florists are the reverse of narrow-minded; they do not throw away the best and retain the worst. They give away their rejected seedlings, or sell them at a cheap rate. Is it the florist's fault if those who purchase or those who have received beautiful flowers as a gift do not take sufficient care of them, but let them die from want of attention? Those who criticise the florist's work ought to know something of that work. Having thus unburdened my mind a bit, I can now go on to treat of the perpetual-flowering *Carnation*. The plants intended to flower in winter should now be of goodly proportions; they ought not to be showing flower-buds yet, but if they are showing them they ought to be pinched off and the plants repotted into larger pots. The sizes in which we used to bloom them are 7-inch and 8-inch ones, strong plants being put into 9-inch ones. Large specimens may be grown on into 12-inch pots after they are eighteen months old or more, but it is not profitable to grow such plants, and they are not nearly so handsome as small healthy specimens. What they most require when making their growth is plenty of fresh air and to be kept free from insect pests. Green fly is very troublesome; it cripples the growth and makes a sad mess of the blooms by forming a breeding ground inside of the pods, whence they cannot be dislodged easily without injuring the blooms. The fly may, however, be killed by fumigating or dipping the plants in soapy water before they are too far advanced in growth. To produce good blooms the potting soil ought to be rich and porous and the pots well drained; if the drainage should become clogged from any cause, the plants very soon show it by their sickly and stunted growth. *Carnations* are like many other plants—when they once get into bad health, they do not speedily grow out of it.

PLANTS FOR MIDWINTER FLOWERING have a tendency to run to growth and to produce nothing but leaves. This does not always arise from using too rich soil. It is often the result of keeping the plants too far from the glass or where they do not

get sufficient fresh air. They also require a warmer atmosphere in winter than the temperature of an ordinary greenhouse, but as there are many other subjects requiring such treatment in winter, it is not necessary to devote a whole house or compartment to them. Bouvardias also require a little more heat, and likewise zonal Pelargoniums—say from 50° to 55° at night during the late autumn and winter months.

VARIETIES.—White varieties are in greatest request. The variety named The Queen (Abercrombie) has an occasional stripe or flake, which rather adds to its attractions than otherwise. Gloire de Nancy, a French variety usually termed White Malmaison, is a large and fine white. The rose-coloured class has also received some promising additions in Mrs. Llewellyn, Seraph, and Juliette, deep rose, large and fine. Scarlet coloured varieties are represented by Firefly, a well-formed bright scarlet; Huntsman, Nimrod, and Worthington Smith, the last named a fine, large flower with broad smooth petals. There are also some really good buff ground flowers, less or more marked with scarlet, viz., Amazon, Coomassie, and Gaiety. Mrs. George Hautrey is a fine, bright yellow self, and Andalusia is much esteemed by some,* but the flower is rather full and the fringed petals give it a rough appearance. Rubens is rich crimson-maroon, and Whipper-in has maroon and scarlet flakes. The whole of the above may be added to the most select collection with advantage.

J. DOUGLAS.

PROPAGATING BEDDING PELARGONIUMS.

GARDENERS know that Pelargoniums belonging to this section strike root better in the open ground than in any other way, but it may be useful to amateurs to be informed that if cuttings can be obtained and inserted in the open ground at any time between this and the middle of August, they will secure better results than they would do by the most painstaking management under glass. This applies particularly to the tricolor, bronze, and white variegated section. In dealing with new varieties of either of these when it is desirable to increase the stock as fast as cuttings can be had, we either use the stock plants for bedding or plant them in a rich piece of land in the reserve ground, and as fast as we can obtain cuttings we take them off and insert them between the old plants; in this way we get quite a strong addition to their numbers by the time when they require to be taken up for the winter, and, as will be seen, at a minimum amount of trouble. The general stock we do not touch until the middle of August, and then we take all the cuttings we can without disfiguring the beds. These we put in a south border about 4 inches apart, making the soil somewhat sandy to encourage the formation of roots. If the weather should be very bright, we put some temporary lights over them and shade them for a few days, but in dull, showery weather they do not require that attention. Some care is, however, needed to see that they do not suffer from want of water, as the soil must be kept pretty uniformly moist. Under this treatment we can make sure of a greater percentage of rooted plants than we can if we attempt to root them in the dry heated air of a house or pit. In dealing with the bronze section, we plant the cuttings under a south wall with a light over them even later than the middle of August, and by keeping the soil rather dry they seem to get hardened up, and will be found to have made quite a number of roots by the end of October. We then put them singly in small pots and place them on a shelf in a warm house, where they remain for a few weeks. We cannot, however, deal with the whole of the stock of the older sorts of white variegated kinds in the same way, on account of the number of plants required. These we plant in boxes in the last week in August, and afford them the protection of a pit or frame, giving them some shading for the first fortnight during bright sunshine. We prepare the boxes by first putting a layer of the coarse siftings of the soil in the bottom an inch in thickness; the remaining space is then filled up with a mixture of leaf soil, loam,

and sand. This is made rather firm, and the cuttings are inserted as fast as they can be got.

J. C. C.

Dasyllirion.—By this mail I send a piece of the flower-spike of a Dasyllirion, with the name of which I am unacquainted. The spike was first seen May 21. The flowers being open June 19, I took it to a horticultural exhibition in New York. No one there had seen a plant of it in flower before. The flower-stem is 10 feet above the pot, and the flowers, commencing 5 feet from the pot, taper slightly towards the top. I would be pleased to know if a plant of it has flowered before.—JAS. HOLLOWAY (gr. to Mr. Chas. Pratt), 232, Clinton Avenue, Brooklyn, N.Y.

*** Only male flowers have been sent, and it is not possible always to determine between Dasyllirion and Beaucarnea without female flowers. The former has 3-celled ovaries, the latter 1-celled. The plant in question is, in all probability, the *D. texanum* of Scheele.—ED.

5019.—**Freesias.**—“Delta” may take the bulbs out of the pots after drying them off slowly and treat them like Hyacinths or Tulips. A cultivator in Berlin, to whom I gave a pot of flowering Freesias, did this, and got all his bulbs to flower last year, whereas I got only a few to bloom out of some fifty or sixty bulbs. The seed, which ripened well enough with me (outdoors), is of a black colour when mature. I gathered my seed as soon as ripe, and kept it in the pots in my own room during winter. I sowed it early in spring and put the pots in the propagating pit, where it germinated quickly very freely. I hardened the young plants off by placing them in a lower temperature. Freesias do not like being pricked off; therefore, “Delta” will do well to sow his seed thinly in pots, and afterwards leave the young plants undisturbed.—E. HINDERLICH, *Neues Palais, Wildpark.*

5028.—**Transplanting Lapagerias.**—In my practice I have found it best to transplant in autumn after the plant has finished its growth, or early in spring before growth begins. As the plants in question are in pots, there would not be much danger in transferring them to beds or pits provided they are not thickly matted with roots around the sides of the pots. In any case, they will need care, as when the thick, fleshy roots are broken, which often happens, they die back, and are some time before they send out fresh feeders. The ball of earth should never be allowed to become dry, nor the new soil soddened with water before the roots run freely in it. If a happy medium in this matter be attained, the plants will soon start into strong and vigorous growth. The pit to hold the roots should be built of single brick or stone, with a slab or slate at the bottom to prevent them escaping from the bed. In the first course of brick ample space must be allowed for drainage. There should be at least 6 inches of good drainage, an important point, as the plant, though a water-lover, is very impatient as regards stagnant water. Fifteen inches of soil will be sufficient depth in which to grow a fine specimen. Good lumpy, turfy peat, with a light sprinkling of bones, sufficient sand, broken crocks or charcoal, to keep it sweet and open, will answer well for Lapagerias. If the soil is allowed to become pasty it is fatal to their health. The size of the pits, of course, will depend upon the size of the plants; in any case, it is not wise to make them too large, for the soil does not get filled with roots. Better enlarge when the plants have filled a small pit with roots; then the plants feel the benefit of the new soil. It must have been annoying to lose a large plant after being transplanted, but it does not follow that either the gardener, or the soil, or the watering was at fault. It is just one of those things that cannot be accounted for.—READER.

— In transplanting Lapagerias, a great deal more depends on the condition of the plants than anything else, i.e., as regards the time when they should be transplanted. If they are vigorous and can be removed from the pots they are in without disturbing the roots, they may be transplanted at

once; but if growth has partly stopped, and the flower buds are set, they will be better kept in pots until they have flowered, and when they begin to grow again will be the proper time to transplant them. Lapagerias thrive well in good fibrous loam, and they will also grow and bloom with remarkable freedom in good fibrous peat, but perhaps the best compost of all is peat and loam in equal parts with a good dash of sharp coarse sand to keep the whole sweet and porous, and if a few lumps of charcoal are mixed with this compost, all the better, for there is nothing that the Lapageria dislikes so much as stagnation at the roots. With regard to the construction of the pits, I may say that in nine cases out of every ten it would be better if no pits were built at all, for we often find them under the stages or in some out-of-the-way corner, where no light or air can penetrate. Large boxes are far better than brick pits, and they take up less room. They should be about 3 feet square and 18 inches deep, and if they have slate bottoms all the better, and they will last much longer. The best place for these boxes is on a greenhouse stage, or at all events the top of the box should not be lower than the stage level. If this plan is adopted, I think the plants will be sure to grow and bloom well.—H. PARKER.

GARDEN FLORA.

PLATE CCCXVII.

A NEW CALANTHE.*

(C. REGNIERI.)

THE accompanying plate represents a lovely Calanthe recently introduced from Cochinchina by M. Regnier, of Paris. It is very distinct in colour, but in the shape of its pseudo-bulbs and in floral structure it reminds one of *C. Turneri*, an elegant kind not at all sufficiently well known to growers. The pseudo-bulbs of this new variety are jointed, as in *C. Turneri* or *C. Veitchi*, and the whole plant is just what one would have anticipated as the result of hybridising or cross-fertilising these two kinds. As a wild plant it is remarkable, and it must ere long become a great favourite with cultivators.

Of all the Orchids we know none are more floriferous and useful during the winter months than Calanthes when well grown. We especially allude to those pseudo-bulbous or deciduous-leaved kinds of which *C. Veitchi* is, perhaps, the best-known type. Their culture is easy, and the results most charming in all ways.

The kinds at present in cultivation are *C. Limatodes rosea*, *C. vestita rubro-oculata*, *C. vestita luteo-oculata*, *C. nivalis*, *C. Turneri*, *C. Veitchi*, and *C. Regnieri*. It has been suggested that these pseudo-bulbous and deciduous-leaved species should be called Preptanthe to distinguish them from the true Calanthe of the *C. Masuca* or *C. veratrifolia* set, which are evergreen, but it is not easy to alter names which have, as in this case, been long accepted without question. As ornamental plants the deciduous Calanthes have decidedly the best of it, and therefore are very popular in many gardens, even those wherein Orchids are not generally or largely cultivated. They enjoy a high temperature, growing and resting alike, and a decided season of rest from November to March; even when in bloom but little moisture at the root should be given. In March, or sooner, when the young growths appear, repot them, placing one or two bulbs in an 8-inch pot, using a tough fibrous compost of peat and loam fibre in equal parts, adding broken crocks and a little charcoal and Sphagnum Moss. They re-

* Drawn from a plant in Messrs. Veitch's nursery, King's Road, Chelsea, February 20, 1883.



quire little or no water until the growths are 6 inches or so in height, too much water in this early stage of growth being apt to cause a peculiar disease known as "black spot." Too low or unequal a temperature should also be guarded against. The position in which they grow best is on a shelf 2 feet or so below the glass. After growth has fully commenced a little clear sheep manure water assists leaf development and adds size and strength to the bulbs. So grown we have seen pseudo-bulbs of *C. Veitchi* 16 inches in height, each yielding three spikes of flowers. A good strong spike of *C. Veitchi* will be from 36 inches to 48 inches in length, bearing fifty or more flowers and buds. Blooming as they do during December, January, and February, at a season when choice flowers are scarce, these deciduous *Calanthes* are amongst the most valued of all decorative plants. F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

SAXIFRAGES.—These are very numerous, but we will confine our remarks wholly to kinds well suited for parterre work in association with ordinary bedding plants, and particularly such varieties as can be used in lieu of tender plants. The kinds in question are *Aizoon*, *Aizoon minor*, *cæsia*, *ceratophylla*, *hirta*, *hypnoides*, *oppositifolia*, *rosularis*, *sarmentosa*, and *serratifolia*. These are all of a dwarf spreading habit of growth, and are excellent for carpeting the ground under tall-growing plants of any kind, and also for edgings to beds of the common kinds of bedding plants, and for forming the divisional lines in geometrical patterns, or what are more generally termed carpet beds. For the most part the foliage of the kinds named is either greyish white or green, colours that harmonise with any of the fine-foliaged kinds of bedders, and, what is more, they are perfectly hardy, and can be left in their places throughout the winter.

GENERAL WORK.—The zenith of the flower-garden season, every branch of it, having now been reached, it will be well to make note of the best arrangements, in order that, if thought desirable, they may be repeated another year; also to note errors of arrangements and kinds of plants that have failed to give satisfaction, that the one may be rectified, and the other excluded next season. Perfection of keeping, both as to turf, beds, walks, and all the surroundings, should now be the one great aim, for however perfect the arrangements and flowers may be, weeds, decaying flowers, and long Grass will mar their enjoyment. Our own routine at this season is something like the following: Beginning with shrubby clumps, *Rhododendrons* and *Azaleas* are freed from seed-pods, suckers are pulled off, straggling shoots cut in, weeds destroyed, and verges cut fortnightly; fernery and rock garden weeding, cutting in shrubs that encroach on walks or over the Ferns, cutting off old flower-stems on rockwork, clearing rusty fronds off Ferns, and weeding out any of the common kinds to give room to the best varieties. The common Bracken we find very troublesome, owing to the soil having been brought from land where it grows naturally, every particle of root with a joint soon making a large plant. Sub-tropical beds are looked over weekly, in order to keep the plants well up to their supports, and for the present the flowers are kept picked off *Castor-oils*, *Cannas*, *Tobaccos*, and any of the plants that we wish to grow large rather than flower. The under-growths are either pegged down or are kept dwarf, and spreading by repeated stopping, according as may be needed, by the kinds of plants used. When no such undergrowth plants are employed, the beds are kept mulched either with leaf-soil or decayed manure. On the parterre there is always much to be done by way of trimming of formal bedding arrange-

ments. *Mentha*, *Mesembryanthemums*, *Herniaria*, *Sedums*, and *Saxifrages* require to be clipped or pressed down at least once a week; *Verbenas*, *Petunias*, and the like to be pegged down; and part of the flowers should be picked off *Calceolarias* and all the seeding flowers off *Violas*; they are also kept mulched with rotten manure, and under such treatment never wane, either as regards vigour or flower, in the driest season. Roses are gone over once a week for the purpose of cutting off bad flowers and shortening long shoots. Climbers are twisted or tied to their supports, and those on walls syringed to keep them free from insects. Mowing and clipping turf verges and clipping Box edgings, Privet, Laurel, and Yew hedges complete the round of flower garden labour at the present time.

INDOOR PLANTS.

PELARGONIUMS.—Such of the large-flowered varieties of these as were stood out in the open air after flowering and have sufficiently matured their shoots should be headed back; but though it is desirable to get this operation completed without delay, as upon its being early carried out depends the time when they will bloom next year, still heading down should never be attempted until the bases of the shoots have attained a woody condition and are quite hard. If the plants are already as large as it is desirable to have them, all the shoots should be cut down to within two or three eyes of where they were shortened to last year, letting the earth in the pots get quite dry before they are cut in; if this is not done many of the roots will perish. After cutting down they should be put in a cold pit or frame, and kept moderately close to induce them to break; no water should be given them until they have broken, but a slight moistening overhead every afternoon will be an advantage. Should it be desirable to increase the stock of any kind, cuttings ought to be put in. Many who have the management of private gardens are now beginning to appreciate the merits of the decorative kinds; their profuse flowering disposition and compact habit make them most useful, and if well managed they make pretty blooming plants in one year from the time the cuttings are struck.

FUCHSIAS.—In the pot culture of *Fuchsias* the system often followed of keeping old plants on for a number of years is quite a mistake, as they usually get bare and naked at the bottom, and are deficient in the fresh vigorous character which young stocks possess; if small specimens of the freest blooming kinds are grown, pretty plants can be had by midsummer; but where really fine examples are required either for exhibition or home decoration to bloom from July to the end of September, there is no method by which they can be had equal to that of striking cuttings about the end of July, and keeping them growing slowly in an intermediate temperature through the winter; treated so, they can be had from 4 feet to 5 feet high, and 3 feet through, furnished with shoots bearing a profusion of flowers and healthy foliage that will all but hide the spots. For this system of cultivation cuttings should at once be put in, selecting shoots for the purpose that are free as regards growth and not producing flower-buds, as if the latter are used they will strike slowly, and make slow progress afterwards. Where large examples are wanted early in the season, old plants will answer best; when these have been flowering for a considerable time they will begin to get exhausted. Where such is the case they may be turned out-of-doors to harden a little for a fortnight, and then have their shoots shortened in to about half their length, placing them in a close house or pit, syringing well, and as soon as they begin to push growth freely keeping them regularly supplied with weak manure water; managed in this way they will again start away and flower until late in the autumn. A matter of importance in *Fuchsia* growing is to keep them freely syringed regularly two or three times a week, being careful to get the water well to the undersides of the

leaves, without which they are all but certain to become infested with red spider; freedom from this pest, accompanied with the seed-pods being picked off as soon as formed, is the only means of keeping these plants flowering freely the length of time they are capable of.

CELOSIA PYRAMIDALIS.—At no season is this elegant plant of more use than when late, so as to be in flower up to the end of the year. If small stock newly vegetated are not already at hand, a pinch of seed should at once be put in; the plants resulting from this last sowing will, if well cared for, yet succeed, and come in either for cutting or intermixing with other things. Where a sufficient stock of this *Celosia* is grown they help to brighten up a conservatory or greenhouse better than most plants, their erect form of growth relieving the even surface which bushy specimens present. They are sometimes affected with red spider, but this pest can easily be avoided if the syringe is sufficiently used.

HYDRANGEAS.—The panicle-flowered variety of *Hydrangea* is one of the best subjects for forcing or bringing on slowly in a cool house we have, being very superior to the old variety. Where it has been so used, now, when the blooming is over, the plants ought to be turned out of the pots in good soil in an open, sunny place, have their strongest shoots well shortened back, and if the weather becomes dry, be well supplied with water; so treated, after another season's growth they will be ready for again using in pots. Plants of the ordinary kind that have been used for pot work should be similarly turned out of the pots, have the old bloom-shoots cut out, and the young growth usually existent at the base of forced stock encouraged, so that it may be in a condition to flower next season, which many of these forced plants will do if well cared for, although in their case it will be well not to attempt forcing, simply letting them come on in a cold house or pit, when they will be found very serviceable to follow the early-flowered examples. Young stock of this species struck from cuttings in the spring should be moved to the pots in which they are intended to be forced, and plunged out-of-doors in the full sun, well attended to with water so as to ensure stout growth and get it well matured, on which their ability to produce fine heads of bloom next spring depends.

CHRYSANTHEMUMS.—Easy as these beautiful autumn-flowering plants are to manage, the press of other work in the busy summer season often is the cause of their being so little attended to that a fine head of bloom is out of the question. The stronger and more vigorous the plants are the more sustenance they will require in the shape of watering. Now that the pots should be getting fairly full of roots they are best plunged in ashes, as then the temperature of the roots is more equable, and they are less likely to suffer through want of water. If the best display obtainable for a long period is required, a few of the earliest blooming sorts should also be cultivated. These will very soon be showing their bloom buds, and will bear weak manure water using altogether.

DESTRUCTION OF RED SPIDER.—This diminutive insect is one of the most troublesome pests that gardeners have to contend with, as it cannot be destroyed by fumigation like aphides. Its presence is invariably followed by much worse consequences to the leaves of the plants it gets established on than with aphides. Many people are deterred from attempting the growth of such subjects as it is especially partial to, which necessarily limits the variety present in greenhouses and conservatories during the summer months when it is most prevalent. Yet this is a mistake, as where sufficient means are taken from the spring onwards to prevent its ever getting a lodgment, there is no danger of any plant being injured through it. All that is necessary is a daily and sufficient use of the syringe with clean water, not simply sprinkling the upper sides of the leaves in the way too generally deemed sufficient, but which, in most cases, is wholly useless so far as keeping down the pest which instinct teaches, both for protection and food, to keep on

most plants almost entirely to the undersides of the leaves, consequent upon this no amount of water that only reaches the upper surface can affect it. This is one of those small matters in gardening that are so obvious to everyone who has any knowledge of insect life, so far as it affects plants, that it would seem all but unnecessary to mention it were it not that little observation is needed to see that for want of getting enough water continuously through the growing season to the parts where the spider takes up its quarters, unlimited numbers of plants suffer in a way that makes them more an eyesore than an ornament.

ORCHIDS.

EAST INDIA HOUSE.—There will not be such a wealth of bloom in this house now as there was a few weeks ago. The temperature of our house has been kept about 5° lower and the atmosphere rather drier than usual to prolong the bloom as long as possible. Now we will keep a rather moister atmosphere and will take advantage of fine weather to shut up earlier in the afternoon in order to keep up a higher temperature by sun-heat, although it is not possible to do so altogether without artificial heat, the weather during the last week or so having been abnormally cold. Many are giving their Orchids a greater amount of sunlight than has been usual heretofore, but of all the sections of Orchids, those grown in the East India house are the most likely to suffer from too much exposure to the sun, and it would be better to shade too much at this season than to risk scalding the leaves, a misfortune which cannot easily be repaired. Pay particular attention to *Angraecums*, and see that they do not become infested with thrips; if they are, dip the leaves or wash the pest off with soapy water. We have alluded on previous occasions to the shy-flowering *Grammatophyllum Ellisii*, a striking Orchid, exhibited some time ago by Messrs. Low. All their plants had been grown in a warm house, potted in shallow pans or baskets, and suspended close to the glass. Their experience is that this species requires to be kept very dry after growth has been completed. When the next growth is being formed the flower-spikes come up with it. *Cypripediums* requiring the temperature of this house may now, if necessary, be repotted. Most of them do best in the usual potting material, that is, peat and Sphagnum, but some like turfy loam to root into. The pretty *C. niveum* is one of these, and one would take it for granted that *C. Spicerianum* would also do in loam, as imported plants seem to have been collected off a bed of moist loam. *C. Stonei*, *superbiens*, *Lowi*, and hybrids from these may now be potted in peat and Sphagnum, using plenty of drainage, and also charcoal and crocks amongst the compost. In hot weather these and other *Cypripediums* may be syringed overhead.

CATLEYA HOUSE.—Attend to watering the plants in this house and to keeping them clean. "How often do you water your Catleysas?" it may be asked. To this question it is not possible to give a direct answer. Some plants may want water once in a week or in two weeks; others may require it almost every day. Small plants suspended near the glass require it very often. Large specimens on the stage do not need water oftener than perhaps once in a week or ten days; all depends on whether the plants are resting or making growth, and whether the pots are well filled with roots or not. It will thus be seen that no definite instructions can be given as to the quantity of water which the plants ought to have or how often it ought to be applied. The earliest *Dendrobiums*, such as *D. Wardianum*, have now made their growth; it will be necessary to remove them to a cooler, drier, and more airy house. If this is not done when growth is completed they will start again. The largest proportion of our plants have been removed to a warmer house, as I find that such species as *D. Dalhousianum*, *D. thyrsiflorum*, and *D. suavisissimum* take all the season to make up their growths, and they have not time to complete them unless they are pushed along very rapidly during the growing

period. *Vandas*, such as *V. suavis*, *V. tricolor*, and similar species, certainly do best in the Catleya house temperature. They are now pushing out fresh roots from the stem above the Sphagnum. The best way is not to interfere with them, but to see that no slugs or other depredators get near them. Most of the plants in this house are now making growth, and require a moister and rather warmer atmosphere than hitherto to aid them to do so. They also ought to have as much light as possible without allowing the sun to shine directly upon them. The temperature of the house may be about 65° at night, and it can be kept up to this with very little artificial heat indeed.

COOL HOUSE.—We are not much troubled with thrips in this house at any season, but if they do appear it is generally during the summer months. The plants should be frequently examined in order that they may be destroyed on their first appearance. We noticed traces of them on some plants of *Odontoglossum cirrhosum*, but they have been washed with Tobacco water, and in case the pest had spread further the rest of the plants were also dipped or washed. Green fly is likewise rather troublesome, but that is much more conspicuous and more easily destroyed than thrips. We usually dip the plants for it, or if on the flowers, it is brushed off. If it is necessary to do any potting, let it be done without disturbing the plants more than may be necessary. If it should be thought essential to shake all the compost from the roots, as it sometimes is, we would rather delay the potting of such plants until later, or, what is better, leave it until January or February. We have shaken the roots free from all potting material at that time without injuring the plants in the least, but have seen them suffer a little when this has been done in summer. The usual occupants of the cool Orchid house do not like the excessive heat of the summer months, and if growth is checked at that time, they may be seriously crippled, and some of them may even die. We keep the temperature as cool as possible by day, and leave the ventilators partly open at night.

FRUIT.

PINES.—Plants intended for starting early next year will now be rooting freely in the pots they are to occupy until the fruit is ripe. As the principal point in the management of this batch is the early maturity of stout plants in medium sized pots, give gentle stimulants at each watering to help them on, and syringe lightly overhead after closing for the day. The general stock of plants now swelling off fruit will require good feeding with diluted liquid and plenty of atmospheric moisture whenever the house can be closed at the maximum of 85° to 90° with sun heat; the surface of the bed and the axils of the lower leaves may also be kept moist by having a little clear liquid applied with the syringe at nightfall. Remove all fruit to a dry, warm place to ripen up as soon as it begins to change colour, otherwise Queens will soon go black in the pip and the fruit will not keep. Renovate the beds in succession pits and give the plants more room as they increase in size. Keep them well fed, damp all available spaces after closing, and economise fire heat when the weather again becomes favourable to forcing without it. Remove suckers from old stools, trim and pot them at once, and plunge in a strong bottom heat of 90°. Use the soil in a rough, dry state, make it very firm, and give a gentle watering, unless the plunging material is heavily charged with moisture, when watering may be deferred for a week or two. Keep them close and moist by dewing them over with the syringe on fine afternoons, and shade from bright sun when we are again favoured with a change to summer weather. If any of the spring suckers have not been shifted, lose no time in getting them into larger pots as they become ready. At one time the potting of Pines was a biennial operation, but now growers who have to maintain a steady supply of fruit find it best to shift a Pine, like any other plant, when the pot it occupies is

full of roots and fresh food is absolutely necessary to its progress.

VINES.—Muscats now beginning to take their last swelling should have their internal roots well mulched with half-rotten stable manure, the ammonia from which will be found inimical to red spider, while its stimulating properties will benefit the foliage and draw many of the active surface roots to the influence of warmth and air, so essential to the perfect finish of this valuable Grape. Keep a sharp look-out for scalding in the Lady Downes house should the weather continue as unsettled as it has been of late, and counteract its injurious effect by maintaining a night temperature of 70° with a little top air and by ventilating freely through the day. To insure the ripening of this and all the best kinds of winter Grapes by the middle of October, the above figures should be continued as the minimum, with a corresponding rise through the day, and if these cannot be secured from solar heat alone, steady firing, while it increases the size of the berries, will be found more economical now than sharp forcing with double the amount of fuel in the autumn, when the Grapes should be sufficiently advanced to require cool treatment, and the Vines will derive great benefit from comparative rest.

Houses in which ripe Grapes are hanging will require just enough gentle fire heat to prevent condensation of moisture on the berries, and in the event of their being wanted to keep for any length of time, two or three folds of fishing-net thrown over the roof will break the direct rays of the sun, as black Grapes soon lose their colour and freshness at this season. It may also be necessary to protect outside borders from extremes of heat and drenching rains by adding more non-conducting material, or by drawing tarpaulings over them until all the Grapes are cut. It is not, however, a good plan to allow Grapes to hang longer than is absolutely necessary, as late hanging is almost as great a tax to the Vines as early forcing; but where heavy crops have to be kept, the cutting of the last bunch should be followed by liberal supplies of diluted liquid to the inside borders, and good syringing to keep the foliage clean and healthy. Encourage newly-planted Vines to make rapid growth by closing early with plenty of solar heat and moisture. Keep the laterals pinched to one or two buds, stop the leaders when they have filled two-thirds of the trellis, and then allow an unrestricted growth up to the end of the season. Discontinue the use of stimulants when pot Vines begin to ripen up their wood, but do not let the roots feel the want of water. Sprinkle regularly to keep the foliage fresh and free from insects, ventilate through the early part of the day, and close early in the afternoon with plenty of dry sun heat.

FIGS.—Maintain a steady circulation of dry, warm air in succession houses in which Figs are now ripening, and expose the fruit to the full influence of sun and light by cutting away all useless growths. Add fresh mulching as the roots find their way to the surface, and keep it constantly moist by the liberal application of warm liquid or guano water. Gather the fruit when it is quite ripe for home use, and before it attains that state if intended for market. When the fruit crop has been taken from the trees in the second house, take out all the wood that can be spared, apply clean water to the foliage twice every day, and shut up with strong sun heat. Young trees in pots and tubs will require constant pinching to keep them in proper form. Clean, straight, single stems look and answer best, as there is no trouble with suckers, and the pyramidal form of training exposes the greatest number of Fgs to the sun. Look well to the trees in cold houses and wall cases, as they will do good service long before ripe fruit can be gathered from open walls. Lay in no more wood than is actually necessary, pinch the points out of gross shoots, mulch, feed, and syringe well, and shut up in time for the sun to raise the temperature to 80° on fine afternoons. Pot trees intended for forcing should now be fit for removal to a warm, airy house where they can thoroughly

ripen up their wood. Syringe the foliage to keep it clean, withhold stimulants, and drop the pots into others a size larger to protect the roots from drought, or cover them up with spent tan, leaves, or litter.

HARDY FRUITS.—Peaches, Nectarines, and Apricots which have not been nailed in must have immediate attention. Fortunately, with the exception perhaps of Apricots and Plums, crops generally are good, and this circumstance will have a favourable influence in keeping the growths of the current year within bounds, while a fine autumn may ripen up the wood. Before nailing is commenced, stop all laterals and sub-laterals, and pinch the points out of growths which are likely to become too strong, and carefully guard against overcrowding by laying in a single shoot that will have to be cut away in the winter. If mulching has been neglected, the use of strong stimulating manure which does a great deal of good in hot seasons may be dispensed with, particularly in cold districts, and a covering of fresh stable litter or old lime rubble, an excellent covering for stone fruit tree borders, substituted with advantage to the trees and comfort to those who have to work upon the borders in wet weather. Follow up the removal of breastwood from Plums and Pears on walls and espaliers, commencing at the top and working downwards, and lay in no more wood than is wanted, as the spurs and buds will require all the warmth and light that can be secured to them. Net Morello Cherries to protect the fruit from birds, but first of all see that the tips of the shoots are free from black aphid, and, if necessary, repeat the dipping in Tobacco water. Prune and net Currants, but do not cut the young growths too short, as a moderate quantity of foliage protects the fruit from sun and rain, and favours its keeping well into the winter. Strange as it may appear, while nearly all kinds of fruit trees and many forest trees have been devoured by insects, we have not yet seen a single caterpillar on the Currant or Gooseberry. Strawberries, a very heavy crop, have been much injured by wet, particularly where the plants have not been well trussed to keep the fruit quite clear of the ground. Vicomtesse Héricart de Thury and the good old Elton are two of the best for preserving purposes. Paxton resists wet better than President. Oxonian, Loxford Seedling, and Frogmore Late Pine, now coming in, are at the head of the list of late varieties. We plant Oxonian extensively on north borders, and find it the most valuable and profitable crop we can grow. If Cherries or Currants occupy a wall, a fishing-net supported on slanting laths running from the top of the coping to the margin of the walk protects the two crops, and the fruit is accessible at all times. When the gathering is over for the season, beds that are to be retained may be dressed out and well mulched with rotten manure or fresh loam, which is equally valuable in old gardens. Follow up preparations for new beds, and get them planted before the young plants become pot-bound.

KITCHEN GARDEN.

THE so-called varieties of Cabbage are legion; amongst the best, Heartwell takes a prominent place, being large in size and good in quality. Enfield Market is also remarkably good. The first sowing should be made about this time in shallow drills, covering the seeds with burnt refuse; should the land be dry, water the drills without a rose on your watering-pot. Lettuces and Endive may be sown at the same time. We always sow small seeds at this season in land which has been broken with the cultivator rather than having it dug up. The land for Tripoli Onions can hardly be too rich; about the first week in next month is the right time to sow them. Many growers sow in drills, and transplant either in autumn or early in spring, but the best bulbs we ever grew were sown in 4-ft. beds and duly thinned, leaving only the best plants. The land should be heavily manured and deeply dug, breaking the soil as the work proceeds; afterwards tread it firmly, rake it, and then proceed to lay out the beds. Wherever

there is room plant with the crowbar any kind of good Broccoli; everything in this way is always useful when frost visits us. Stir the ground among all growing crops with the cultivator, letting in the air and killing the weeds at the same time. We plant Coleworts 12 inches apart. The site is that just cleared of Myatt's Potatoes and well broken up with cultivators; then drills are drawn and well watered, the only preparation the land requires; no digging or manuring is done; in fact, if kitchen gardening is to be made easy, one must step out of the beaten track and find others more in accordance with the times in which we live.

FLOWER GARDEN.

PROPAGATION OF HARDY FLORIST FLOWERS.

IN a late issue of THE GARDEN I said, to succeed with bedding and hardy outdoor plants, propagation must be constantly going on. This may be by division, seed, cuttings, or otherwise. In the case of the ordinary florist flowers, as the Pansy and Viola, Polyanthus and Primrose, alpine Auricula, Carnations, Picotees, and Pinks, Gladioli, Fuchsias, tuberous-rooted Begonias, Snapdragons, Dahlias, Hollyhocks, Pentstemons, and Roses, as this is the time for propagating or dividing most of them, a few references to each may have some interest.

PANSY AND VIOLA.—Except in moist and semi-shaded gardens these are now past their best. The hot sunshine of the first weeks of June paralysed both show and fancy sorts with me, and I at once took as many shoots from the centre as I could find—avoiding those with large, hollow stems, containing flower-buds—and planted them in rows across boxes of loam, carefully labelled, and out of the full glare of the sun. This last is important, for I find shoots, cuttings, or offsets of a suitable kind put in with a little coarse, moist sand around the base, and then sprinkled, never flag when out of the full sunshine. My Scotch Violas and the common blue are still a mass of bloom, but I have been putting in shoots that have not flowered, and picking an occasional pod of seeds from those I wish to propagate wherever I can get them. I must again repeat, none should be satisfied with merely having next year what they had this, but should hybridise and save and grow seed with the view of getting better varieties, and then it should be remembered seedlings have a size and vigour cuttings never attain. This applies to all the other flowers above named and will not require reiteration. If one really good seedling out of a large packet, large, round, and with that by no means common, but indispensable, property, flat habit of growth, can be secured and worth naming and perpetuating, consider yourself fortunate. This remark is still more applicable to the

POLYANTHUS. I have been hybridising and growing seedlings for some years; yet I do not think anything I have got can come near, say, Exile among dark grown varieties, or Lancer among the reds. I learn from Mr. Cannell, whose opinion I once asked, that he and Mr. Barlow would insist on the evenness of the lacing to the one-hundredth part of an inch. If the gold-laced and fancy kinds are not yet divided and replanted, no time should be lost, as the weaker growers, which are generally the best, are in warm weather very liable to red spider on the foliage and to a cankerous swelling of the rhizome—the underground part of the stem or neck—not the roots, as might seem at first look. The Hose-in-hose are curious, that is all; the gold-laced dark grounds are my favourites, next the *amœna marginata* type. The same applies to Primroses, but, as a rule, seedlings are most satisfactory and robust.

ALPINE AURICULAS.—I was a warm advocate, and stated as much in THE GARDEN some time ago, for trying to grow the edged varieties and the selfs outside under favourable circumstances. I lost some valuable and expensive sorts in this way; had the farina, or “white meal,” washed off

the white-edged ones, the blooms soiled and splashed, and have become wiser since; and now grow them in a frame or pit with a narrow stage around. The freest circulation of air reaches them here all the year round. The alpine are planted out, but not invariably; some of them have mealed foliage, others are so beautifully shaded, and, still more, so delicately sweet-scented, that they are well worthy of part of a frame, cold pit, or in a shaded coolinery. All can be grown outside most easily, except in a very moist or gravelly soil, or where too much exposed to the midsummer sun. I am just saving my seed, and to avoid delay in fermentation will put it in a pan at once, though some may not ferment until next February. If not already lifted and divided, it should be done the first opportunity. I do it annually, and secure every possible offset from the more valuable kinds. Those taken off in April last are now well rooted, on the north side of a hedge, in a box of loam; some green and grey edges have been treated similarly, and are now very strong out-doors.

CARNATIONS, PINKS, AND PICOTEEES.—I like the border or bedding kinds best, and, except Malmaison and Mrs. Wallington, pot none permanently. I got a few fringed ones from Mr. Burbidge last year, and though they will not stand the florist test, I like them best. There is no occasion to wait a month hence to propagate. The stronger they are before winter the less danger of losing them. I grow most of mine from cuttings taken clean below a joint. I find them surer than pipings, except very carefully extracted, and more convenient than the customary pegging around the rim of the pot. Several score can be put in a hand-box. Except your stock is named, it is often judicious to wait and see the varieties best worth propagating. Picotees in my soil I find more tender, and liable to get lost in winter. Pinks are deserving more extended culture, the collapse of the exhibition of them illustrating this, not for want of money, but growers. The flaked and laced old Pheasant's-eye, Mrs. Sinkins, and old fringed white were good with me.

FUCHSIAS.—I have several lines and beds of these outdoors, and many varieties, especially Lye's and some of Mr. Banks' and Cannell's, out for the past three winters without losing one, merely protected with a small mound of coal ash. During the past month or two, since side shoots got sufficiently developed, I have been inserting those I wished to increase in boxes of loam. Put them in with or without a heel in the shade of a hedge or tree, with a little coarse sand at the base, and after sprinkling they never flag. Any of your readers who have not grown Fuchsias outdoors in this way for summer and autumn decoration have yet a treat in store for themselves. Put in also cuttings of Snapdragons and Pentstemons similarly, and as this is not exactly the time for increasing, but for admiring, your beautiful beds of tuberous Begonias and Roses, I pass on only to refer to the expectant pleasures later on from Gladioli—one of my great favourites—Dahlias, and Hollyhocks, which include the few mentioned above.

Clonmel.

W. J. M.

DICTAMNUS FRAXINELLA.

AMONG hardy herbaceous plants the fine old Dictamnus Fraxinella is still one of the best, and just now is very striking with its tall dense spikes of curiously formed and marked flowers, which exhale a strong and most agreeable odour. I have heard it stated that many find much difficulty in keeping and growing this very desirable plant, but here it is always strong and never fails to bloom freely, one plant last year having seventeen flower-heads and twenty-three this. We have two varieties, the one being larger and darker than the other, as well as more robust, and I have just started with the white, which seems the weakest of all. The soil these Dictamni are growing in is light and sandy, which seems to suit them, and they have shelter afforded by a background of shrubs. Why many fail in growing herbaceous plants is through cutting away their stems long before they are dead, which is a great mistake, as till then they are needed for the pur-

pose of developing and ripening the crowns, and if these lose their support, they must of necessity become weakened, after which they dwindle away and die out altogether. Another thing that militates much against herbaceous plants is digging the borders, especially if that operation is carried on by the aid of a spade and the soil is deeply moved, as then the roots get severed or broken, and the plants disturbed and loosened, which interference they feel for a long time and suffer for afterwards. If the borders are dug at all the work should be done in spring, and with a fork thrust in only sufficiently to break and turn over the surface, after which it is a good plan to top-dress with short rotten manure or leaf-mould to act as a mulching and keep out the drought. S. D.

SOME JULY FLOWERS.

ALSTRÆMERIA AUREA in variety, grown in large beds or groups, forms extremely beautiful masses of colouring, rather repeating the colours of the hardy Azaleas, and, as in their case, always in pleasant harmonies, from faintest pink, through several shades of rose, to a fine orange-red, then passing through orange to various tints of buff and pale yellow. Well-established plants send their roots down more than a foot, and shoot their flower-stems up 4 feet high. They delight in a sheltered corner near a south or west wall, though they do very well in the open in warm soils, where they will flower the first year from seed.

ALSTRÆMERIA AURANTIACA is a still finer plant, more solid of substance in all its parts. There appears to be two varieties; the larger and bandsomer has the three broad petals an inch across, and of a deep fiery orange or flame colour. The small kind has flowers of a fine orange, with paler foliage.

ANTHEMIS TINCTORIA is a hardy plant of the first quality. Its handsome Daisy flowers, nearly 2½ inches across, have petals of the palest yellow, with a deep yellow eye. Seedlings show interesting variations in the colour of the petals, varying from nearly pure white to a full yellow, nearly as deep as the eye. It is a plant of fine habit, carrying its well-furnished branches from 2 feet to 2½ feet high.

WHITE GOAT'S RUE (*Galega officinalis*) in any soil where it does not become too rank, is beautiful alike in flower and foliage; the groups of flowers, abundant and yet not over-crowded, are gracefully disposed about the plant, and the whole has a well-dressed and well-balanced appearance.

A **WHITE MARTAGON LILY**, 5 feet high, bearing 25 flowers on one spike, is a sight worth seeing; the dark variety, *dalmaticum*, a splendid glossy black-crimson, is a worthy companion.

CAMPANULA PUMILA, the white variety, is now the gem of the rockery, clothing large spaces on the face of a loose wall built with rough pieces of sandstone. It runs along the joints, defining them in the prettiest way possible, and where the rough stones leave largish gaps between, filling up these spaces with compact masses of its brilliant green foliage and pure white bells. It runs only too strongly, and sometimes encroaches on its neighbours; it seems to delight in getting into some strong-growing plant like

LONDON PRIDE, running underneath and thrusting out its little bells between, and in some cases all round the rosettes of the Saxifrage, and will even penetrate through such hard masses of growth as tufts of *Gentiana acaulis*. It combines beautifully with *Polypody* and *Hart's-tongue Ferns*, its companions on the wall.

SENECIO ARTEMISIFOLIUS is a good rock Ragwort, bearing flat heads of a fine full yellow at a height of about a foot above the *Artemisia*-like foliage.

SENECIO ABROTANIFOLIUS has one or two flowers on a stalk 4 inches high, the flowers being 1½ inches in diameter and of a rare colour, a deep salmon-orange, showing well above the finely-cut, glossy, deep green foliage. G. J.

Surrey.

THE GARDEN PINK.

Now is the time when young plants intended to flower next season require attention. Neglect now means few flowers next year, and those few poor in quality. For ordinary garden purposes we divide the different varieties into two sections, the early flowering or forcing Pinks, and the laced varieties, which are known as "Florist's Pinks;" they have evidently a common parentage, probably *Dianthus plumarius*. The flowers of this species are white, with a dark centre, the margin of the petals being neatly toothed or fringed. The first double Pinks had dark centres and fringed petals. The florist likes smooth petals with rounded edges, and, after patient working and waiting, he has obtained them. The early flowering varieties are propagated early in the season, because the cuttings or "grass" can be obtained early. Cuttings put in about the end of April or early in May should now be of considerable size, and ought to be planted out a foot apart in rich garden soil. By the end of September, they form large masses, which may be potted up or planted where they are to flower out of doors.

THE OTHER SECTION succeeds best planted out in the open ground. Cuttings are not usually ready for taking off the plants before the middle or end of June; if taken off in showery weather and dibbled in a shady place they form roots very readily, but to have them good they require to be planted out about 4 inches apart as soon as they are rooted. And they ought to be planted where they are to flower before the middle of October; if deferred later than this they do not get well established before winter. Under glass the plants become infested with green fly, but this pest can easily be destroyed if taken in time; we, however, give plenty of air until they are taken into the forcing house, and, therefore, spider does not appear until the plants are subjected to a close, warm atmosphere. In heavy wet soils the Pink requires special treatment. The beds must be raised at least 6 inches above the surface; a good dressing of leaf mould and rotten stable manure should be dug into the ground, and, further, they may be grown extra fine by placing over the beds a dressing of loam, leaf mould, and sand in equal parts before putting out the plants. Of course a great deal depends upon how the work is done. Careless planting or removal may mar the labour of months.

SEEDLINGS may be raised by anyone living in a favourable district, but in order to be successful in this matter the flowers must be artificially fertilised. The pollen should be carefully removed with a small camel's-hair brush and applied to the stigmatic portion of the flower which rises amongst the petals in the form of twisted horns. Pinks are not often self-fertilised; they require indeed the help of the brush before they produce good seeds. Bees aid the work. I remember on one occasion obtaining a large quantity of good seeds through no other agency. The seeds were, however, unfortunately left in an open box to dry, and every one was eaten by mice, which are very fond of them. The seeds should be sown in April in a box under glass, and aided by a slight hotbed. In a month the young plants should be ready to be pricked out in boxes say 3 inches apart, and when the leaves have met together they may be planted out in beds and treated exactly as in the case of other named varieties. They will flower strongly about the middle of June the season after they are planted out, and it is very interesting to watch their flowering. Not one comes alike; some are semi-double, others single, but all are interesting, their variety of colour and form being great, and their perfume all that could be desired.

J. DOUGLAS.

5008.—**Silesian Violets**.—There are several varieties of Violets in existence that bloom in September. One of the best has been obtained in my garden some six or seven years ago; it used to be quite blue with hundreds of flowers in April as well as in September, and it continued to bring forth plenty of blossoms till the snow covered

the plants in the winter time.—BARON VON ST. PAUL (President of the Horticultural Society of Prussia).

Lilies in the Grass at Castle Ashby.—Herewith I send examples of Lilies now growing and flowering abundantly in the ornamental parterres by the wayside walks in a semi-wild state intermixed with the purple Orchis. They will be all the more interesting to you, Mr. Editor, when I state that they were cut from plants growing upon a piece of ground—a little spot—which you on your visit to Castle Ashby some time back made a note of as being advantageously occupied. They grow under trees of great magnitude—consequently they are much shaded; in fact, I question if any other plant would accommodate itself to such treatment.—GEORGE BEECH.

. Specimens of the *Martagon Lily* in various forms, the creamy white one being very elegant. The shoots are a little less robust than those of the same kind grown in the open in rich beds, but they look the better for it, and are more graceful. The populous colony is a charming one, and illustrates the advantage of such practices in our often wide and half-waste pleasure grounds. It is, in fact, a better way by far of growing many a plant than the border way, because questions of culture or arrangement, of what is to go before or after, never arise, and the effect is a thousand times better than where these questions are considered.—ED.

Cyclobothra purpurea.—You have had twice sent to you lately blooms of a bulb not till this year very common. I allude to *Calochortus* (or *Cyclobothra*) *fuscus*. In all probability the bulbs were purchased at the same place where I bought some. I have the plants now in fine flower. Not finding in Mr. Baker's synopsis of the genus any variety under the name of "fuscus," nor yet in Pritzels index, I sent blooms to Kew, and Mr. Baker kindly identified them for me as *Cyclobothra purpurea*, figured in Sweet's "Flower Garden," ii., 20. I send you a bloom for inspection, as, in case I am right in my supposition, it is a pity the bulbs should not be sold under their correct name, instead of multiplying names in a genus not much known. It is a native of Mexico. You will see that the flower is not like that of *C. alba*, but more open. I have not a bloom of *C. alba* out, but I send one of *C. pulchella*, which is similar except in colour, and you can judge for yourself. While writing I am anxious to ask upon what principle the Royal Horticultural Society's committee award certificates. I see a first-class certificate is given to Mr. Ware for *Milla biflora*. Three or four years ago I sent a fine pot of it to the committee for inspection. It was rarer then than now. My plant was not even noticed—still less certificated. How happens it that it should be so now?—A. RAWSON, *Widmermere*.

. The synonyms of the plant in question are *Calochortus purpureus* (Baker), *Fritillaria purpurea* (H. B. K.), *Cyclobothra purpurea* (Sweet's "Flower Garden"), *Calochortus Bonplandianus* (Schult. fil) *Cyclobothra propinqua* (Schauer).—ED.

Dwarf Scabious.—Now that the superior merits of the Scabious are more generally recognised than formerly, and also its effectiveness for decorative purposes, it is rapidly and deservedly rising in public estimation. Few plants are so amenable to general culture; it grows well and luxuriantly either in pots or planted outdoors. It is in fact so hardy as to withstand mild winters in the borders here, flowering profusely, and coming up freely in the spring, thus showing that anything in the shape of coddling in its treatment is undesirable. To secure a compact habit of growth, seedling Scabious should be kept near the glass and given air freely; if this is not strictly attended to, I find that the young plants are liable to run up rapidly and weakly. The best time to sow the seeds depends greatly upon what is wanted. If for general decorative purposes in moderately small pots, I find seed sown about the end of February to answer best for the first batch, and also for planting out in beds, where it is so effective, and where it so pleasingly contrasts with

the ordinary run of its associates. For winter flowering in pots the seed should be sown about the middle of July. For general purposes the dwarf varieties are to be preferred, and they should be sown in distinct colours. Last year for winter flowering in the conservatory here we had large and small varieties, potted in 9-inch, 10-inch, and 11-inch pots. They grew remarkably well, and produced throughout the winter a profusion of elegant and richly-coloured blossoms, which stood fresh for months and were very serviceable for cutting from. Several of these plants we planted out on a sheltered border, where they have grown freely and produced blossoms of a quality superior to that of any I have before seen. The planting out of doors in rich soil of the old plants I can strongly recommend to all who have to supply cut flowers. The Scabious is certainly a great acquisition for decorative purposes or for cutting from, and it may be had in flower all the year round.

—G. WESTLAND, *Witley Court, Worcestershire.*

NEW PAN SUSPENDER.

THE accompanying illustration represents a contrivance invented by Mr. F. Sander, of St. Albans, for suspending small shallow pans, instead of the usual way of suspending them by means of wires



New Orchid pan suspender.

attached to three holes in the rim of the pan. The contrivance is at once simple and effective. It saves a deal of labour, presents a better appearance, and is better in every way for the plant contained in the pan than the plan ordinarily adopted. It consists of a circular disk of sheet zinc, cut in sizes so as to fit exactly the bottoms of the various sized pans; in the centre of this is soldered a piece of stout galvanised wire with a hook at the top for hanging on the wires under the roof. This hooked wire is passed through the base of the pan, and the potting compost is placed around the plant afterwards. The disk is made concave, so as to hold a small quantity of water; consequently the plant does not dry up so much as when no provision of this sort is made. Apart from the benefit which the plant derives by having such a contrivance for holding water, the pans have a neater and tidier appearance, as they hang level and all at one height, which is rarely seen under the ordinary plan; besides, the trouble of making all the wires the same length is obviated, and the plant hangs freely without the danger of the leaves becoming injured by rubbing against the wires, as is often the case with Phalenopsis and similar plants. Messrs. Sander & Co. have adopted the use of pans thus suspended on an extensive scale, and at their nurseries at St. Albans may be seen thousands of Orchids suspended in this way. Though used chiefly for Orchids, these suspenders are also well adapted for pans or pots containing other classes of plants.

NOTES.

SAXIFRAGA PELTATA.—This great-leaved Saxifrage is well worth noting as a noble foliage plant easily grown on moist rich soil. It has peltate leaves well-nigh a foot across, of a deep green colour shaded with bronzy red, and, forming, as it does, a bold mass, is well adapted for grouping along with the Rheums, Plantain Lilies, and other hardy foliage plants of similar habit. It is easily increased by division just as it commences its growth and after it has flowered in the spring.

*

THE QUEEN OF THE PRAIRIES.—One of the finest of all robust perennials where it does well is this *Spiraea venusta*, which is just now throwing up its feathery spray-like masses of rosy flowers. Here it does well alike by the damp pond margin and also in the open border, where it is a fit companion to the rosy *Spiraea palmata* of Japan. It is readily increased by division in the spring, and when grown in large masses its clusters of rosy buds are very beautiful when cut and arranged indoors. We have it now in bloom on a sunny border near the common white Lily, with which it contrasts most beautifully.

*

THE SILKY LADY'S MANTLE.—“There groweth a silken leaf with a silvery or satten lining,” saith an old author, and the description is so apt that it must needs apply only to the leaf of *Alchemilla sericea*. I make bold to praise this variety, seeing that the common Lady's Mantle (*A. vulgaris*) hath recently been exhibited (and rightly so) at South Kensington as an ornamental plant worthy of culture. I have so grown it, indeed for some years having fallen in love with it in the “north country” years ago, albeit that the sheep-herds there (shepherds, we say nowadays) persistently blame it for its disastrous effects upon their flocks. The Silky Lady's Mantle, or Silk Leaf, however, is *A. sericea*, and its leaves are so pretty and endure fresh and fair so long in water indoors, that we use them largely, and have given the plant also to many of our friends who are in favour of grouping hardy foliage only along with their hardy flowers.

*

ORCHIDS ON THE GRASS.—On moist parts of the lawn under Pine tree shade and beneath the Plane trees one of the prettiest of native Orchids—*Gymnadenia conopsea*—is now flowering quite freely, and we have thought of assisting Nature a little by scattering the seeds or planting the tubers of other of the showy native species in similar positions. As a rule, Orchid culture in beds or borders of bare earth, whether peaty or loamy, is a failure, and, seeing that they naturally exist amongst other herbage, it seems feasible to infer that they prefer company to solitude. Some years ago, I remember, when Mr. Duncan was hardy plant foreman at Kew he grew many European Orchids very successfully, and he attributed his success to allowing the Grass which came up from the earth around the roots to remain undisturbed. Even epiphytal Orchids like a surface growth of Sphagnum around their roots. The adoption of it in their case is found to be beneficial; therefore we infer it might prove to be so for terrestrial kinds also. The only Bee Orchis which flowered with us this year, the third season after planting, came up in a pot which a great yellow Rag-weed had apparently monopolised. From what I know of terrestrial Orchids in Nature, as contrasted with those under cultivation, I am led to infer that we shall succeed with them much better on moist, grassy lawns than in bare borders.

*

A NOBLE LILY.—Nearly three years ago I was tempted to give five shillings for a bulb of *Lilium Browni* about the size of a Walnut, and it is now in flower for the second time. It is a noble flower, the snowy face of the petals being intensified by contrast with the purple suffusion behind the flower. Of all Lilies of the *L. longiflorum* race I think it is the most distinct. We have it planted on a light, warm, sandy border in full sunshine

among *Gladioli*, *Ixias*, *Alstroemerias*, *Irises*, and other flowers. On the same border we have had *L. auratum*, 7 feet high, bearing twelve glorious blooms. Another noble variety is our *Duchess Lily*, *L. Isabellinum*, which is just now high on 6 feet in height, with ten or twelve buds on a stem. I wonder this Lily is not more often planted, seeing that it is one of the stateliest and best when well grown. In colour it is quite unique amongst flowers, and a good clump of eight or ten wand-like stems produces an effect among glossy-leaved *Hollies* or *Rhododendrons* not easily described, unless it be on canvas. This last is one of the very few Lilies which does well for years undisturbed if once well planted in a suitable position.

*

THE GOLDEN NUGGET is just now one of the most distinct and effective of all our composite plants. Its Latin name is *Balsamita grandiflora* (*Plagiis grandiflorus*), but it appears far from common in gardens generally. Here it grows from 3 feet to 4 feet in height, its golden disks being about 2 inches in diameter, borne singly on the apices of stout stems. It is perhaps the most showy of all composite plants, having disk florets only, and deserves culture wherever showy plants of botanical interest are appreciated. It is readily increased by seeds, and we find seedling plants by far the most boldly vigorous and effective.

*

DOUBLE WHITE BELLFLOWER.—The double white variety of *Campanula persicifolia* is so beautiful and so well known, that one need scarcely recommend it, but *C. persicifolia calycina* is as, I think, quite as beautiful and not nearly so well known. It differs from the ordinary single white kind in having a white calyx, not unlike the cup-and-saucer varieties of the Canterbury Bell. We find it a good border perennial and very useful, as affording a plentiful supply of flowers for cutting.

*

THE MARTAGON LILY.—A very sensitive friend of mine in his expression of dislike to a mutual friend (a lady) could urge no greater charge against her than that she had spelt Lily with three l's instead of two. But I find “Lilly” is the old form of the word. Parkinson (1629) so spells it repeatedly, and the pet name of some ladies, of one especially, is Lilly, or Lillie still. Indeed, as an old friend, fond of a joke, used to say, the spelling of all names in one particular way shows a sad want of originality, to say nothing of the restriction of that variety which is generally acknowledged to be charming. What I want to say, however, is that quite recently I have been much interested in the many distinct varieties which exist of the old Martagon Lily. In colour it varies from pure white, through all shades of reddish purple, to nearly black. Yesterday I came across a form with branched flower-stems, the branches being arranged like the branches of a candelabrum near the apex of the flower-stem. All the forms are useful, growing as they do in almost any soil and climate, and forming good strong clumps which flower regularly every year without any particular care or attention.

*

CANADIAN OR MOONSEED CREEPER.—Those who desire a fresh green, quick-growing plant for a sunny wall, dead tree, or for rustic trellis work might do worse than plant *Menispermum canadense*, which bears soft green heart-shaped leaves and little drooping spires of pale green blossoms.

*

RHEUM EMODI is just now very effective, rivalling *Gunnera scabra* in its vigorous growth. From its great red-veined leaves its branched flower-spikes stand up erect, and are quite 7 feet in height. It is a noble plant for massing on the closely-shaven turf, or for a deep rich border where it can be contrasted with *Thalictrum medium*, the soft yellow flowers of which contrast well with the red flower-stems of the Rheum. Another ornate kind is *R. palmatum tanguticum*, with its large, elegantly-cut or lobed foliage. Here with us it grows most luxuriantly under trees in good

rich soil, the leaves so grown being larger and of a fresher colour than those on plants fully exposed to the sunshine. VERONICA.

NIAGARA FALLS:

THE IMPENDING RUIN OF THEIR NATURAL SURROUNDINGS AVERTED.

READERS OF THE GARDEN who have visited this great cataract in recent years, and those who have read recent descriptions of the present condition of the place, have doubtless been pained to know that this celebrated spot, long unsurpassed for its native grandeur, was gradually becoming desecrated by the vandal interests of business and commerce. The graceful woods and charming shrubbery which in the past so appropriately framed the mighty picture have gradually been cleared away, and factories and mills and other equally undesirable buildings have been allowed to take their place. The pebbly shore, the delicate Ferns, and trailing Vines have been replaced by a blank stone wall and other unsightly objects, all conspiring to destroy what Nature designed should remain as one of the greatest and grandest beauty spots of earth; and the place was rapidly becoming odious to many and shunned by thousands. The great Falls themselves plunged madly, grandly on, as they have for ages of course. Man was unable to touch them. But the varied natural attractions on every side were being debased and destroyed, and demoralising allurements of a vulgar character were fast creeping in. In addition to this it has been impossible for any visitor to obtain a view of the Falls from the American side without payment of a fee. Such, in brief, is the condition to which this magnificent spot has obtained of late, and English and other foreign readers may well enquire into the intellectual conditions and atmosphere of a country that permits such things. It is, however, a pleasure to say now that this progress of ruin has at last been arrested. The State of New York, which shares with Canada the possession of Niagara Falls, has laid its finger upon the evil, and proposes to wipe the disgraceful stain from her escutcheon. A commission has been appointed with power to purchase from the various private owners sufficient land bordering on the Falls and river on the American side to preserve the place from further desecration. This will include the islands above the Falls and a strip of land running from the head of the rapids down to the upper suspension bridge, bounded by the crest of a natural terrace about 100 feet from the water, except at the Falls, where a much larger area will be secured. The factories and buildings will be removed, and all other unnecessary artificial objects, and the entire original natural landscape conditions are to be restored as far as possible. Everything that is likely to interfere with the observation, contemplation, and enjoyment of the great natural spectacle is to be rigidly excluded from these State grounds, which will command the entire view. It is thus proposed not to fence in the Falls, but to fence out the debasing ugliness that has been continually creeping in. No fees or money will be required to see the Falls or the surrounding scenery.

The commission has already entered upon its work, and it is to be hoped a speedy and full consummation will result. May the environment of Niagara be for ever in consonance with the wondrous picture. I ought to add, in conclusion, that I believe for this step toward the rescue of Niagara the world is largely indebted to a few of our intelligent and public spirited journalists of this and other States, who have urged our people on to duty. Let them, therefore, have the credit they do not always get. H. HENDRICKS.

Kingston, N. Y.

Prices of produce in Covent Garden.

—One or two correspondents have lately been writing about the low prices they get for produce sold in the market. Well, as one has said, "we shall not obtain more money for our produce un-

less the middle man is content to take less." This, I think, he could easily do. I sent up in June last twelve dozen of Gloire de Dijon and Souvenir de la Malmaison Roses—all good buds just beginning to expand—and the price they realised was 5½d. per dozen (so wrote the salesman), while at that time the lowest prices quoted were 2s. per dozen, which leaves a pretty handsome balance in the hands of some one connected with the trade. Such a price as 5½d. per dozen scarcely does more than pay the carriage, and it is only those who live in the London district who can make market gardening pay.—C. B.

ENGLISH PLANT NAMES.

"J. S." states (p. 576) that he finds "popular names cause a deal of confusion," but if such were really the case, English names would not be so popular as they now are. Besides, if "J. S." really knows aught of the birth, growth, and history of Latin or scientific names, he must have very vivid glimpses of confusion in their case also. If the name Bronze Leaf "puzzled" "J. S.," he should not forget that the Latin name *Rodgersia podophylla* would prove equally puzzling to many others, even if not so to "J. S." himself. The application of all names, be they English or Latin, popular or unpopular, is always a "matter of taste" or of judgment, whichever it may be called. The acceptance or rejection of names of all kinds, to a certain extent, also comes under the same rule. The botanists try to overcome public opinion by a rule that when once a name is given to a plant and a description of the plant published, then that name is, like the law of the Medes and Persians, unalterable. While agreeing with this rule for expediency, I say that a bare description in words "is not sufficient, and my own opinion, or taste, leads me to say that no description of a plant is so generally intelligible as a good figure of it; therefore I hold no plant to be properly and rightly described unless a good and true figure of it is associated with the description. I have read a good deal of gardening literature, and have never yet met with any passage arguing the use of English names to the total exclusion of Latin ones. "J. S." says (p. 576) it is not unreasonable to expect every amateur gardener to learn Latin names for all the plants which he grows in his garden; "anyone who grows plants for pleasure will think it no trouble to acquire a knowledge of their Latin names." Now, if this be true, it follows that all who grow plants for pleasure do know their Latin names, but that is, I need scarcely say, contrary to fact. One of the most potent reasons why scientific education does not prosper more than it does is because it is overweighted with mere verbiage. Of all the stumbling-blocks in the highway of popular science, long-winded pedantry is the worst. All really great men—the greatest orators, the most popular preachers, the ablest of professors, are those who use the simplest words and phrases. The best of teachers are those who can describe things in language which the student can readily comprehend. Prof. Henslow could teach village school children botany, so simple and apt were his words and mode of instruction; and Ruskin can lecture to a mixed audience on art without the technical jargon of the critics, which really teaches less than it confuses. It has repeatedly been stated in THE GARDEN that Latin names are freely granted to all who wish to use them, but English names are, moreover, necessary for the large number who grow or admire plants, and wish to speak of them, but who do not know, and will not learn, their Latin names. I need not repeat that there is not a single variety amongst the thousands of kinds of fruits and vegetables grown in our gardens that is not known by an English name, and yet there is no confusion. Why are Latin names supposed to be necessary for common garden flowers when garden fruits and garden vegetables are clearly and definitely recognised without their aid in any way whatever? The fact is, all common garden flowers have good English names, used by botanists and gardeners alike. Of such are Pansies,

Honesty, Canterbury Bells, Foxgloves, Stocks, Wallflowers, Snapdragons, Sweet Peas, Everlasting Peas, and Mignonette, names used by everyone almost unconsciously. My own view is that all plants should have both Latin and English names. I say this because I have had considerable experience in public gardens frequented by the most intelligent of visitors, and by them the English name is quite commonly asked for after the Latin name has been told them. Hence it is evident that English names are in demand, and it is a want that must be supplied. LEX.

FLORA OF THE SOUTHERN ALPS.

TO THE EDITOR OF THE GARDEN.

SIR,—Knowing your fondness for anything relating to alpine flowers, I send you the following account of a recent trip which I made to the Southern Alps. Our ranges are inconceivably rich in plants unique in character, and we are but just breaking into the grand floral treasures of Nature. We are now organising an expedition on a larger scale to the habitat of the *Ranunculus Lyalli*, our mountain Lily. The following reference made by the *Canterbury Times* to our collection may be of interest:—

"Messrs. Adams have just received a representative collection of many genera of southern alpine. It is like a breath of the sweet mountain air to enter the house in which this collection of floral gems is arranged. The aromatic perfume which emanates from the plants has been traced to *Celmisia viscosa*, which, covered with a resinous gum, gives off a powerful odour like that of the Sweet Brier and Pine woods mixed. There must be about 500 plants from the mountains in the batch collected from various altitudes up to 6000 feet. Perhaps the most striking in form are the *Celmisias*, represented by seven species, from the deep green *C. spectabilis*, through intermediate forms resembling the crown of a Pine-apple to the tiny *C. laricifolia*, which is found near the snow line. Bathed in almost perpetual fog, these *Celmisias* present some difficulties to the cultivator, but as they are hardy plants, and apart from their large Aster-like flower, are very distinctive in appearance, they will no doubt soon find their way into our gardens. The Buttercup family is a large one, and many beautiful and unique forms are scattered about our ranges. One of the herbaceous species is *Ranunculus pinguis*, which will probably be found an easy subject under artificial culture. There are specimens of our New Zealand Edelweiss, but only one patch was met with. There are two kinds of Gentian, but the flowers do not possess the lovely blue tint of the European varieties; the flowers are like Snowdrops, and they are constant and abundant bloomers. *G. pleurogynoides* and a smaller form are in the collection. *Gaultheria antipoda* was found in large patches covered with its snowy berries, which are sweet to the taste and smell like gin. They may be termed the New Zealand Bilberry, and ought to find their way to the jam pots of the rising generation. The lovely *Cyathodes Colensoi* is another berry-bearing plant; the leaves, like those of a miniature Heath, have a bluish green colour, difficult to describe. *Ourisia caespitosa*, a charming dwarf plant, carpets the shingle slopes with its lovely green leaves, and bears comparatively large white blooms. The Spaniard, or Spear Grass, of the plains is familiar to many, but not the alpine forms, which in some respects are like miniature Fan Palms, and would delight the heart of a Japanese gardener.

"The mountain Forget-me-nots, of which there are eight species, and two of the allied genus (*Exarrhena*) are only represented by one species, the locality where these favourite plants grow not having been reached. One or two species of the herbaceous *Senecios* were found, and these will soon adapt themselves to cultivation at a lower elevation. Two or three of the shrubby species of *Pimelea*, if successfully established, will be acquisitions to our flower borders from their neat Epacris-like foliage. Specimens of the curious *Pozoa hydrocotylifolia*, with its small succulent

leaves, were collected; this will make a good pot plant. There are also plants of the New Zealand Bluebell (*Wahlenbergia Saxicola*), Violas, and two small species of the deadly Tutu. The shingle slopes were diligently searched for that rare botanical curiosity *Notothlaspi notabilis*, but not even a plant of the more abundant species *N. rosulatum* was met with.

"The collectors had an uncomfortable time of it. Camped on the side of the mountain at an elevation of 3600 feet, they were constantly drenched with the drizzling rain and fog which prevailed during the three days they remained. Beyond the visits of the native robin and of the nefarious weka, the solitude of the mountain was unbroken."

P. G. ADAMS.

PEAT MOSS LITTER.

5025.—"M. F." asks if this is good for Rhododendrons, or for rockery plants, or a hardy fernery. Well, I have not tried it for these purposes, simply because I do not find manure necessary for any of them; but I have used it lately in a variety of ways, and will briefly relate my experience. In the first place, I may state for the benefit of those who may not have had the chance of seeing this somewhat novel kind of litter, that it is sent over to this country packed in large bales of 3 cwt. or 4 cwt. each, fastened together with strips of wood somewhat after the fashion of compressed hay, and quite as dry, in flakes of considerable size; but when spread out for use it very much resembles old spent tan that has been used for a year or two in a Pine pit. It is used largely in stables and in loose boxes, and being dry it is very absorbent. As to the exact manurial value of the Moss itself, I cannot give an opinion, but when thoroughly saturated and mixed with horse manure it becomes valuable and fit for use at once, being short and fit for potting or top-dressing, without any trouble as regards fermenting and rotting; in fact, it is a heat-giver and stimulant, as well as useful for mixing with soil. I have struck soft-wooded cuttings in it. When mixed fresh with soil, it quickly produces a genial, lasting heat, and the roots run into it rapidly. By way of experiment I potted some *Coleus* in it without intermixture with soil, and they grew luxuriantly; but it is as a top-dressing that I like it best. Having a house of Cucumbers with very limited space for soil, I covered the roots with 2 inches of this material, and they quickly showed their appreciation of it by filling it with white thread-like roots and growing and fruiting freely. In the kitchen garden I have used it for Peas, Beans, Potatoes, and the usual run of garden crops with good results in every case. For bedding plants we use no crocks, but put a handful of this manure in the bottom of the pots, and plants of all kinds revel in it. I am now applying it as a mulching to both inside and outside viney borders. I just loosen the surface, and then cover with it, finishing off with a thorough drenching of water to carry its manurial properties down to the roots, and then it prevents evaporation.

I may add that in the kitchen garden I find more abundant scope for the use of this or similar kinds of manure now than in winter. Our soil is very light, and it does not pay to bury manure in it deeply; on the contrary, it gets down into the gravelly subsoil quick enough if spread on the surface. As we have the land always under crop, and frequently inter-cropped or double cropped, most of the manuring has to be done in the shape of top-dressing. For instance, land now occupied by Potatoes and Peas has already intermediate lines of Broccoli, Savoy, or Winter Kale; when the Potatoes are lifted a coating of this short manure will be spread on the surface and hoed in with a prong-hoe. Celery is a crop for which this manure is well suited; a good layer of it in the trench affords the roots gentle warmth, and otherwise promotes growth. It would indeed be difficult to enumerate the uses for which this stable bedding may be employed; everyone who has had to do with light, dry land knows the value of mulching in keeping the roots near the surface. This is

the secret of successful cultivation as regards light, dry, and naturally poor land. With abundance of this manure and a good supply of water, there is really no difficulty in growing good crops on land that has but recently been considered not worth cultivating. In poor soil plenty of roots are made; supply these with soluble food, and a good crop is certain to be the result. J. GROOM.

Gosport.

FLORISTS AND THEIR FOIBLES.

I HAVE not hitherto taken part in this discussion, but as misrepresentations have been made, it becomes a duty to put matters straight. "Peregrine" (p. 410, Vol. XXIII.) says of the "National" shows of the Auricula Society that "its members number very nearly half a dozen individuals." That is a misrepresentation, wilfully made, because correct information on the point could easily have been obtained. The subscribing members of the Auricula Society (southern section only) number fifty-four. If the Carnation and Picotee Societies are included, the subscribing members are eighty, the amount subscribed, including £30 from the Royal Horticultural Society, being £195 5s. 6d. Besides these, many persons who cannot afford to subscribe are interested in the work. Surely, societies aided by the Royal Horticultural Society, because of the good work they are doing, cannot be of the character stated by your correspondent. "Peregrine" now accuses Mr. Tymons of misquoting what he wrote; that is really not the case, because at page 489 Mr. Tymons quoted correctly the words used at page 445, and on that correct quotation the question was founded. "Peregrine" knew this, but it answered his purpose to accuse Mr. Tymons of misquoting when he had done it inadvertently after the discussion, so far as Mr. Tymons was concerned, was ended. "Peregrine" now tries to prove his case by a modern history of the Carnation and Pink. It is incorrect to say that Messrs. Veitch, of Chelsea, or any other firm have accomplished more in their nursery than Messrs. Dodwell, Barlow, Horner, or even, in a smaller way, I have done. Like Mr. Turner, of Slough, Messrs. Veitch grow a thousand plants for trade purposes where an amateur grows ten only. Messrs. Veitch are subscribing members of the Carnation and Picotee Society. They grow in their nursery at Chelsea the same varieties of Carnations and Picotees that we grow in our garden; they exhibit at the National Show in the same way, and every one of the Carnations and Picotees grown at Chelsea are the result of the labours of the florist. The same may be said of the Pink; but I prefer to ask your correspondent this question: Who are the persons who have raised this new race of Carnations and Picotees? And, further, may I be permitted to ask "Peregrine" to give a list of varieties of the Carnation and Pink that have been raised since the work was taken out of the hands of the "rigid" florist? There seems to be a great work going on somewhere, and doubtless it would be interesting to know who are the people who are conducting it, and where the result of their labours is to be seen. It answers Messrs. Veitch's purpose to plant large beds of one variety of Carnation or Picotee in their nursery, because they require perhaps four or five thousand layers of one sort. But were not all these self-grown by Messrs. Veitch raised by florists? and have they not a place in the National schedule? Let me ask, moreover, are Messrs. Veitch raisers of Carnations or Pinks? and if so, what sorts have they raised?

Great Gearies, Ilford.

JAS. DOUGLAS.

Travelling plant dealers.—Mr. Groom (p. 24) has done well to caution the public against buying Carnations and other plants of dealers who only stay for a short time in one locality. I bought half-a-dozen Carnations and Picotees myself last April in Worcester of a truck in the street, presided over by a young woman, who offered half-a-dozen for 3s., but as I said I did not particularly want them, she quickly said, "Take them for half-a-crown." I did, and the result is in the case of

three which have opened their blooms, one is a dirty white, two are of a rose-pink colour, and all are single. From what I can see of the others they will doubtless turn out the same. This is the first time I have purchased plants in the street, and it will be the last.—W. H.

ORCHIDS.

ANÆCTOCHILI AND THEIR CULTURE.

ALTHOUGH *Anæctochili* attain a height of only a few inches, and in this respect are insignificant, compared with many of the noble fine-foliaged plants now in cultivation, they may nevertheless be justly termed the gems of the vegetable kingdom, so exquisite is the network of veins which cover their leaves. *Anæctochili* are found in both the eastern and western hemispheres, but the kinds which possess the richest leaf colouring come from the east, the silvery veined sorts in most cases belonging to the west. Unfortunately, *Anæctochili* generally are found difficult to cultivate; though they can often be increased and made to grow well for a time, yet it not unfrequently happens that they sicken and die off, even in the hands of those who have been most successful with them, and this without any change in their treatment or remission of attention, facts which point to something wrong as regards management. The flowers that *Anæctochili* produce are insignificant, and on that account no one cares about them. Therefore, in place of subjecting the plants to alternate periods of growth and rest, as in the case of other Orchids appreciated for their bloom, they are generally pushed on to make growth so as to increase their numbers as quickly as possible. For a good many years I grew all the best varieties in a house that could not be kept higher than 60° at night during winter, and from a small stock I soon had pans of *setaceous*, *Lowi*, *xanthophyllus*, and others, 16 inches across, filled as full as they could hold with plants unusually strong, but as soon as I gave them more warmth in winter, and consequently less rest, they failed to do so well.

PROPAGATION.—They are increased by cuttings made from their fleshy stems, which should be cut into pieces consisting of one or two joints each. Divide the pieces midway between the joints—not at the joint, as in the case of most other plants. They may be propagated at any time during spring or summer, but propagation is best carried out before growth commences, about the end of February. Sphagnum chopped fine, three parts to one of fibrous matter from good Orchid peat, with some sand and small crocks or charcoal, is the best material in which to grow them. Three-inch pots, well drained, and filled with this compost, will hold two or three cuttings, the roots of which, if there be any, should be inserted in the soil, pegging the pieces down horizontally, so as to almost imbed them in the compost, which ought to be pressed moderately firm and kept slightly moist, but not too wet. The little pots should be plunged in a larger pot or pan in a mixture of Sphagnum and sand, covering the whole with a bell-glass, which should be kept tilted half an inch or so to admit some air. They should be placed where there is plenty of light, but shaded from sunshine if at all powerful. A night temperature of 65°, with an increase of 10° in the daytime, will be sufficient until the sun gets a little more power. In a few weeks the buds will start, and soon form shoots and small leaves; give water so as to keep the soil in a slightly moist condition, and in May increase the temperature at night to 70°, letting it run up to 80° or 85° in the daytime. It is a good plan to wipe the moisture from the inside of the glasses daily, as its removal lets in more light, an important matter as regards giving strength and solidity to the young growth; for although *Anæctochili* will grow fast in a semi-darkened place, the growth thus made is unsound. A position close to the upright glass, either at the front or end of the house in which they are grown, is best calculated to keep them healthy, but they must not

have a current of cold air admitted near them, such as would happen if a light opposite to where they are placed was opened. The length of time it takes to produce full-sized crowns from cuttings like those described depends upon the strength of the plants from which the cuttings are made; if the stems are thick, the young plants will make four or five leaves before autumn.

THE SUMMER TREATMENT is simply a continuance of that just recorded. When in full growth they should, however, have more water, but they should never be allowed either to get too dry or too wet. In giving water, if any rests on the young, unfolded leaves, it is well to blow it off them. About the middle of September reduce the temperature to 65° at night and proportionately during the daytime, shading only when the sun is bright. In the last two months of the year and two first of the ensuing one 60° at night will be sufficient, allowing 6° or 8° more by day. When possessed of a fair amount of stock, instead of cutting the plants up into pieces, as has just been recommended, be content with severing a joint or two from the base in the spring just before growth commences, at the same time removing the plants into fresh material if the old seems getting too much decomposed. In this way large pots of handsome full-sized crowns can always be had, and the stock increased as well. Whenever the plants show signs of flowering, cut the bloom-spikes out as soon as they can be got at, as removing them strengthens the plants.

The following are some of the most handsome and distinct kinds, viz. :—

SETACEUS.—A free-growing species, with dark reddish brown velvety leaves covered with a network of transparent golden veins. Ceylon.

SETACEUS CORDATUS.—A form of the above with deeper coloured veins. Java.

XANTHOPHYLLUS.—A very distinct and handsome sort, which, in addition to the veining, has a broad band of lighter colour running down the middle of the leaves. Ceylon.

INTERMEDIUS.—A strong growing kind with handsomely marked foliage, not quite so bright in the veins as setaceus. Java.

LOWI.—A large-growing distinct species, and very handsome. It forms very large, broad, velvety leaves of almost a black-green colour, beautifully relieved by light green veins. A slow grower. Borneo.

LOWI VIRESCENS.—A distinct form, with paler coloured leaves. Very beautiful. Borneo.

LOBBI.—A scarce sort, that forms large leaves of a deep ground colour, charmingly relieved with light veins. Java.

IMPERIALIS.—A very fine kind, the leaves of which are pale olive-green, with light coloured veins. Java.

DAWSONIANUS.—A strong, erect-growing plant, with very dark leaves. Distinct in habit. Malacca.

ARGENTEUS.—Very distinct from the golden-nerved kinds. It has pale green leaves, netted with silver veins, glistening like frozen dew. Brazil.

ARGENTUS PICTUS.—Like argenteus, with the addition of a pale silvery band down the middle of the leaves. Brazil.

INSECTS.—Green fly sometimes affects *Anæctochili*, getting on the under sides of the leaves. Immediately its presence is detected fumigate with Tobacco, repeating the application until all are destroyed. T. B.

Orchids from Fernfield.—Dr. Paterson has sent us from Bridge of Allan a few specimens of Orchids. Amongst them are flowers of the lovely *Vanda teres* and its variety *Andersoni*, which is at once distinguished from the type by its much deeper and richer colour. Dr. Paterson has had a spike of this lovely variety carrying ten blossoms which have been in perfection for about two months. Would he be so kind as to favour our readers with his experience respecting the culture

of this Orchid which most people fail to flower successfully? From the same collection come flowers of the singular *Nanodes Medusæ* cut from a large specimen bearing five spikes each with a pair of blossoms. There is a weird kind of look about these flowers, the dull vinous purple tint of which, though not showy, is so distinct among Orchids as to render this plant worth growing. Some flowers of a distinct (possibly new) *Thunia* are also sent. They are about the size of those of *T. Marshallia* with pure white sepals and petals, and with a golden yellow labellum. We do not remember having seen this species or variety before.

MASDEVALLIA TRIDACTYLITES.

THIS singular little Orchid which Professor Reichenbach designates "a most lovely little gem of the lovely *Triaristella* group," is one of



Masdevallia tridactylites.

those quaint and pretty things which, without having any pretension to being showy, never fail to attract more attention and admiration than many of their handsomer brethren, and, like its ally *M. triaristella*, it will not fail to find its way into most of our best Orchid collections. This Orchid with its semi-terete channelled leaves grows into a compact tuft, the flowers being produced in great profusion, their neat arrangement adding much to the charms of the plant. The lateral sepals are brownish purple, the upper one yellow, and each of them bears at its apex a blunt orange coloured tail. The small petals are white, lip white and purple and column purple. *M. tridactylites* is a cold house plant. The accompanying representation was prepared from flowers and leaves supplied by Mr. James O'Brien, Harrow-on-the-Hill, who possesses several plants of it.

Cattleya Sanderiana.—I send a flower of this *Cattleya*, which, I think, leaves little to be desired either as regards colour, size, or substance. This *Cattleya* is now blooming here for the first time. I purchased it in June last year from Mr. Sander, of St. Albans.—HUGH J. SCOTT, *Ashfield House, Ballynaveigh, Belfast*. [A very fine *Cattleya* indeed, fully 8½ inches across; the sepals and petals are a rich deep mauve-pink; the lip, just

upon 3 inches across, is an amethyst-purple blotched with yellow.]

INTERVIEWING AN ORCHID HUNTER.

I WAS introduced to Mr. —, a very successful plant collector at a friend's house the other day, and, remembering the injunction about "gathering Roses" when one may, and something about haymaking when the sun is shining, I made friends with him at once. He is a strongly-built man, of forty-five perhaps, rather above medium height, with piercing eyes and dark hair and beard. The company were on the lawn and amongst the Roses, and so I handed him a cigar with the remark, "Been on the Andes, I hear?" "Thanks; yes."—"Mining business good now?" "In some parts, yes; but I was collecting Orchids, not silver."—"Ah; Orchids, valuable things now; good as gold, eh?" "Well, you see the thing has been overdone a bit lately; buyers are getting very cautious, and only the really good kinds pay."—"Were you up the Amazon?" "On the Magdalena, Bogota, Pamplona, Frontino, Ocaña."—"Many good things in Ocaña?" "Yes; *Odontoglossum Pescatorei*, *O. triumphans*, and *O. Phalaenopsis* are among the best."—"Any bad species?" "Yes; *O. Lindleyanum*."—"And where is Ocaña? On the Western Andes?" "Oh, no; on the eastern Cordilleras. On the western side, near Frontino, *O. Phalaenopsis* is replaced by *O. vexillarium*, *O. Roezli*, and *O. Warszewiczii*."—"And is there much variety among Orchids of the same species abroad?" "Oh, immense! You see they all come from self-sown seeds and vary as much as Chinese *Primulas*."—"Do they hybridise abroad?" "Now and then only a few hybrids occur between *O. Pescatorei* and *O. triumphans* or *O. Lindleyanum*, but between *O. Alexandrae* and *O. gloriosum* there are many seedling forms; the *Cattleyas* are, however, really the most variable, and no doubt intercross naturally more frequently than most Orchids."—"Where did you find *Cattleyas* most plentiful?" "On the Western Andes—Ibague, for example—where *C. aurea* and *C. gigas* are found, and near where *C. Trianae* exists in great variety."—"And you think this extreme variety due to cross-breeding?" "Certainly."—"And what is your opinion of their specific names?" "Well, I am only a collector; my botany is of a very practical kind, but one might just as reasonably make species of the varieties of British Ferns or of the seedling varieties of florists' flowers as of these wild seedling *Cattleyas*."—"Where do you collect *O. Alexandrae*?" "In Bogota."—"Is it a mountain district?" "Oh, yes. *Odontoglossums* and *Masdevallias* generally are only found on the mountains at from 5000 feet to 10,000 feet elevation."—"Much rain there?" "It comes down in torrents. At Bogota there is always rain; even in what is called the dry season there are more or less of showers, and—what is nearly as bad—a thick, drizzling mist as thick as a London fog comes on at night, and drenches every leaf with dew. About seven or eight o'clock in the morning, or, say, a couple of hours after sunrise, this mist 'lifts'—rises, in fact, like a muslin curtain and floats away towards the mountain tops. Even as late as eleven o'clock a.m. my boys were drenched to the skin in five minutes after commencing their work of collecting amongst the trees."—"But I had thought these *Odontoglossums* grew on wet rocks." "Some do so. *O. coronarium* and *O. Londesboroughianum*, for example, and also *O. miniatum*."—"Are these rock-dwellers all found together?" "Oh, no. *O. coronarium* is found on dripping rocks on the Eastern Andes; *O. miniatum* apparently represents it upon the western side."—"Sun or shade?" "Both, but finest in the shade of thin, overhanging branches."—"At home?" "O. coronarium creeps for yards on the rocks, producing enormous pseudo-bulbs and large leaves, the branching flower-spikes being 2 feet high, and bearing from twenty to forty great glossy brown flowers."—"And which are the 'tree dwellers' or epiphytes among these *Odontoglossums*?" "O. *Alexandrae*, *O. triumphans*, *O. Pescatorei*, and others grow upon trees of all sizes, sometimes clustering along the branches quite thickly

just where the seed has fallen; at other times they occur solitary or in scattered groups. In some cases where odd bulbs or decayed portions of masses had been thrown away by former collectors I found them growing quite freely and making fine young growth as they lay loose upon the wet earth beneath the trees."

"Is *O. Alexandræ* found most frequently in sun or in shade?" "Well, of course the seed blows everywhere, and I always thought the plants were finest where overhanging branches threw a light, flickering shade over them at mid-day. I am sure that *O. Alexandræ* enjoys sunshine, and would like much more than it generally gets in English gardens, and also more fresh air, especially at night."—"Would you, then, recommend an *Odontoglossum* house to be unshaded in our climate?" "Well, no; you see a glass roof alters the case so much; but with a thin canvas roof I am sure they would enjoy all our sunlight and our chilliest of summer nights with a good syringing after sundown."—"Do the plants ever suffer in the dry season?" "No; the heavy dews at night always are sufficient to keep their foliage fresh and green, even if no rain should fall for a few days. That is why I have always recommended growers to syringe their *Odontoglossum* house at night, and to give more air than is generally done after sunset."

"Is there any fear of *O. Alexandræ* and other species being exterminated by wholesale collecting now that these Orchids are so fashionable in Europe?" "I think not; a collector can cover only a comparatively small area, and there are tracts of country to which even the native collectors will not venture."—"Oh, then you employ native labour in collecting?" "Yes, a European could do but little unless he purchased his plants by the thousand from the natives. Of course, if novelty is desired, the white man must search the forest or mountain until he comes across a new plant to his fancy, and then he makes a bargain with the natives for as much as he wishes to secure."—"Is that the rule in collecting, then?" "Yes; everywhere I have been, east or west, it is the same. In some places, as at Singapore, there is actually a sort of open market where *Phalænopsids* and other East Indian Orchids may be purchased, and in some parts of South America the newly arrived collector is pestered with natives desirous of selling him plants or of collecting them for him."—"Is it easy to collect the S. American Orchids—the *Odontoglossums*, I mean—from the trees, and how is it done?" "Sometimes by the lasso, a cord weighted at the end, thrown over and drawn along the branches on which the plants are growing; sometimes by climbing; while not unfrequently the whole tree is felled to the ground—a very destructive manner, since by this last method thousands of the smaller seedlings are sacrificed, and often for the sake of comparatively few saleable plants."—"Masdevallias, you told me, were common; are they also found on trees?" "Generally so, but also on the ground, also on wet rocks, or creeping up the moist bases of tree trunks. *M. ignea*, for example, is frequently found among the Grass and amongst rocks; *M. Harryana* affects low trees, and *M. Shuttleworthi* grows high up on trees also, although it is possible now and then to find a little colony or a single plant or two growing amongst the Grass or on rocks below. In St. Domingo, at 8000 feet or 9000 feet, *M. Gustavæi*, *M. bicolor* and its variegated-leaved form are found on dead or fallen trees. These may be the descendants of plants which fell accidentally, or which have sprung up from the *débris* of former collections. *Masdevallias*, as a rule, grow in a higher zone than the *Odontoglossums*—say at 8000 ft. to 10,000 ft. *Cattleyas*, on the other hand, are found at a lower level, or say at 4000 feet to 6000 feet; *Oncidium*s on ground or rocks and low trees at 5000 feet to 6000 feet, and one *Odontoglossum* (*O. Lindeni*) is not uncommonly met with on rocks, or even on the moist ground level, at 6000 feet also."—"Did you find *Masdevallia Veitchii* in Ocaña?" "Oh, no; it is a Peruvian plant, as is also the fine *Cypripedium caudatum*, but I found a strong-growing form of *C. Schlimi* in Pamplona and La Cruz in clefts of the rocks and in the water-courses,

where my men were up to their waists in water as they gathered it. This Orchid does not succeed well in cultivation, because it is grown too hot and too dry, and so becomes infested with yellow thrips. It should be deluged with water; indeed, I have seen it under the current frequently during the rainy season."—"Presuming that some parts of the country are more productive than others, what parts do you prefer when exploring for Orchids?" "Well, for cool Orchids, the mountains, of course, the most productive portions of which are always the gorges or gullies through which the water-courses run. Wherever possible to do so I follow the course of a mountain stream, or if that is difficult I make a point of 'striking' the banks as often as possible."—"And did you not find it difficult to get along in a country where only Spanish is spoken?" "Well, not so much as one might imagine. Boys, as they are called, who speak a little English as well as Spanish are common, and can be hired for a few dollars per month, and then collectors soon find it to their interest and comfort to learn Spanish, at least colloquially, as soon as possible. In exploring, local guides are necessary, and generally easy to obtain through some one in authority."—"Now answer me one more question, please. What made you turn an Orchid hunter?" "Well," my friend replied, smiling, "I was always hankering after 'going abroad,' and I thought I should like to see how the plants we cultivate so carefully really existed in a wild state. That was how I drifted into it; and, having no domestic ties, I liked the roaming life, and so have kept to it ever since." As he knocked the ashes from his cigar he added, "But it is rather a precarious existence sometimes, and I have had a few narrow escapes from fever and accidents which I should not care to undergo again. Ah," he added, "I wonder if English amateurs ever give a thought as to the real price their Orchids cost?" and he counted at least once or twice over his fingers such names as Bruchmueller, Zahn, Hutton, Klaboch, Endres, Chesterton, Freeman, and many others who have died in the race after Orchids. "And yet," he added, "there is Roezl alive and well after all his numerous journeys, and Tom Lobb is still hale and hearty in his Cornish home." F. W. B.

ORCHIDS AT CHELSEA.

WHEN the middle of July is reached, Orchid blooms, as a rule, become scarce; therefore we hardly expected to find Mr. Bull's Orchid exhibition, in the King's Road, Chelsea, so bright as it still is, or containing such a vast number of distinct species yet in flower as it now does. It is upwards of two months since his exhibition was first opened, and during the interval there has been, without intermission, a marvellous display of bloom. In our first notice of it we described it as lovely, and it is certainly as lovely as ever, and to the Orchid lover even more interesting, as it contains so many more species than it did then, though not the masses of particular kinds. The length of time during which the exhibition has been open tends to show the great value of Orchids as decorative plants, and the infinite wealth there is in the family. Those who visited the show in the early days of its existence would find now quite a different class of Orchids, though of some, such as *Odontoglossum vexillarium*, there is still a grand display, and of this particular species that lovely little late flowering variety, *Klabochianum*, is still in grand condition; everybody admires it, not so much for the size or form of its flowers, as for their intensely deep rose tint, which is unsurpassable in all the wide range of varieties of this Orchid, now becoming so multiplied. There are some lovely little groups of *Klaboch's* variety intermingled charmingly with Maidenhair Ferns and other greenery. Other remarkable forms of *O. vexillarium* at present in perfection are the bicolorous *Cobbianum*, also one nearly pure white, and one remarkable for the large size and deep rosy tint of its blossoms, in short, one of the finest varieties we have ever seen. Other species of *Odonto-*

glossum are abundant. Not to mention the ever flowering and always popular *O. crispum* and *Pescatorei*, there are the seldom seen *O. hastilabium*, a pretty species when well grown. The very handsome *O. Insleayi*, and the still finer *O. Schleiperianum*, with flowers almost as large as those of *O. grande*, of a bright yellow clearly barred with a deeper hue. One of the chief elements in the exhibition just now is the gorgeous *Disa grandiflora* which is abundantly represented and admirably grown, there being about a dozen blooms on some of the tall spikes. There is a diversity of tint in the flowers of this variety; for instance, some are much deeper and richer than others, and one named *miniata* is of a decided orange tint. The grandest flowers in the show are *Cattleyas*, particularly the varieties of *C. gigas*, *Mendeli*, *Leopoldi*, and the charming *C. Eldorado*, of which there seems to be scarcely two plants alike, so extremely diverse are they in colour; some are pure white, with the exception of the large blotch of yellow in the throat of the labellum, a character common to all; some are a deep rosy pink, and others again are of a delicate blush colour. Of *C. gigas* there are some wonderfully fine varieties, particularly *Normanni*, a kind remarkable for its intensely deep colour, and *Sanderiana*, also a high toned variety. On the other hand some are very delicate in tint, one, a pale lilac, is about the loveliest we have seen. Some of the plants of *Leopoldi* carry huge spikes of fifteen flowers, and one or two are extraordinarily dark in colour, both in the sepals and labellum. It is indeed a noble Orchid when seen in perfection.

THE *ONCIDIUMS* contribute largely to the display, the most conspicuous species being *O. macranthum*, the noblest *Oncidium* grown, undoubtedly, and when represented by such varieties as here it is indeed grand. One has marbled lateral sepals, quite distinct from any we have before seen. It is called *pictum*. Then there is another race of *Oncids* very fine just now; these are of the *O. curtum* type, which include *Gardnerianum* and *prætextum*, both very showy, the flowers being large and of the richest golden yellow, tempered by olive brown. These flowers are produced abundantly on long elegant spikes and last a long time in perfection. They are certainly among the finest of July Orchids. *Lælias* are still to be seen, particularly the noble *L. purpurata* of which there is a variety (*Williamsi*) bearing about a dozen and a half blooms on one plant. We singled out an uncommonly distinct and pretty variety, having a conspicuously white blotch on the labellum which made it distinct from all the rest; its name is *leucocilum*, an appropriate one. The finest *Lælia*, however, of all, is *L. Stelzneriana splendens*, which is without question one of the loveliest Orchids grown. It is in the way of *L. elegans alba*, but it has a finer flower with broader sepals and labellum. The former, pure white, stand out boldly; the lip is half white, and half (the lower) is of the richest amethyst imaginable, shaded and pencilled with maroon-crimson. We saw the typical *Stelzneriana* here last year, but this one surpasses it in every respect. Of East Indian Orchids are several species of *Aerides* and *Saccolabium*; the former includes *A. virens* *Dayanum*, with a spike a foot in length, and the rare *A. maculosum* and *A. Lobbi*; among the latter are some splendid spikes of *S. præmorsum guttatum* and the pretty little *ampullaceum*. *Vandas*, too, are still very fine, particularly the varieties of *suavis* and *tricolor*; among the choicer varieties are *V. Roxburghi*, and a variety of it with a blue labellum named *cærulea*. *V. teres* is likewise in fine bloom. In a short time there will be some grand specimens in flower of the rare *Vanda Lowi*.

Among other Orchids we made note of were *Anguloa Ruckeri*, a very handsome deep-coloured form; *Mormodes pardina*, a fine specimen; *Thunia Bensoniæ*, with dense drooping spikes of rosy purple flowers; *Barkeria spectabilis*, the rare *Epidendrum falcatum* or *Parkinsonianum*; *Brassia cucullata*, which arrests the attention of visitors on account of its insect-like flowers; *Chysis aurea*, with a spike the largest we have ever seen, and carrying highly coloured blossoms and a wonder-

fully fine specimen of the Madagascar *Grammatophyllum Ellisi*, with a large spike bearing thirty blossoms—a fine sight. Of the profusion of species now in bloom some idea may be gleaned when we state that we counted no fewer than 170 distinct species and varieties, most of these, too, being represented by numbers of specimens. Seeing that there is still such a fine display, the exhibition is not likely to be closed for some time.

Odontoglossum nebulosum candidum.—This is a very appropriate name for a charming variety of *O. nebulosum* sent to us from Mr. Edwards's collection at Kidbrooke Lodge, Blackheath, by Mr. Gardiner. The flower is about the size of a good form of the type. The sepals and petals are broad and of snowy whiteness, the only colour which the flower possesses being a few spots of pale citron-yellow on the labellum. It is a chaste and uncommon variety.

Lælia purpurata.—Of this splendid Orchid one of the largest and healthiest consignments that have ever reached this country was sold at Protheroe & Morris' Auction Rooms, in Cheapside, on Friday last. There were no fewer than 600 lots, and these, for the most part, consisted of huge masses carrying long plump bulbs, with leaves as green or even greener than those of established plants. Several of the masses bore 100 pseudo-bulbs, and one had even 130, and none had fewer than ten. This importation, which is large enough to stock the whole country, was collected in the Brazils by Mr. A. Wells, of Rio Janeiro.

PLANTS IN FLOWER.

JASIONE HUMILIS.—A dwarf plant, 6 inches to 9 inches high, with stiff, erect flower-stalks, bearing a large dense head of flowers of a bright cerulean blue. A capital rock garden plant of easy culture. From Messrs. Rodger, McClelland & Co., Newry.

THE FLY-TRAP PLANT (*Dionæa muscipula*) is now flowering in the open air at Kew, the plants having been planted out in the bog-bed surrounding the aquatic tank for two or three seasons; it may therefore be considered to be hardy. Its flowers are white and as large as a sixpenny piece.

THE DOUBLE GERANIUM SYLVATICUM is a far finer plant than the single flowered type, judging by some specimens of it sent to us from Newry by Messrs. Rodger, McClelland & Co. The flowers, which are a rich deep purple, are plentifully produced and are perfectly double.

GENTIANA MOORCROFTIANA.—A pretty plant, but, unfortunately, only an annual. It is dwarf, and a very profuse flowerer, judging by specimens sent to us by Mr. Stevens. Its funnel-shaped flowers are about 1 inch long, proportionately broad, and of a bright bluish purple. It is a native of North India.

HELENIUM PUMILUM.—A most desirable hardy perennial now in full flower. It is compact in habit, growing only about a foot high. The flower heads, $2\frac{1}{2}$ inches across, are a bright yellow. Specimens of it have been sent to us by Messrs. Rodger, McClelland & Co., Newry.

CAMPANULA, now in flower in the York Nurseries, include fine specimens of *C. macrantha* alba, *C. celtidifolia*, *C. pulla*, *C. Smithi*, *C. turbinata*, *C. carpatia pallida*, very pale blue; *C. azurea*, *C. Van Houttei*, *C. barbata*, *C. barbata* alba, *C. Hendersoni*, *C. persicifolia* in variety, *C. Scheuchzeri*, *C. muralis*, *C. garganica*, and *C. Portenschlagiana*.

CAMPANULA LATIFOLIA.—It is a singular fact that this native species is handsomer than any of the many exotic kinds now in cultivation. Indeed, it would be difficult to name a nobler or showier hardy plant at this season than a well developed specimen of this Bellflower, such, for instance, as one which has for some time past been in great beauty on what is known as the old rockery at Kew. This plant is some 5 feet high, and its stout erect stems carry numbers of huge

drooping flowers of a bright bluish purple. This particular specimen is evidently quite at home in its shady and sheltered position, and it has attained its present dimensions in a comparatively short time. A good mass of it in some sheltered nook in a garden would be a fine object at this season. The plant is a strong grower, and well able to take care of itself if planted in good soil at the outset.

DOUBLE CANTERBURY BELLS.—Mr. Clark, gardener, Brynkinalt, sends us a collection of these, remarkable for their double forms. They are, however, not good doubles; they are of the distorted type of double flower, and we prefer the single old Canterbury Bells of good colours. It is well to distinguish between flowers that are good and graceful in the double form and flowers that are the reverse.

DOUBLE PEACH-LEAVED CAMPANULA (*C. persicifolia* fl.-pl.).—This is really a beautiful variety of one of the finest of the Campanulas, and a charming companion to the double white. The flowers, which are about the size of a crown piece, are perfectly double, forming quite a rosette, and the colour, a light purple, is very pleasing. Some admirable flower-stems of it come from Grasmere, Byfleet.

SPIRÆA CALIFORNICA is the name of one of the richest coloured species of the Nobleana or Douglasi type. It comes from Mr. Stevens, who considers it one of the finest in his collection, which is a large one. The spike is very dense, and the colour is a deep rosy crimson. The leaves are whitish beneath, as is several other varieties of the race. A beautiful plant for a choice shrubbery.

LILIUM TESTACEUM.—Of this, the nankeen-coloured Lily, we have received some admirable examples from Messrs. Jefferies, of Cirencester, who state that it succeeds well with them in a poor, thin soil. It is a beautiful Lily, and, being so easy to cultivate there, it ought to be oftener met with than it is. Those who are afraid to attempt growing the more "miffy" kinds may with confidence attempt the culture of testaceum.

CARNATION GLOIRE DE NANCY.—This is a bold and very fragrant white Clove, to which Mr. Ware has called our attention. The world can never have too many of these beautiful Clove Carnations. A general study, on the part of gardeners, of the rapid propagation of Clove Carnations would be much appreciated by the gentlemen and ladies of this country. We hear incessant complaints about the difficulty of getting enough of them.

OLD FASHIONED ROSES.—A gathering of old garden Roses has been sent to us by Mrs. Witham, of Kirkconnell New Abbey, picked from bushes that have been in the garden there for eighty years. There are numerous sorts, among them some very beautiful, and nearly all deliciously scented. These several old Roses are, we fear, becoming elbowed out by the new sorts, but some are well worth retaining. The Moss Roses sent were especially good.

EUCRYPHIA PINNATIFOLIA.—We had no idea that this was such a pretty shrub for pot culture until we saw it the other day in Mr. Bull's nursery, Chelsea, where it has been in bloom for some time. As grown in this nursery it is a dwarf neat shrub with rose-like foliage and bears a profusion of large snow-white blossoms with a tassel-like tuft of stamens in the centre. It is a native of Chili, and is perfectly hardy. A coloured illustration appeared in THE GARDEN, Vol. XII., p. 544.

CALOCHORTUS WEEDI.—Another rare species of *Calochortus* has been sent to us by the New Plant and Bulb Company, Colchester. It is a beautiful species in the way of *C. luteus*, having large deep yellow blossoms, margined with brownish purple, while the inner face of the petals is minutely spotted and densely covered with soft silky hairs. It is the *C. luteus* var. *Weedi* of Baker and the *C. citrinus* of Baker (*Botanical Magazine*, t. 6300). Like most of the other species, it is a native of California, and, according to the "Botany of Cali-

fornia" (vol. ii.), it inhabits the coast ranges, San Diego County, and southward. There is a purple form of it named *purpurascens* by Watson, found at Santa Barbara and the Cajon Pass. From the same nursery have also been sent specimens of a variety of *C. venustus* called *Emperor*, concerning which Mr. Wallace says, "This is the grandest we have yet seen. It is from a last year's importation, and we have never seen anything so fine or strong; the rest are quite as fine. I send the whole stem that you may be able to see the size of the plant." The specimen sent measured upwards of 2 feet in height.

ROSA LUCIDA.—Mr. Stevens brings us a branch laden with flowers and buds of this species, which is at once recognised by the shining deep green of the leaves and deep rosy pink colour of the flowers—a pretty combination of colours. There is much beauty even in single Roses, and a collection of the best of them—say a dozen—would add greatly to the interest of a garden. In any selection this one should be included.

LILIUM KRAMERI, with double flowers, was an interesting plant at Stevens' Rooms, one day during the week, being exhibited there by Mr. W. Gordon, of 18, Cullum Street, who flowered it. Though weakly, it bore two smallish flowers quite as double as those of a double Tiger Lily, and of a much deeper tint than that of the ordinary form of *L. Krameri*. It is a singular variation, but, of course, not so beautiful as the single flowered sort.

LOTUS BERTHELOTI.—This attractive and most interesting species is now in flower in the "Cape" house at Kew. It has finely cut silvery foliage similar to that of some of the *Artemisias*, and amidst these feathery leaves are produced large blossoms of a showy orange-red colour almost as large as those of *Clianthus puniceus*. We do not remember seeing the plant before; therefore we can say nothing of its culture or degree of hardiness. It is synonymous with *L. pileorhynchus*.

ROBINIA PSEUDACACIA SEMPERFLORENS.—While the flowering of the common *Acacia* or *Locust* is over, this variety (sent to us by Mr. Stevens) is in full beauty and likely to continue so for a long time yet to come, hence the name. The flowers are white and hang in short racemes, the foliage is unusually long, and the leaflets broader than ordinary. It is a desirable tree. We do not find the name in Lavallée's list which enumerates upwards of thirty varieties of the False *Acacia*. †

MANDEVILLA SUAVEOLENS is a greenhouse climber one seldom meets with in private gardens, though lovely when in bloom. A plant of it, rambling beneath the roof of the conservatory (No. 4) at Kew is now bearing a plentiful crop of its large snow-white flowers, which are deliciously fragrant, strong enough to scent a good-sized greenhouse. Though not one of the easiest plants to grow well, being so liable to be attacked by insect pests, it is worth taking trouble with for the sake of the lovely flowers it yields.

HERBACEOUS SPIRÆAS.—A collection of these sent by Messrs. Jefferies, Cirencester, include the double Dropwort (*S. Filipendula*), *S. Aruncus*, *S. ulmaria aurea*, *S. palmata*, *S. venusta*, and *S. japonica aurea*. These are all excellent plants worthy of culture in any garden. From the same nursery also came *S. palmata elegans*, which we can only regard as *S. palmata* spoilt. Its flowers have not the purity of the Dropwort nor the lovely rose tint of *S. palmata*. It is one of those plants that has been greatly over-rated.

THE CALIFORNIAN LILIES in the High Beech Nursery, Epping Forest, are just now a grand feature, being as fine as ever we have seen them. *L. pardalinum* is particularly well grown, some of the stems being 6 feet and 7 feet high, and bearing spreading heads of large, highly-coloured flowers. Among the varieties are the true *L. californicum*, characterised by its dwarfer growth, different foliage, and by the colour of the flowers being of a more uniform and decided red than that of its allies. There is also the very fine form called *Robinsoni*, remarkable for its tall growth and un-

usually fine and highly-tinted flowers. Then there is the Canadian Lily (*canadense*) and *superbum*; also the somewhat rare little *L. philadelphicum*, a dwarf species peculiar to the Eastern States and very handsome. All these are in flower, besides hosts of such kinds as *L. auratum* and *croceum*. All are planted in bold masses on a gentle slope, where they have an extremely fine effect, being surrounded by the delightful woodland scenery of the forest. Messrs. Paul are evidently on the right track in cultivating these and other Lilies on a large scale, for the time is coming when they will be as essential to a good garden as the scarlet *Pelargonium* now is.

LILIUM CONCOLOR.—Mr. Kingsmill sends us from his garden at Eastcote, Pinner, flowers of this Lily, one of the brightest of all, and one, moreover, very dwarf and compact in growth. The flowers, about 2 inches across, are turban-shaped, fleshy substance, brilliant scarlet. Mr. Kingsmill remarks that he has a clump of it bearing from thirty to forty flowers. It would be interesting to know what course of treatment he adopts in order to be so successful with this Lily, which is as a rule not one of the most robust.

SILENE ORIENTALIS.—A very desirable Catch-fly, having large, dense clusters of deep rosy purple blossoms and glaucous foliage. It somewhat resembles *S. Armeria*, but it is a finer plant; besides, the latter is an annual, whereas *S. orientalis* will not flower till the second year, and in dry soil lives for several years. It grows about 3 feet or 4 feet high, and is altogether a better plant than *S. Armeria*. Specimens of the two are sent by Mr. Smith, of The Nurseries, Newry, who points out their distinctive characters.

AMARYLLIS AUTUMN BEAUTY.—This new autumn flowering variety, a cross between *A. reticulata* and a variety of the Leopoldi race, is a most valuable plant, as it habitually flowers when no other *Amaryllis* is in bloom. It is now in bloom in the Royal Exotic Nursery, Chelsea, where it was raised by Mr. Heal, and will continue to bloom till the autumn. The flowers are large, of fine form, the colour a beautiful magenta-pink, pencilled and veined with carmine. It is a lovely plant, and one that is sure to become popular.

COSMOS ATRO-PURPUREUS, or the Black Dahlia, as it is commonly called, has already begun to flower in the open borders at Kew, where, in the light, warm soil of the herbaceous ground, it grows well. It is singularly interesting, seeing that scarcely any other plant in gardens bears flowers of such an intensely deep maroon-crimson—in fact, almost black. The flowers, which are shallowly cup-shaped, are some 2 inches across, produced on long slender stalks, so that they are well adapted for cutting. The plant is also known as *Dahlia Zimapani*.

ANTHEMIS TRIUMFETTI.—There are few more effective border plants than this when fully developed. In Messrs. Paul's nursery at Cheshunt there is a large tuft of it over a yard across, profusely furnished with flowers, each about the size of a crown piece, with a conspicuous golden centre and white ray florets. The foliage, too, is elegantly cut, which adds grace to the plant. It is a perfectly hardy perennial, but not much known yet. Some excellent specimens of it have also been sent to us by Mr. Smith from the Newry Nurseries.

CEANOTHUS GLOIRE DE VERSAILLES is unquestionably the finest of all the *Ceanothuses*, being a profuse flowerer and a vigorous grower, and more than all, the hardiest amongst them. Its tiny flowers are produced in myriads in large dense plume-like clusters, which, being of a lovely sky-blue, have an extremely pretty effect. No good garden should be without a specimen of this shrub on the lawn or in a choice open shrubbery. It thrives to perfection at Byfleet in the light soil of Mr. Stevens' garden, whence we have received an uncommonly fine branch.

DOUBLE WHITE CAMPANULA TRACHELIUM.—One of the best of all the taller *Campanulas* is this rather uncommon variety, of which some excellent specimens have been sent to us by Messrs.

Jefferies, of Cirencester. It is as tall and robust as the type (a native plant), and the flowers are quite double and of snowy whiteness. It is a plant to make a note of in forming a selection of hardy perennials. Another pretty *Campanula*, but quite of a different stamp is *C. pumila alba*, one of the smallest of all, a profuse bloomer, and an excellent rock garden plant.

ACHILLEA MILLEFOLIUM RUBRA.—This very pretty variety of the common Yarrow or Milfoil has been sent to us by several correspondents during the past week—a good indication that it is appreciated. Mr. Poë, of Riverston, Nenagh, sends good specimens of it, and remarks that it is a very desirable plant, but from want of more sunshine it has come paler in colour this year than usual. A very deep coloured form has been sent to us by Mr. Smith from Messrs. Rodger, McClelland & Co.'s nursery, Newry. It is an elegant plant in the open border, of easy culture, and valuable in a cut state.

SPARTIUM JUNCEUM is one of the most attractive hardy shrubs now in flower about London. At Kew and in Battersea Park it is a fine object, there being many large bushes of it in both places. Its Rush-like branches are so plentifully produced as to form a dense mass, and each is wreathed with large clear yellow blossoms. It is a shrub that is not much known, though it is one of the few now in bloom. In order to derive from it its full beauty, it should be planted against a green background. It is one of those shrubs that will thrive almost anywhere, hence its value for London gardens.

ENOTHERA YOUNGI is one of the very best of all the yellow-flowered Evening Primroses of a shrubby or sub-shrubby character. It is dwarf and bushy in growth, and an abundant bloomer. The flowers, too, are large, of a glowing yellow, and, with the reddish stems, are very attractive. It is a first-rate border plant, and quite sufficient to supply a good yellow colour for several weeks at this season. Some excellent specimens of it have been sent to us by Messrs. Jefferies, Cirencester, along with several others, among which is *GE. Fraseri*, also a bright showy yellow kind, but not so desirable as *Youngi*.

LILIUM AURATUM.—We have two potfuls of this Lily; one has two stems, one of which is 9 feet high and has seventeen flowers on it; the other is about 7 feet high and has nine flowers on it. The bulb in the other pot has three stems with six, seven, and eight flowers on each. We had a misfortune and broke the top of the one with six flowers, or it would have been as high as the tallest of the others, as it was quite as strong. —SUBSCRIBER.

BEGONIA CONSTANCE VEITCH.—Of the whole race of tuberous *Begonias* we have seen none that has pleased us so much as this little variety, a descendant of the dwarf *Davisi* type. It ranges only from 6 inches to 9 inches high, and bears a profusion of the most vivid vermilion flowers imaginable. A large mass of it, numbering several score of plants, is now in perfection in Messrs. Veitch's nursery, Chelsea, the effect of which is quite dazzling. Another of the same race is *Mrs. Potts*, with deeper coloured flowers, but quite as dwarf and almost as profuse in bloom. These dwarf varieties are of great decorative value.

FLÂME NASTURTIUM AT HIGH BEECH.—The most glorious sight seen in the flower way for many a day are Yew hedges draped with the fiery wreaths of *Tropæolum speciosum* in Messrs. Paul & Son's nursery at High Beech. Never in the south have we seen this plant flourishing so admirably as here, where it seems perfectly at home—too much so, in fact, as its underground stems ramble far and wide, and send up stems where none are wanted. For all that, it is a beautiful weed, such as one can scarcely have too much of. The difficulty is, in nine cases out of ten, to get the plant to establish itself at all. At Kew, for example, it will not grow, notwithstanding the many attempts to induce it to succeed, while at High Beech many of the tall, dense hedges that intersect the nursery, running east and west, are

covered with it, its glorious wreaths hanging in graceful profusion over both faces of the hedge, the deep green of the latter serving to intensify the glowing scarlet of the *Tropæolum*. It is, as a rule, planted on the north side of the hedge in the ordinary soil of the nursery, and no particular care is taken with it apparently. It propagates so freely, that in a short time Messrs. Paul have acquired a large stock of it, so that there need be no difficulty in procuring good plants of it should anyone feel inclined to grow such a beautiful climber.

THE RED-BANDED LILY.—This, the variety *cruentum* of *Lilium auratum*, is now in flower in Mr. Bull's nursery, Chelsea, the only place where it exists in this country at present. The flower is very large, and instead of the band down the centre of each petal being yellow it is a deep crimson, which, in contrast with the white, is most striking. It is figured in *THE GARDEN*, Vol. XVI., p. 576. Another variety in flower here, somewhat similar, but quite distinct, is named *Attraction*. It seems intermediate between the ordinary *L. auratum* and *cruentum*. The flower is very large and the red bands are broad, but not so deep as in *cruentum*.

HARDY VARIEGATED PLANTS.—Miss Owen has sent us from her garden at Knockmullen, Gorey, Ireland, specimens of a variety of *Spiræa japonica* with leaves beautifully veined with creamy white, and also a variegated *Iris Pseudacorus*, the leaves of which, though scarcely so bright in colour, are nearly as effective as those of the variegated *New Zealand Flax*. The *Spiræa*, it is stated, produces even better heads of flower at Knockmullen than the typical form. With the above came also two handsome blue *Larkspurs*, one of which, *Madame H. Jacotot*, a double kind, is extremely handsome. Miss Owen adds that amongst *Pilgrim Pinks* now in flower *Tom Walsh* and *James Grieve* are two of the best.

QUESTIONS.

5023.—**Sphagnum Moss.**—I have more *Sphagnum Moss* than I can use at once for potting Orchids. Is there any easy means of keeping it green and fresh for use at a future time?—W. H. J.

5024.—**Rose trees.**—We have some which bloom but poorly. Can this be owing to too deep planting, and would taking up and replanting somewhat shallower help them? Their buds fall off.—G. K.

5025.—**Narcissi.**—We have some *Narcissi* which throw up flower-buds, but before they expand they wither away. Can Mr. Burbidge, or some other grower of *Narcissi* explain the cause of their failing to open? Can it be owing to the presence of wireworm or damp?—G. K.

5026.—**Market garden crops.**—Can any reader of *THE GARDEN* give me any advice as to what would be the best to be done with three acres of garden land? What would be best to grow on it for market? Which would pay best, Peaches and Grapes or cut flowers?—J. W.

5027.—**Chrysanthemum buds.**—Will some of your readers say if it is too early to save buds which are now appearing on plants of *Chrysanthemums* growing here to produce cut blooms for exhibition? Each plant has about five shoots, and upon those the buds are just forming.—J. W.

5028.—**Grapes shanking.**—I have a small vinery with an inside border containing nine Vines—five Black Hamburgs, one Black Alicante, and three Muscats of Alexandria. They are just beginning to colour, and all seem to be shanking. Can any reader of *THE GARDEN* tell me the cause of this disaster?—J. G. B.

5029.—**Diseased Vines leaves.**—I send you some Vines leaves off a Muscat of Alexandria which started into growth in March. What is the matter with the leaves which are half withered? It is surely too early for them to decay naturally; other Vines in the same house do not show the same decay. The Vine from which the leaves were taken is otherwise healthy.—R. R. W.

5030.—**Copse.**—I am going to plant some ground next winter with copse stuff. My ground is a stiff clay on a hillside. If any of your correspondents can give me any hints as to the best way of setting to work I shall be extremely obliged. What sort of material would be the best to plant? and what proportion of each sort to an acre? How far apart should the plants be placed? and how many would it require to plant an acre? How much would Hazel and Chestnut or Withy cost per thousand?—ALTA.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

24.—South Kensington: Meeting of Fruit and Floral Committees of Royal Horticultural Society.

South Kensington: Show of National Carnation and Picotee Society.

THE CARNATION AND PICOTEE SOCIETY'S SHOW at South Kensington, on Tuesday next, promises to be a very successful one. Fine groups of Begonias are expected. The show will be held in the tent, and the committee will meet in the picture gallery adjoining.

PEAS WITH COLOURED PODS.—Samples of Peas with pods varying from black to reddish mulberry have been sent to us by Mr. Laxton, who writes as follows concerning them: "They are the result of crossing the purple-podded with the white-podded Pea, showing, as in the tricolor *Pelargonium* foliage, that black or dark purple is produced by crimson overlaid on the green chlorophyll of the leaf, but where the chlorophyll is absent red and crimson is the result."

ADIANTUM PACOTTI.—This is a singularly pretty form of the common Maiden-hair Fern (*A. cuneatum*). It has very small pinnae, arranged in a crowded way, so as to make the frond denser than that of the ordinary kind. It is said to stand much better for button-holes than any other Maiden-hair, and for such a purpose it is likely to be much used. Specimens of it have been sent to us by the Hextable Horticultural Company, in whose nursery at Swanley it is grown largely.

NEW BULBOUS PLANT.—Messrs. F. Horsman & Co., Colchester, have sent us a drawing of a new bulbous plant imported from Columbia, and which turns out to be quite a new genus, according to Mr. Baker, who has named it *Plagiolirion Horsmanni*. It belongs to the *Amaryllidaceae*, and is allied to *Eucharis*. Its leaves are broad, like those of *Eucharis cardida*, and are produced in pairs and threes from each bulb. The flower-stem rises erect and is terminated by an umbel of pure white blossoms about $1\frac{1}{2}$ inches across. Judging by the drawing, the plant gives promise of being a valuable addition to stove and bulbous plants, and it is satisfactory to know that Messrs. Horsman have been successful in obtaining a good importation of it.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The following circular is about to be distributed amongst gardeners, and let us hope not without good results: "The success that has attended the two simultaneous collections for the 'Pension Augmentation Fund' has determined the committee to continue the same yearly, and the collections this year will be on Monday, the 30th inst. The object of this collection is to raise the reserve fund to £20,000, and, that sum being secured, then to increase the pensions by £4 per annum. The reserve fund is now £16,550, leaving the sum of £3450 to be raised. The amount of last year's collection was £541 3s. 2d., clear of all expenses. The committee earnestly urge gardeners, for whose possible ultimate benefit this institution was established, to 'put their shoulders to the wheel,' and assist the committee. They should remember the Institution affords relief in old age when 'friends are few,' and that although gentlemen and employers have most generously contributed to the funds, it is incumbent upon gardeners to assist themselves. It is their own Society, established specially to assist them and their widows in their declining years; and the committee would remind those who are now in the vigour of youth that among the 100 pensioners now on the funds, the majority have in their younger days filled situations of trust, but who, from a variety of causes, have been reduced to penury and want. I have the pleasure to enclose you a collecting card, and the committee hope you will do your utmost to assist the cause, and that you will take an opportunity of bringing the Institution to the notice of your employer. I again remind you that as an incentive

to increased exertions, it has been determined—'That upon any collector obtaining the sum of £10 10s., he be qualified, by such collection, as a life subscriber, with all its privileges, from the date on which the sum of £10 10s. was completed.' A certificate to this effect will be sent to the collector, signed by the treasurer. The committee trust you will co-operate with them in this good work, remembering that 'the many can help the few,' and that 'charity is twice blessed; it blesseth him that gives and him that receives.'—EDWARD R. CUTLER (Secretary), 14, Tavistock Row, Covent Garden, W.C.

BIRD'S NEST IN WELLINGTONIA.—I may mention that, as has been the case for several seasons, a chaffinch has this year again successfully reared her brood in a Wellingtonia. It has been alleged that the branches of this tree are unsuited for nest-building; but is it not a curious circumstance that this especial tree has been a favoured one for that purpose for four or five years, and always by a chaffinch? No other bird has ever attempted to build in it that I have noticed.—R. STEVENS, *Paston*. [With this came a branch of Wellingtonia with the nest *in situ*.]

DIONÆA AS A SLUG TRAP.—Miss Owen, Knockmullen, Gorey, Ireland, sends us a leaf of the Fly-trap (*Dionæa muscipula*) having a small slug firmly held in its folds. She says: "Although we grow many insectivorous plants out of doors under bell-glasses, I never before remember seeing a slug captured by them, though numerous insects are caught, and there is unhappily no dearth of slugs. I once saw a small spiral shell on a leaf of *Drosera dichotoma*."

FLOWER GARDENING IN THE PARKS.—The beds are very brilliant in the parks just now. Fine weather and copious rains suit bedding plants well. The effect is most brilliant in some places, and would be beautiful were it not for the square-after-square repetition, which is the rule. The system has many good qualities, and it is only by reason of the inartistic and crude way in which it is used that it is offensive. It is also objectionable, however, in absorbing much of the energy that other things deserve a portion of. Such as it is, however, all who are interested in flower gardening should find an opportunity of making the best of it, and see it in its best dress during the next few weeks.

LIGHTNING DESTRUCTION AT LONGLEAT.—We have had some very heavy weather here lately—a succession of thunder-storms day after day of unusual severity. On Sunday afternoon eight Devon yearling heifers were lying under a wide-spreading, dense-headed Beech tree that stands out in the open, on an exposed knoll, in a field belonging to Longleat Home Farm; every one of the heifers were killed by a flash of lightning between three and four o'clock in the afternoon. No visible mark of injury can be seen on any of them, and strange to say, the electric flash does not seem to have touched the tree; not the slightest breakage on body or limb can be seen. I am aware that the Beech is rarely struck by lightning; this case, however, proves that it is none the more safe on that account to shelter under it during a thunder-storm.—G. B.

SOCIETIES.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THIS Society held its summer exhibition in the Waverley Market, Edinburgh, on Wednesday, July 11, and was a great success, the competition in many classes being very strong. Roses were shown in great numbers and in excellent condition. One of the principal features of the show was the table of plants arranged for effect, which made a very fine display. Messrs. Ireland & Thomson showed a grand group of plants, containing many novelties, and well-grown and well-coloured examples of Crotons and Dracenas, Palms, well-flowered Ixias, Dipladenias, Heaths, and some good Orchids and Pitcher Plants. Messrs. Laird & Son had very

fine Palms, Dracenas, and Tree Ferns, intermixed with flowering plants—a well varied assortment, nicely grown and beautifully arranged. Messrs. Methven & Sons also showed Palms and Tree Ferns, and a miscellaneous collection of flowering plants. Messrs. Dickson & Co., Waterloo Place, occupied their old position with a group of fine foliaged and flowering plants, cut Violas and Roses. The Lawson Company filled one end of the hall with a choice collection of coniferæ and hardy trees and shrubs. They had also a good collection of hardy herbaceous and alpine plants. From the Royal Botanic Gardens, Mr. Lindsay sent an interesting collection, containing well-grown Nephentes, Sarracenas, Darlingtonias, Dionæas, Cephalotus, Droseras, intermixed with Palms and other fine foliaged plants, altogether a fine group. Tables of plants shown by gentlemen's gardeners brought two competitors, viz., Mr. Buchanan and Mr. Paul, two old rivals, to whom prizes were awarded in the order in which their names stand. Flowering and fine foliaged plants were shown by several exhibitors. Of flowering plants the best came from Mr. Paterson, Millbank. Orchids were poorly represented, and call for no special comment. Ferns were well shown both by gardeners and amateurs. Of Fuchsias there were some good specimens. *Pelargoniums* were poor; *Gloxinias* and *Lilies* were fairly well shown; and of herbaceous and alpine plants, always a good feature at this exhibition, several fine groups were staged. The competition for table plants was also good. Cut Roses were very fine. Mr. Hugh Dickson, Messrs. Turner, of Slough, Mr. Bunyard, of Maidstone, and Messrs. Cocker, Aberdeen, showed grand blooms, and the judges must have had a difficulty in making the awards. Bouquets were shown in quantities, but in most instances far too crowded. Fruit was good both in quantity and quality. Mr. Johnson, Glamis, being first with the collection as well as Black Grapes. Melons were good, and so were Strawberries, Peaches, Nectarines, and Pines. Vegetables were shown in quantity, but call for no special comment. I may add that the show was a financial success. D.

Liverpool Horticultural Association.—The annual summer show will take place in Sefton Park on August 4 and 6.

Semi-double Chrysanthemums (*G. C.*, *Dean's Court*).—The flowers sent of *C. coronarium* show a tendency to become double, and may, later in the season, become quite double. If seeds can be obtained from these semi-double flowers the seedlings raised therefrom will probably be perfectly double.

MR. W. PRATT, late gardener to Lord Hill, at Hawkestone, Shrewsbury, has been appointed to a similar office at Longleat, the Marquis of Bath's seat near Warminster, vice Mr. Taylor, who goes to superintend the erection and furnishing of some large new vineries for Mr. Alderman Chaffin, late Mayor of Bath. Mr. Chaffin has invented and patented a system of glazing which he is about to put to a practical test on a large scale.

Names of plants.—*W. Forrester*.—1, *Cyrtoceras flexa*; 2, *Alonsoa incisa*; 3, *Maranta fasciata*; 4, apparently *Caladium esculentum*; 5, *Selaginella apoda*.—*H. Brixton*.—Species of *Gypsophila*, but cannot name without more material.—*S. Nisbet*.—*Dittany* of Crete; *Origanum Dictamnus*.—*C. D.*—1, *Spirea salicifolia* var.; 2, *Sparanium ramosum* (Bur Reed); 3, *Blechnum Spicant*; 4, *Athyrium filix-femina* var.—*M. F.*—Shrub is *Deutzia scabra*; we do not know the Rose.—*Mr. Cobbett*.—*Stanhopea bucephalus*.—*A. R. Wallace*.—*Lathyrus rotundifolia*.—*J. W. L.*—*Justicia speciosa* (Pink); *Dendrobium Pierardi* (Orchid); *Begonia Richardsoni*.—*C. M. O.*—*Boykinia acnitifolia*; we do not recognise the *Veronica*.—*T. H. A. H.*—*Myoporum parviflorum*.—*B. H. T.*—1, *Heterocntrum roseum*; 2, *Reineckia carnea* variegata; 3, *Eranthemum versicolor*.—*Mr. Lees*.—1, *Lonicera Ledebouri*; 2, *Buddleia globosa*; 3, apparently *Begonia metallica*.—*C. B. Pouell*.—The Pea seems to be *Lathyrus Drummondii*, but we cannot name from bruised flowers only.—*J. W. A.*—1, *Ruscus aculeatus*; 2, apparently *Crataegus Pyracantha*; 3, *Rhodiola rosea*; 4, species of *Elaeagnus*.—*B. L.*—3, *Tunica Saxifraga*; others next week.—*A. Elder*.—*A. Agrostemma coronaria alba*; *B. Geranium eriostemon*; *C. Baptisia australis*.—*A. C.*—1, *Nephrolepis exaltata*.

'This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE.'—*Shakespeare*.

ENGLISH PLANT NAMES.

I HAVE read with interest articles that have at various times appeared in your pages encouraging the use of English plant names, and always with a certain amount of surprise the arguments of those who contend that such names are unnecessary and even objectionable, and that the botanical names only should be used. One very simple view of the subject has been apparently overlooked, perhaps from its very simplicity. Why should plants and flowers be *the only things* that we are to have no means of speaking of in our own language? The utility and necessity of the botanical names no one denies—a noble and simple invention, a "lingua franca" for the learned of all nations, though grievously overburdened with synonyms and masses of cumbersome "uncrystallised" matter. But why must people who love flowers know them by these names only—names that to many of them convey no sort of meaning—for all people who cultivate or enjoy flowers have not such a knowledge of the dead languages as to make the names intelligible? and why in any case speak in a dead language only of things so essentially living and affecting our daily use and happiness? Why should a piece of pedantic tyranny be imposed on us in this matter, *and this only*? Animals, birds, and insects also have their necessary scientific names, but no one reproves us for talking of a horse, or a sparrow, or a dragon fly. Diseases have their universal names derived from Latin and Greek, used in scientific treatises and among members of the medical profession; and yet we commonly talk of gout, and small-pox, and scarlet fever. The bones and muscles of our bodies are all known in anatomy by such technical names; and yet in our every-day talk we may speak of rib, thigh-bone, and shoulder-blade. Why, then, should flowers only, of all the subjects that need a common language for purposes of classification and scientific research, have their purely technical appellations imposed on us, to the exclusion of such simple words in our own language as we use in other absolutely analogous cases?

Surely the necessity of English names is abundantly proved by their existence and natural growth. As a plant, or the use of any part of it, becomes familiar, the need of a familiar name is felt. With very few exceptions, those that we use for food have English names; and I think that even the most determined advocates for the use of scientific names only would hardly use them in common talk instead of the popular ones. No one asks at table for *Solanum tuberosum* or for *Brassica oleracea*, or would think of eating *Pyrus* pie or *Grossularia* fool. No one seeing a child with a handful of *Groundsel* and *Chickweed* would expect it to say it had been getting *Senecio vulgaris* and *Stellaria media* for the *Carduelis canaria*. Such things sound like inconceivable absurdities, and yet, if they are consistent, it is what those who advise the use of scientific names only would lead us to expect. They would, perhaps, say of course use English names for such purposes, but not for garden

plants. Where, then, should we draw the line? Between *Groundsel* and *Ragwort*? How is this subtle frontier to be determined, for it would have to exist in every family of plants that had any well-known members?

Then, supposing for a moment we were allowed no English plant names, where would be our poets? Think if *Milton* had had no alternative but to write—

Meadows trim with *Bellis* pied;
or in his picture of the rustic window
Through the Sweet Brier or the Vine,
Or the twisted *Eglantine*,

what could he have made of such mouthfuls as *Rosa rubiginosa*, *Vitis vinifera*, and *Lonicera Periclymenum*? And again,

And every shepherd tells his tale
Under the Hawthorn in the dale,

how would he here have managed *Cratægus Oxyacantha*? These examples rapidly follow one another in perhaps the best known poem in our language, and show in this one department of literature how absolute is the need of English names.

Does it not come to this, that both kinds of names are necessary, each for its proper purpose; the scientific name for classification, for study, for international research and correspondence, for business, for all rather dry and hard purposes; but for daily life among flowers, in poetry and popular books, for common use among the many people whose enjoyment of flowers does not approach any scientific purpose, the familiar names in our own tongue? Let me ask our learned men, who possess the dead languages, and, therefore, do not feel the need of the simpler means of expression, to descend in imagination to the level of those to whom *Day Lily* has a distinct meaning, while *Hemerocallis* is a jumble of senseless syllables. Let them think how absurd it would be if some arbitrary tyranny obliged us to call other things of common utility or enjoyment by long Latin names.

Taking at random a few familiar objects, suppose one had to call a hammer *Marculus clavigerens*, a saucepan *Cacabus cibosuppeditans*, a comfortable arm-chair *Sella gratissima*, or a well-worn book *Libella aurecanina*! would there not be reason for rebellion? Why a flower and not a book? Why a flower and not any other thing that we have common occasion to speak of? Why are plants, and plants only, to be banished to this philological limbo, a place of weariness and lifelessness, that those who love flowers for their beauty's sake do not care to have to explore in order to find names by which to know their treasures. Will not our kindly *savants* rather help us to the supply of the living want and give us well-made English names in place of the perhaps ill-constructed ones that we should find for ourselves? G.

THE OLD ROSE CELESTE grows here with a wild vigour that is very pleasant to see. Its shoots run along underground, and crop up unexpectedly in the heart of some foliage plant not far distant, or ramble on to force their way through the Box edging, or even pierce the gravel walk. These suckers, if left alone, blossom the following year, but they generally push up so inconsiderately as regards their neighbours that they have to be cut away. The vitality of this Rose is very noticeable. It is quite heedless of the hardest frosts or cruellest winds, and is unvisited by any blight or insect. Equally careless is it of sunshine or shade,

and seems likewise indifferent as to soil. Indeed, it would appear as if the ills of life had little power over this celestial Rose, whose very fragrance breathes of a better world. But of all times to see it is just after a summer shower, when the blue-grey of the leaves with some special refractive power transform, as it were, the rain-drops into frosted silver, from which veil of enchantment look out the buds of exquisite promise; for it is in the buds that the great charm of this Rose lies; their tender grace and inner depth of rosiness give such delicious expectancy—suggest so much that rests concealed.—L. L.

CARNATIONS AND FLORISTS.

IN relation to the question recently raised in our columns, we had a look at the show of the Carnation Society at Kensington the other day to see the result of the labours of the Society. While we should be sorry to reflect in any way on the work of a worthy and enthusiastic class, we hold our right clear to discuss this and all similar matters in the public interest—more than that, in the interest of the Society itself.

The first thing that struck us at the show after the beauty of the individual blooms was that the beauty of the Carnation as a plant and as a cut flower was not to be seen there. And here, above all places, we have to argue that these are important omissions! The florist has always so dearly loved the bright flower, that he has room for nothing more—buds, half-opened bursting blossoms, the good foliage of many kinds, the pleasant colour of the plant, and the fine form and lines of the stem as it breaks into bud and branch. No one desires to damp the enthusiasm of florists as regards their flowers—beautiful in colour and marking; but we may perhaps ask that other things also may be taken into account—things equally important from several points of view; the gardener's, the artist's, the ordinary human lover of flowers who grows them to grace his house or table. Look at the beauty of a small group of say seven or eight good plants of a Glove or stout border Carnation, and consider the elements, so to say, of which it is made up. It hardly needs saying that the flowers alone do not half make the picture—sea-green leaves, stems, bursting buds, and the graceful carriage of bud and blossom have all to do with it.

Why should they not be seen, so far as possible, in the show of a society devoted expressly to the Carnation? Consider the responsibilities of a body devoted to the cultivation of a flower who do so little to let the plant be seen in its natural form and with its native grace. If the show were that of a body expressly for the purpose of studying single blooms of plants only, one could understand the omission; but a specially organised Carnation and Picotee society only showing fully expanded blooms is not quite fair to the plants of its adoption. It is as if, at a baby or "beauty" show, only heads were shown.

Even Messrs. Veitch, who went to the show, not so much as growers of florists' Carnations as those for the border, cut single pips off and stuck them on cardboard, and made no attempt whatever to show the border kinds as they grow. It need scarcely be said that no owner of a garden would ever tolerate flowers being so cut for house decoration. People cut their Carnations as they do their other flowers, with a fair amount of stem and bud, and when thus cut they often form a pretty picture in a house. Surely the least that

growers of the Cloves and border kinds should do would be to place a few handfuls of flowers and buds as they are cut in some simple vases!

A slight sign of progress was evident in the taking off of the paper collars from the blooms of a few of the Carnations in pots that were sent. We like the flowers as they are shown; we only ask for more of the beauty of the plant and more of the kinds. Border Carnations should be shown both mixed and the finer ones in their separate colours. There should be prizes specially for Carnations as ladies place them in their rooms. In this way they should be seen both mixed and, still more important, each kind, white or crimson, or, as the case may be, in a vase to itself. It will hardly be credited that there was no class for the beautiful Cloves or for border Carnations. We feel sure that useful as the labours of florists have been in the past, they might be much more so in the future. All that is wanted is a more comprehensive plan on their part, so as to include the full beauty of the various races of Carnations and a recognition of the fact that the way they can help to make these plants better known is to let people see their splendid qualities for flower garden and house decoration—as far as possible at a flower show.

NOTES FROM HECKFIELD.

MULCHING versus WATERING.—As gardeners, we are always at school; some are apt scholars, and others are "noodles," and in respect of the subject in hand I must own that for a long time I belonged to this last category, for I could not, or else would not, believe that mulching was superior to watering, but in spite of myself the lesson at length came home to me, and this season is demonstrated to the full. For many years I have both practised and preached about the importance of mulching for shrubs, kitchen garden crops, Vine and other fruit trees, forgetting that what was profitable for free feeders would, in a small way, be equally beneficial to plants of an opposite nature—a lesson simple enough to learn, one thinks, after it has been learnt. For several years past sundry small plants in the flower garden failed to grow as swiftly as we wished; notably so *Alternantheras*, *Coleus*, and other tender kinds, and also some hardy sorts, *Sedum acre elegans* being among the number; and, believing them to be dry, frequent waterings were had recourse to, but with indifferent results. Last year as soon as planted some of the before-named plants were mulched with Cocoa fibre, and seldom watered, and they did remarkably well. This year all have had this mulching, and have not been watered more than half a dozen times (the season here has been dry), and yet the growth is perfect. The lesson has been a hard one, but the rewards of satisfactory growth and lessened toil are excellent set-offs.

CLEARING RHODODENDRONS AND AZALEAS OF SEED-PODS, &c.—It is an old saying, and a true one, "that each season of the year brings abundance of work to the gardener." At this season it ought to be "more than abundance," for it is a constant battle—with myself at any rate—between kitchen garden, and shrubs, flower garden, and fruit trees, that is as to which department shall have first attention. The contention just now has ended in favour of shrubs, as against fruit trees, that need their final summer trim up, and new shoots laid in to the walls, but which for the present must wait till we have picked off the seed-pods from the best varieties of *Rhododendrons* and *Azaleas*, more especially from those plants that have the largest space to fill, or that must present a "dressy" appearance; the latter reason is of comparatively little moment, but if the fullest amount of growth be desired, remove the seed-pods at once, and do not fail to examine the base of the plants to destroy the stock shoots, scores of good varieties of *Rhododendrons* being

annually ruined by neglect of this simple precaution. Plants that are encroaching on walks, and that must be cut back, ought not to be clipped with shears, but should be "knifed" in, that the inner shoots may be left intact. In large woodland clumps much harm is sometimes done by allowing the plants to be overrun with Bracken; a rip-hook is the handiest implement with which to clear them.

BEDDING VIOLAS.—The notion that these will not do well in the south is a mistaken one; of course certain kinds do better than others. The cornuta section always does well; Blue Bell never fails, and this last has now got a formidable rival in True Blue; it does not grow so compactly, but with a little additional pegging it is more effective than Blue Bell; being both a better shaped flower and a deeper self-blue, it is likely to become a favourite. Mrs. Gray, a creamy white variety, is as floriferous as it is possible for any plant to be, and has every other quality to insure its becoming a favourite. We have it as an undergrowth for pink *Pelargoniums* and dark *Fuchsias*, and the mixture is most pleasing.

CHRYSANTHEMUM SEGETUM.—If the rage for single flowers continues we shall soon have to hunt up and cultivate more weeds; however, I am not going to disparage this last comer, for it is very beautiful and grows anyhow and flowers abundantly. It got too large for the position assigned it, and so we have pegged it down, and it is now branching out in all directions. For large borders that have to be filled quickly with few plants, this should be one of the kinds used. It would make a grand plant for undergrowth to *Ricinus Gibsoni*, its deep yellow flowers contrasting splendidly with the deep brown foliage of the *Ricinus*. W. WILDSMITH.

NOTES OF THE WEEK.

THE BRADFORD MOOR RECREATION GROUND, comprising 13 acres, is being laid out, and will be opened in August. It is being walled in, and provided with a lodge and entrance-gate. The draining and laying out have been undertaken by Mr. L. Kershaw, of Brighouse.

THE HEAVY RAIN AND STORMS of the past week have had a very bad effect on the bedding plants in the parks, and, no doubt, elsewhere. The plants used, for the most part, are children of the sun, and do not get on at all well in our wet summers. Hardy plants, on the contrary, are often benefited by such weather.

THE ART OF REPORTING.—The following is from the *Times* of Wednesday: "The Carnation Society (of which the president is Mr. J. T. D. Llewellyn, of Swansea) was established to encourage the good and varied growth of a family of plants which, even without the aid of artificial cross-fertilisation, form many beautiful and fragrant varieties under the name of Pinks, Corncockles, Cloves, Sweet Williams, &c. Parkinson, in his 'Paradise' (A. D. 1629), speaks also of Sweet Johns and Gilloflowers, 'both single and double, both white, red, and spotted.'"

GARDENS FOR THE POOR.—The following letter has appeared in the morning papers: The trustees of the disused burial-ground of St. George's, Bloomsbury, are willing to hand it over in perpetuity to St. Pancras Vestry. The vestry will maintain it, provide caretakers, and open it to the public so soon as it shall have been put in order and laid out as a garden. The Kyrle Society has just obtained a faculty which enables this to be done, but funds are needed for the laying out. The sooner these closed wildernesses of churchyards are set in order, handed over to the local authorities, and opened to the public, the better. Hidden by walls, covered with rubbish, closed to the inhabitants of the stifling courts in their neighbourhood, if they are not soon rescued for those who live near them, they may become the prey of the commercial speculator or the railway company. We are most of us now planning where we will go for the summer holidays. If there are any

who wish to leave behind them a gift which shall help to provide quiet, space, green Grass, trees, and fresh air for those to whom successive years bring no visits to mountain or sea, will they send donations for this garden? There are other gardens in Bethnal Green and Deptford likely to be soon ready to be laid out.—OCTAVIA HILL (Treasurer of the Kyrle Society), 14, Nottingham Place, W.

GREENHOUSE, STOVE, AND FINE-LEAVED PLANTS.—Mr. Thomas Baines is now engaged on what will be, we believe, the most complete and trustworthy work on this subject that has been written. Many young gardeners will be glad to hear this, as Mr. Baines' knowledge and experience on this subject are quite exceptional. Propagation, as well as cultivation, will be fully treated of. It will be published as a clearly-printed octavo volume, and will probably form one of a series of standard volumes on gardening.

THE EVENING FETE in the Horticultural Gardens at Chiswick, on Thursday evening last, was a pleasant gathering, the weather being favourable, and the gardens looking at their best—in full summer dress. They were brilliantly illuminated, the trees being lit up by myriads of lamps—a pretty sight. Under the artificial light the varied tints of the flowers were singularly beautiful, particularly the Night-flowering Tobacco (*Nicotiana affinis*), of which there was a large mass of plants furnished with a profusion of its snow-white blooms expanded, and which emitted a delicious perfume.

CLOVE CARNATIONS IN PUBLIC GARDENS are numerous and very well grown in the gardens on the Thames Embankment. They have been handsome of late, although much is done to mar them by staking them so badly, the stout stakes being 6 inches or 9 inches above the flowers. They are also scattered about in the usual promiscuous way, so that they give not nearly so good an effect as if they were "held together" in one or more parts of the grounds. Sufficiently near for the eye to enjoy them they ought also to be, and where even their fragrance might be felt. As it is, they are often scattered far away from the walk. The question of the position for plants in relation to the eye, and various other matters, is one that deserves more attention from gardeners.

THE FRUIT CROPS, reports of which (thanks to our correspondents) we publish in another column, are this year, with a few exceptions, more satisfactory than they have been for years past. Apples are everywhere abundant. True, many are said to have dropped; but the trees still carry as heavy a crop as they can well bring to perfection. Pears are not so plentiful as Apples; still there is a fairly good crop, especially of some of the finer kinds on walls. Plums, even the Victoria, the best of all as regards crop-bearing, are a complete failure, a statement which also applies to Damsons, that good kind, the Farleigh variety, being equally as fruitless as the common Damson. Apricots, too, are comparatively a failure, both these and Plums being in bloom when the weather was so severe in March. Cherries have been tolerably plentiful and excellent in quality, especially the Bigarreau varieties and Morellos, though in many places the latter are a thin crop. Peaches on open walls in many places are a good crop—the "crop of the season," according to Mr. Fish, who writes from East Anglia. Both Peaches and Nectarines flower a little later than Apricots, and therefore sustained less injury from the bitter weather which we had in spring. All bush fruits have matured heavy crops. Strawberries have been unusually abundant and large in size, but deficient in flavour through want of bright sunshine. Walnuts are nearly everywhere fairly good crops, but other nuts are nearly a failure. In all quarters fruit trees are stated to be unusually clean and healthy with the exception of Apricots, which have not yet fully recovered from injuries received during the two or three hard winters which we had some little time ago. The Welsh, Scotch, and Irish, together with a few supplementary English, reports will appear in our next issue.

FLOWER GARDEN.

WHITE LILY OF THE INCAS.

(ALSTROEMERIA PELEGRINA ALBA.)

THE value of Alstroemerias in the garden is well known to those who have good collections of hardy plants, but it is surprising to find how

cut, which represents the white form of it, and they vary a good deal in colour from a deep flesh tint to a pure white, the latter being extremely beautiful. It is one of the dwarf growers and not at all difficult to cultivate, according to Mr. Kingsmill, who grows it well, and from a plant in whose garden at Eastcott our illustration was prepared. Concerning the culture of it, Mr. Kingsmill, who

altogether after growth commences and frosts are over. This Alstroemeria has the additional advantage of being very dwarf, rarely exceeding 8 inches to 10 inches in height. Fresh seed germinates very quickly, and with care might flower the second year from time of sowing." Other excellent Alstroemerias worthy of culture are the varieties of *A. pulchella*, *Ligtu*, and *hæmantha*, all of which require much the same treatment as *A. Pelegrina*. *A. aurantiaca* is a strong grower in good light soils, and requires no attention whatever, save that of keeping it within bounds.

EXHIBITING ALPINE FLOWERS.

My experience does not altogether agree with that of Mr. Brockbank as to how alpine and hardy plants should be exhibited. Speaking of forcing Auriculas, he says that the rules enforce that there shall be no artificial supports, and adds that the same rule should hold good in the case of alpine and hardy plants. Where staking and artificial training can be dispensed with, no matter what the class of plants may be, so much the better; but plants intended for exhibition purposes are surely improved by some kind of support, unless it be the dwarfier alpine, which, I presume, no one would think of staking. Where hardy plants are grown for exhibition purposes, and have to travel, say, from the neighbourhood of London to that of Manchester, staking as a precautionary measure is, in the case of plants 2 feet high and upwards, a necessity in order to ensure their safe transition, *e.g.*, *Pæonia tenuifolia* fl.-pl. and *Cypripedium spectabile*. The former, owing to its massive heads of bloom, and the latter, owing to its stems being somewhat delicate, cannot be considered safe unless supported, while other taller subjects may be made to travel safely by simply tying a sheet of paper around them, secured to a stake previously inserted in the soil.

FORCING.—Where this is carried to extremes, and the plants are staged in a colourless and almost unrecognisable condition, a circumstance due to indiscreet management, then I say by all means avoid it; but where the colour is retained, and the plants, by proper management, in no way impaired in consequence, then I say adopt it. Amateurs are not troubled so much as nurserymen as regards this matter; the amateur has only to muster thirty-six, while the nurseryman has to find eighty plants. It is true they may be in or out of flower, but we all know that plants in flower take precedence. Mr. Brockbank remarks that there are plenty of suitable plants for all seasons that need no forcing; that may be for the amateur, provided his collection is a good one, but not so the nurseryman. I can assure Mr. Brockbank that it is by no means an easy, but a very difficult task to select eighty specimens for any one given season of the year to be in presentable condition. When growing for exhibition I used to pot 120 specimens, seemingly a good margin from which to select the required eighty, but I have more than once been driven to my wits' end when the show time arrived. Duplicates were potted in some instances, though I always endeavoured to make the selection as varied as possible. Now I would like to ask Mr. Brockbank whether any exhibitor would exclude say half a dozen of his best specimens from an exhibition of such importance as that held at Manchester simply because a little artificial heat was required to bring them to perfection, and which would not have been requisite had the season been more favourable? Again, while there is nothing wrong in forcing a hardy plant, there is something gained by knowing

WHAT HARDY PLANTS MAY BE FORCED with advantage, together with the additional advantage of placing before the public something more than what they may have in flower at home. Forcing hardy plants so as to render them useful subjects for decorative purposes is practically a point gained. In order to effect this successfully the plants should always be well established in their pots, and well protected from frost. Having had



White Lily of the Incas (*Alstroemeria Pelegrina alba*). Drawn at Eastcott, Pinner, in June last.

comparatively little grown is *A. aurantiaca*, which, without question, is among the very finest hardy flowers that now enrich our gardens. It is undoubtedly the best of the Alstroemerias for general cultivation, but we should like to direct attention to another fine species whose beauty is of another character. This plant is *A. Pelegrina*, or the Lily of the Incas, as it is popularly called, which inhabits Chili and Peru. The flowers of this species are larger than those of the other cultivated kinds, as may be seen by the accompanying wood-

grows it admirably in pots, writes: "The culture of this plant is of the simplest. Sandy loam seems to suit it well. The pot should be very well drained, as, like all Alstroemerias, any disturbance of the root growth must be avoided, and the plant seems to thrive best when left alone, or repotted only every third year or so. After the growth has all died down the plant will do best if kept fairly dry in a frame from which frost is excluded. Heat must be avoided, as it leads only to a premature and weak growth; in fact, the lights are best off

a fair season of rest, they may be introduced to a cool greenhouse where they will receive plenty of light and air, at all times indispensable. When growth has fairly commenced and they show signs of flowering, water freely with liquid manure. If required for any fixed time, they may be removed to a higher or lower temperature as the case requires. Keep them at all times close to the glass; the frequent use of the syringe will assist the development of the flower buds. Where the subjects forced have highly coloured flowers, remove them into the open air on all warm, sunny days. This will not only materially assist in hardening the plants, but will enable the flowers to retain their natural brilliancy; and when the flowering period is of considerable extent, it is advisable to force the plants sufficiently early to allow the blooms to open gradually in a cooler temperature; by adopting these precautions I have had such plants as *Spiræa palmata* early in May with heads of flowers equalling in brilliancy those produced at its natural flowering season. Is not this, then, an advantage? and are its blossoms less welcome in May (and they may be had even earlier than that) than in July? Is it not a fact, too, that the value of some of our hardy plants is made three-fold by their submitting to be forced?—for instance, *Lily of the Valley* and *Spiræa japonica*, and, besides these, such plants as *Hemerocallis flava*, *Anthericum*, *Trillium*, *Orchis foliosa*, *Iris germanica* and its varieties, several species of hardy *Cypripedium*, *Achillea umbellata*, *Anemone fulgens*, *Saxifraga pyramidalis* and allied kinds, to which may be added many more, may all be forced readily. One thing is almost always adhered to in exhibiting hardy plants, and which is certainly wrong, that is the lifting of huge ungainly plants from the open ground, and dropping them into pots a day or so previous to their being shown, a practice injurious to the plants themselves, and which at the same time invariably causes them to present a dilapidated condition at exhibitions.

E. JENKINS.

FLOWERS OF SUMMER.

AMONGST biennial plants *Eryngium giganteum* is one of the most distinct and handsome now in flower. *Dahlia glabrata*, which sows itself here (as does the *Eryngium*), is also very pretty, though more apt to smother dwarfier plants if perchance it gains a footing too near them. Another good hardy plant, which requires room to spread itself, is *Coronilla varia*, a most profuse bloomer, having clusters of pale lilac or white flowers. Sweet Williams of a good dark strain are now gay in the sunshine, but for rich dark velvety colour none can equal the old dwarf kind with double flowers, sometimes called Ware's Double Crimson. Planted in bold masses or in beds it is most effective. This year, for the first time, we have flowered the true Opium Poppy in our garden. It far surpasses the common small-fruited variety both in stature and size of flower, the fruits being quite as large as those usually seen in chemists' and herbalists' shops, and really quite as useful if needs be. I obtained it by simply buying a big fruit from a chemist's shop where I chanced to see some fine specimens lying in the window, and, whether in flower or fruit, find it far more ornamental than any of its numerous garden varieties.

Gladiolus The Bride has been in flower since the beginning of June, and is yet yielding a few spikes for cutting here and there by the walls. Few other hardy flowers surpass it for effective use in large vases, and it is one of the best of all "good things" amongst summer blooming bulbs whether for pot or open-air culture. *Rubus odoratus* is now very showy both in blossom and leafage, to which last its fragrance—what little it has—seems confined. Planted in good soil, with room to grow, it is most ornamental when 8 feet high, with leaves nearly a foot across and covered with deep rosy blossoms borne in clusters, each being as large as those of the common Dog Rose. The variegated, or Golden Rue, is worth a place, and is now very pretty here grouped with

the common *Agrostemma*—the one with woolly leaves and crimson flowers.

Eryngium amethystinum is just showing its wonderful iridescent blue tint on its stems and bracts, and makes a very telling effect when seen alongside *Aquilegia chrysantha*, which is, as I think, the best and most useful of all the species. *A. californica* is also floriferous, but not so pleasing in colour. The old scarlet *Lychnis chalcedonica*, both double and single, are not to be despised, affording as they do rich glints of Geranium scarlet. Here we think them most effective as seen towering up among white Campanulas and tall white Foxgloves; the old clumps, however, are not nearly so fine as are the two-year-old plants from seeds. *Sambucus racemosa* is now very pretty, its clusters of scarlet or coral coloured berries being, as I think, especially lovely as seen nestling among the dark green foliage backed by the blue sky. It forms a small tree, as large indeed as the common Elder, but is very much rarer and a great deal more beautiful. Our first blue Passion Flowers opened on the sunny walls to-day, and *Spiræa arifolia* hangs its graceful feathery plumes in masses among the leaves. I wonder why the Hungarian Bindweed (*Convolvulus sylvaticus*) is not more generally planted on the margins of woods or in outlying plantations near walks or drives. It is too coarse and rampant for the dressed grounds unless surrounded by turf, but in open wood margins or over dead fences it would be quite at home. We have it here nearly 20 feet high already growing up a dead Fir tree, and its great trumpet-shaped white flowers are most lovely in the evenings. We have also *C. incarnatus*, less robust, perhaps, but it rambles over shrubs, dead and living, in a very pretty way. The safe place for it is the base of a shrub on the lawn, where the mowing machine can check its love for travel. How delicious is the Pine fragrance, and how fresh and cool their shade is during these hottest of summer days. Their grateful shadow is so cool, their perfume so balmy, that one longs for the Tuscan groves, or for that wonderful forest at Ravenna where the Pine tree is so gracefully at home beneath the eternal blue. Some Lilies are now most lovely—none finer than *L. candidum*; none more stately than *L. testaceum*; none more noble perhaps than *L. auratum*, or, better still to my taste, *L. Browni*. The American Swamp Lilies are now coming on apace and seem to love the hot, sunny days which follow cool rainy nights. But no sooner does the middle of July come to us than we find suggestions of the siren with the sere and yellow leaf—Autumna, the friend of Ceres. To-day I see a few early *Chrysanthemum* flowers, and the Hollyhocks and the Dahlias are opening their first flowers—all signs, alas! but too suggestive of the harvest moon and those chilly nights of white mist. But now all is bright and sunny, the Roses are in bloom, Poppies flutter and sparkle in the warm July breeze, and the trees are rich in deepest verdure. The garden is full of warmth and light and fragrance, and yet the lover of hardy blossoms must needs remember the cool fresh spring days when the blackbird sang in the Hawthorn, or even earlier when "Daffodillies filled their cups with tears," and the Anemones laughed in the morning sunshine. W.

Sidalcea malvæflora.—This is sufficiently hardy to stand the winter near London; it grew at Loxford Hall for several years, but, having to move it last March, I fear we have lost it. It seems to like light, rich, and rather dry soil; its woody roots also strike deep into the ground. It is a very distinct plant and well worth growing.—J. DOUGLAS.

Asteriscus maritimus.—I do not think this beautiful and extremely free-blooming hardy border plant is at all as well known or appreciated as its beauty and fine large conspicuous flowers, as well as its neat and compact habit of growth, so well entitle it to be. The only mention of it that I can find in all the volumes of THE GARDEN is a brief three-line paragraph on page 234 of Vol. X., signed "B.," but this correspondent can have seen

but a poorly grown specimen of it or inferior variety, as he says the flowers are about the size of a florin, whereas those now open on the plant in my garden (for which I am indebted to my friend, the Rev. C. Wolley Dod) are exactly double the size of that coin, or 2½ inches in diameter. It was quite unknown to me when I visited the Edge Hall garden last August, and I was greatly struck by its beauty on the rockwork there.—W. E. G.

Pinks and Carnations.—Mr. Douglas's statement in the last GARDEN, that all our Pinks and Carnations are raised by florists, seems to me only justifiable on the assumption that all amateurs and gardeners are florists. I have often raised Carnations and Pinks myself, and have one or two kinds that people admire. It seems to me that the word "florist" is puzzling. What is a florist? Why is one flower called a florist's flower and another not admitted to that honour, if it be one? The expression in some way seems out of date to "A MERE AMATEUR."

Hardiness of New Zealand Flax.—I have seen both the green and variegated forms in flower and seed in the open air at Castle Kennedy, in Wigtonshire. Each plant of the former carried from six to a dozen spikes, which were quite 12 feet high. In the most exposed situations they were protected in winter by Spruce or other branches stuck round them. The soil is gravelly. Other plants which require, in less favoured localities, a greenhouse temperature are quite at home there, though severe frosts occur there as well as in other parts of the country.—R. M'L.

FLORISTS AND THEIR FOIBLES.

I HAD hoped to have said nothing more on this subject, with which I am sure you and your readers are by this time weary. But as your correspondent "Peregrine" imputes to me wilful misquotation of his words, I am left no alternative but to reply. He accuses me of "recasting his statement" for my own purposes; that is, in other words, of deliberate falsehood. His justification of this serious charge is, that I quoted him as saying that "none of the races of popular hardy flowers made any great strides in improvement until they were taken out of the florist's hands;" whereas what I should have said was, "it was only when the work was taken out of their hands and conducted on broader lines that any great strides in improvement were made." Certainly, out of regard for your space, I very slightly condensed his remarks, but in doing so I contend that I did not in the very slightest degree misrepresent his meaning. He was speaking of hardy flowers. He was speaking of improvements in them; and he stated that the work of improvement took place when it was taken out of the florist's hands. It turns out, then, that my misquotation consists in saying that the hardy plants in question were taken out of the florist's hands; whereas what I should have said was that the work of improving them was taken out of their hands. Truly a distinction without a difference, and a rather slender foundation to uphold his reckless accusation! I repeat it that I was justified without any necessity for "recasting his statement" in demanding a detailed list of the plants which had been thus improved by taking them out of the florist's hands. If his words did not mean that such a list could be furnished, then they had no meaning and were irrelevant.

"Peregrine" started this controversy on the assumption that "florists proper" were opposed, by the very fact of being florists, to the cultivation of hardy plants—a monstrous and unwarranted assumption. But he was compelled to cling to it by the necessity of the position which he had taken up. He wished—so far as I can make out that he had any definite object at all—to advocate the culture of hardy plants, in which design I would be entirely in accord with him. But he seems to have imagined that he could not do this without decrying and insulting the florists to the utmost of his power. This was his initial mistake, and it has run through all that he has written. He seems to have felt that "florists' flowers" and hardy plants

were irreconcilable foes; and that his mission was to put down the former. He cannot bring himself to perceive that they run on different, but by no means opposing, lines; and his inability to realise the possibility of a lover of both classes of

vulgarity which spread over our gardens were found in the Auriculas, the Carnations, the Picotees, the Pansies, the Persian Ranunculuses, the Polyanthus, which found a haven in the quiet and often humble gardens of those

no one delights more than I, though I venture also to think myself a "florist" in the fullest measure of "Peregrine's" condemnation.

The list of plants which "Peregrine" gives on p. 34 calls for little remark. That there are other plants than florists' flowers, and that they are very desirable, is not exactly a piece of information which I need to receive from him. But hardly any of those he mentions were ever in the florists' hands, and those which were, such as the Dahlia and the Polyanthus, have certainly not been taken out of them. By the way, it might be well for his own sake if "Peregrine" would inform your readers of the latitude in which he dwells which enables him to include Dahlias, Salvias, Begonias, Lobelias, Heliotropes, Geraniums, and Amaryllids among hardy plants, when, after enumerating those mentioned, he says, "in short, nearly all the popular hardy flowers we possess which have been either introduced or improved by those who are not florists proper."

It is now abundantly clear that neither pleasure nor profit are to be had from a further continuance of this correspondence. "Peregrine" thinks badly of florists and their work. He is free to hold his opinion for all the effect it will have on them. He assumes that no florist can be at the same time a plantsman also, which is an utterly false assumption. He argues as if florists' flowers and hardy plants were natural enemies, which is contrary to past and present experience. And he holds that the work of improving hardy plants—by which I strongly suspect he means raising varieties suitable for bedding—was taken out of the florist's hands. To this, I reply that it is false in fact and irrelevant in argument, inasmuch as the "work" never was in their hands, as he admits in the passage above quoted; and no florist as such ever claimed to lay down rules for the improvement of plants which lay outside the limits of his work; but within which, notwithstanding "Peregrine's" condemnation, he claims to have produced many a "thing of beauty and a joy for ever." FREDERICK TYMONS.

Cloghran, Co. Dublin.

TREES AND SHRUBS.

THE AILANTO, OR TREE OF HEAVEN.*

MORE than a century has elapsed since this fine tree first found its way to European gardens, and its merits as a useful shade and ornamental tree of the first class are now generally recognised. It is a native of China, and its exact date of introduction from that country is pretty certain. The following memorandum occurs in "Hortus Collinsonianus": "A stately tree raised from seed from Nankin in China, in 1751, sent over by Father d'Incarville, my correspondent in China, to whom I sent many seeds in return; he sent it to me and to the Royal Society." Few trees are less particular as to soil or position; in slightly sheltered spots in moist, fairly good ground it, however, grows most rapidly and soon attains a large size. In France it is said to thrive on chalky soils, and to get a large size where scarcely any other tree will grow. Mr. Robinson, in his "Parks, Promenades, and Gardens of Paris," pays it the following tribute: "Ailanthus glandulosa—sometimes called the Tree of Heaven, and by the French Vernis du Japon—is a town tree of great excellence. When in a young state it is graceful from its long pinnate leaves; when old and well grown it becomes a graceful forest tree. But the qualities that will above all others recommend it to the town planter are its perfect health and freshness under all circumstances in towns. Dust, foul air, or drought seem to have little or no effect upon it. For parks and avenues it is indispensable, as it perfectly retains its foliage long after our own deciduous trees have been scorched by drought and dust. It seems to do equally well on all soils,

* *Ailanthus glandulosa*, Desf. Act. Acad. Paris, 1786, p. 263; Loudon "Arboretum et Fruticetum Britannicum," vol. 1, p. 490; Koch "Dendrologie," theil 1, p. 569.



The Ailanthus in a young state, with flowers, fruit, and foliage.

plants led him to assume that Mr. Brockbank must necessarily be not a florist because he was a hardy plantsman. Florists' flowers and hardy plants lived happily together for many a generation, though this does not seem to have occurred to "Peregrine." But when the "bedding-out" system arose, then indeed the hardy plants met a foe, before whom they reeled and fell and perished; while, excepting the Rose, the sole surviving elements of "sweetness and light" amid the flood of

very florists whom "Peregrine" thinks he is doing a service to horticulture in denouncing. Let him do so if it pleases him. Notwithstanding his high authority as a critic from "the artist's and the human point of view"—whatever this latter may mean—the florists will pursue the even tenor of their way, as they did in days of yore, and uphold the standard of beauty, when perchance some fresh change in the fickle current of fashion shall have swept away those hardy flowers in whose culture

having a constitution and a leathery texture which seem perfectly indifferent to any vicissitude of climate witnessed in these latitudes."

The small greenish white flowers, in spite of the number in which they are produced in the branched panicles, are inconspicuous enough, but when these are followed by innumerable fruits—somewhat like the keys of an Ash, but rather smaller—tinted with bright red brown, the general effect is quite different from, and perhaps superior to that produced by any other hardy tree. A large specimen at Kew last year proved, with a background of dark Pines, to be for the time the most attractive object in the arboretum.

For so-called sub-tropical work, the *Ailanthus*, if cut back annually and kept to one growth, grows rapidly, and produces foliage of enormous proportions. It assumes a most tropical appearance, and looks much unlike a plant which requires no care or expensive quarters during the long winter months.

THE *AILANTHUS*, too, acquires additional interest as the food of the silk-producing insect (*Bombyx cynthia*), which of late years has been introduced into South Europe and Algeria. In its native country its leaves are used as a vegetable in times of scarcity, and recently Dr. Robert, the inspector-general of the health service in the French navy, has called attention to the fact that the root bark affords a very valuable specific in cases of dysentery. The leaves are, in this country at any rate, not liable to the attacks of insects, which, in the case of so many cultivated trees do so much harm at times, not taking into account the disagreeable appearances caused by their ravages. Horses and cattle, and it is said even goats, refuse to eat the leaves. The wood, according to Desfontaines, is hard, heavy, glossy like satin, and susceptible of a very fine polish.

VARIETIES.—The names of *Ailanthus macrophylla*, *A. japonica*, *A. rubra*, *A. purpurascens*, and *A. mascula pendula*, found in foreign catalogues, do not in all probability (with perhaps the exception of the last named) represent even slight varieties. The form with variegated leaves mentioned incidentally by Koch in his "Dendrologie," seems to be rare. The *Ailanthus flavescens* of gardens belongs to a different genus, and was determined by M. Carrière to be *Cedrela sinensis*, Juss. *Ailanthus* is readily raised from seeds, but when these are not to be had, root cuttings furnish an easy method of propagation.

STATISTICS.—The following data are taken from Loudon's "Arboretum." It would be both useful and interesting were present measurements of these trees to be forwarded to the editor of this journal.

In the environs of London.—The largest tree is at Syon; it is 70 feet high, the diameter of the trunk 3 feet 10 inches, and of the head 40 feet; the trunk forms an erect column of 30 feet before it branches, and the head is hemispherical. In the Fulham Palace there is a tree, twenty years planted, which is 25 feet high.

South of London.—In Kent, at Cobham Hall, twenty years planted and 36 feet high, the diameter of the trunk 1 foot, and of the head 15 feet; in the Isle of Jersey, in Saunders' nursery, ten years planted and 16 feet high; in Sussex, at Langham Park, nine years planted and 12 feet high; at Kidbrooke, thirty years planted and 30 feet high.

North of London.—In Bedfordshire, at Amptill Park, three years planted and 12 feet high; in Berkshire, at White Knights, there are several trees, nineteen years planted, and from 27 feet to 30 feet high; the diameter of the trunks about 9 inches, and of the heads about 30 feet; these trees produce flowers every year, and fruit occasionally. In Cambridge, in the grounds of St. John's College, there are two trees, both near the River Cam, one of which is 40 feet high, with a trunk 2 feet 7 inches in diameter; in Warwickshire, at Coombe Abbey, ten years planted and 12 feet high; in Worcestershire, at Croome, forty-five years planted and 60 feet high; the diameter of the head 90 feet.

Scotland.—In Berwickshire, at the Hirsell, three years planted and 6 feet high; in Perthshire, at Kinfauns Castle, eight years planted and 16 feet high; in Sutherlandshire, at Dunrobin Castle, 43 feet high, the diameter of the trunk 1 foot 6 inches, and of the head 33 feet.

Ireland.—At Dublin, in the Glasnevin Botanic Garden, twenty years planted and 18 feet high; at Terenure, twenty years planted and 14 feet high.

Foreign countries.—In France, at Paris, in the Jardin des Plantes, 68 feet high, with the head 44 feet in diameter; at St. Leu, where it was planted on a large scale by Mr. Blaikie in 1794, it is 80 feet high, with a trunk from 3 feet to 3½ feet in diameter; in the Botanic Garden at Toulon, fifty years planted and 60 feet high. At Geneva, at the entrance to the Botanic Garden, there is a tree from 45 feet to 50 feet high, the trunk of which in 1833 measured 7 feet 3 inches in circumference at the surface of the ground. In Saxony, at Wörlitz, a tree twenty years planted is 25 feet high. In Austria, at Vienna, in the University Botanic Garden, forty years planted, 35 feet high. In Prussia, at Sans Souci, thirty years planted and 20 feet high. In Bavaria, at Munich, in the Botanic Garden, twenty years planted and 20 feet high. In Hanover, at Göttingen, in the University Botanic Garden, ten years planted and 30 feet high. In Cassel, at Wilhelmshöhe, 60 feet high. In Italy, at Monza, twenty-nine years planted and 60 feet high.

GEORGE NICHOLSON.

Royal Gardens, Kew.

NOTES.

OF NEW DENDROBIUMS, D. Deari is, as I think, one of the best of recent introduction. The flowers are as white and as cool looking as spring Snowdrops, and most lovely for personal decoration when grouped with a spray or two of *Asparagus plumosus* or with light green Maiden-hair Fern. The plant seems to bloom quite freely in a small state, a bulb 9 inches in length bearing a spike of five or six flowers, each nearly 3 inches across and of snowy whiteness, with a blotch of pale green colour on the disk of the lip. That it flowers on leafy bulbs as does *D. formosum* is an additional attraction, and, like the last species, the blossoms are gifted with great endurance. It is too soon as yet to say much of its free-growing habit, but so far the plant seems quite at home in a warm and airy house in which Cattleyas and Vandas do fairly well.

SHADING FOR FILMY FERNS.—Will some one kindly say what is the best colour to apply to a glass roof in order to shade the Killarney Fern, Todeas, &c., from too much sunlight? Would a thick coat of white paint on the glass outside be best? or would red, blue, or green paint be better than white? or again, would a thick canvas blind, elevated 2 inches or 3 inches above the glass, not be still better, for we find the sun makes the glass very hot during warm weather? This question as to the best colour of all stippling or shading mixtures applied to the glass is an important one, and worth discussion. Gardeners as a rule use white lead and turpentine, but is it a fact that white is the colour most suitable for the purpose?

OPEN-AIR FIGS.—We are told that the climate has changed so much of late years that the open-air culture of the Grape for wine-making is a forlorn hope in this country. I wonder if this is true of the climate, or whether the open-air culture of the Grape did not date its decline soon after the introduction of heated glass houses into our gardens. Certainly hot-houses have not been all gain to us, and I sometimes think our open-air culture of almost everything would have been much better to-day than it is had their introduction never happened. Of course they are most useful in many ways, and especially valuable during the cold winter months, but nevertheless a noble garden might be made without them altogether. The gardeners of two or three cen-

turies ago were more careful to provide natural shelter than those of to-day. Sunny walls, pleached hedges of Yew, Beech, Hornbeam, &c., were more used for shelter, and Apricots, Figs, and open-air Grapes were far more common than now. One of the greatest treats imaginable is to see the old Fig orchard at Tarring, in Sussex, when the fruit is ripe and mellow among the deep green leaves. Yesterday I saw a grand old Fig tree in an old sunny garden fenced in by high brick walls, and was assured that it had rarely missed a crop for the last thirty or forty years. I remember helping to thatch down the old Fig trees on the approach of winter when a boy, and the baskets full of luscious purple fruit we gathered in August. Now, alas! how rare is it to see a really prolific open-air Fig tree.

*

MYOPORUM ALBUM.—Will anyone kindly tell me why this pretty little greenhouse shrub is so rarely seen in English gardens? Near Paris it is quite commonly grown in small pots for room and window decoration, and is most graceful as seen with its pale green branches drooping around the pot sides, and more especially so when the shoots are wreathed with sweet snow white blossoms. I remember seeing it beautifully cultivated in a little nursery garden at Chantilly years ago, and had quite forgotten the little beauty until Mr. Poë sent me a little wreath of it yesterday with the intimation that it was flowering with him for the first time. The wonder is that the Covent Garden growers for market have not taken up the culture of a plant so distinct, so beautiful, and apparently so easily grown. It is sometimes called *M. tuberculatum*, and is a native of New South Wales, and somewhat resembles *Eriostemon scabrum* in growth, both stems and leaves being densely warted, but they are of a more pleasing pea-green colour.

*

ALSTROEMERIA AUREA.—This is, perhaps, the most robust of all the species, attaining a height of 4 feet or 5 feet, and bearing great broad heads of rich orange blossoms, each mass well-nigh a foot across. A friend tells me it grows rampant in one particular spot in his garden, and, as often happens, not quite in the place he would like it to be. He tells me it is most wayward. Twice he has dug it out of its favourite corner to transplant elsewhere, and each time, while failing to grow where he desires to have it, it has come up in its old place as luxuriantly as ever. The fact is, if once this plant gets well established near a sunny wall, it is not easily eradicated. Its thick roots run through clumps of other bulbs, through the roots of Roses, and stitch themselves in and out of the Box edgings in the most persistent way. It seems most sociable, and being most lovely when in blossom, perchance it obtains more tolerance than would fall to the lot of a plainer-looking member of its family. For large vases its great heads of vivid orange blossoms are most effective, and, as above indicated, it is readily grown.

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THE TIME OF WHITE LILIES.—One of the fairest of all the flowers to be found growing to-day in cottage gardens is the white Lily (*L. candidum*), or Madonna Lily, with its sweetly scented pure white flowers. It is the emblem of rosy summer time in all its fullness, and, as I think, particularly lovely in the evenings when its spires of great white bells shine so brightly from a dark background of Privet or of Holly. In July a garden of white Lilies and old-fashioned Cabbage and Moss Roses must needs be a pleasant place, even if more modern flowers be absent; but there are hosts of other old-fashioned flowers that seem to be naturally "maids in waiting" on this our snow-white summer queen. Of such are Pinks of all kinds, single as well as double, Carnations, Sweet Williams, and Bellflowers of all kinds. Before me, as I write, is a stout stem of the golden rayed Japan Lily (*L. auratum*), with many blossoms; it is most gorgeous, and its perfume overpoweringly rich and satisfying, but after all I believe no one Lily can ever be so perfect and pleasing as this of the Madonna. VERONICA.

FERNS.

GLEICHENIAS AND THEIR CULTURE.

SOME twelve or fifteen years ago this interesting section of evergreen Ferns could only be found in good condition in a few collections to which special structures were devoted, but now they are grown by most people with, as a rule, success. Nevertheless, we have yet something to learn as regards

is said about them by those who have seen them in a wild state. Be that as it may, however, they certainly lose a great deal of their native vigour and hardiness under cultivation, as they always fare very badly here after an operation of that kind, however carefully it may be performed. Nevertheless, the statements just referred to may be true, seeing that the

SOIL in which they delight in their native habitat is essentially different from that which, under

is unable to dissolve some of them, and therefore the compost is deprived of some of its nutritious qualities? This we cannot tell. All we can say is that *Gleichenias*, which at different times have been grown in a compost made with a view to imitate the soil in which they grow naturally, have proved to be hopeless failures, whereas the best results have been obtained by growers who, regardless of the dangers incurred in not following Dame Nature in all her ways and fancies, sternly adhered to good fibrous peat roughly broken up and mixed with at least one-third of coarse silver sand. With such a compost and an abundance of water at the roots at all times, but especially during the growing season, there need be but very little anxiety about their welfare—the more so if they can be kept in a cool, airy house, which will suit most of them. The species which require, or at any rate prefer, a warm house are not very numerous. These are *G. Mendelli*, a kind with very finely-cut segments of a beautiful glaucous colour underneath, and *G. pubescens*, a native of Guadaloupe, and one of the handsomest of the whole group. When better known and more widely distributed, this beautiful plant will be much appreciated. It is extremely graceful in outline, very robust in constitution, and it produces very fine fronds, whose bifurcate pinnules or segments measure 24 inches in length; then there is also *G. dichotoma*, which thrives a great deal better with a little extra heat than without it. Apart from these few species, all others will fare best in the temperature of an ordinary greenhouse, where during the winter the temperature falls as low as 40° or 45°. In fact, most, if not all, the failures in the early attempts at cultivating these charming plants may be traced to the pernicious practice of growing them in too much heat—treatment which caused them to make stunted growths generally full of thrips and scale. It is a fact worthy of notice that success cannot reasonably be expected unless they are in a perfect state of cleanliness. Besides the house being cool, it should also be light and well ventilated. Bright light is an indispensable agent in the culture of *Gleichenias*; they will even withstand a little sunlight during the morning and afternoon, and be benefited by it. Light is of such importance that if a plant in perfect health be placed under, say, Tree Ferns, or under any other plants that will shade it even lightly, it will soon start on a retrograde march, and show by its spindly growth that it does not at all appreciate the presence of stately neighbours taller than itself. In

POTTING, great care must be taken that the rootlets do not get broken, as they are short and exceedingly brittle. The rhizomes, which in most cases are small and wiry, should also receive special attention at the hands of the operator; and as they have a particular objection to being buried underground, however slightly, they must be carefully kept on the surface of the potting material, which must be made firm, if not altogether hard, and pegged down on it. It is, therefore, necessary, in fact indispensable, that they should have abundance of pot room, so as to give the rhizomes every facility for spreading; but as their roots seldom get to any length at all, they need not have deep pots. For specimens, pans of about 15 inches in diameter by only 8 inches in depth will be found the best and safest receptacles in which to grow them, and these should be well drained, as there is nothing more injurious to them than stagnant moisture at the roots. In pans of the dimensions just given may be grown without much trouble handsome plants 5 feet or 6 feet in diameter by 3 or more feet in height. *Gleichenias* have been divided into two

SECTIONS. The plants comprised in the first section, or *Gleichenias* proper, with orbicular segments or pinnules resembling a quantity of beads, are all natives of New Zealand, Tasmania, and New South Wales; they consist of *G. circinata* and its lovely variety *glauca*, the fairy-like *hecistophylla*, the tiny-growing little *microphylla*, the beautifully glaucous *rupestris* and *Spelunca*, the comparatively dwarfer and more compact



Full grown tree of *Ailanthus glandulosa*. Height 70 feet. (See p. 63)

their cultivation, if the reports we hear from travellers be true. Those who have visited the native countries in which *Gleichenias* are found wild state that they form imposing masses of thick undergrowth, generally extending over vast areas, and so dense as to seriously impede the progress of travellers. Their shoots keep on growing from one year to another until they attain quite indefinite dimensions, thus adding continually fresh difficulties to be encountered by whoever comes in contact with them. Indeed, from all reports, the only way to get through them is to cut them down mercilessly, an operation from which it seems they rapidly recover, if we may rely on what

culture, gives the most satisfactory results. All *Gleichenias* that I have seen imported into this country, either dead or alive, from unconnected and widely distant countries come in cases partly filled with some of their native soil, which to all appearances always seemed of a heavy, clayey character. This is easy enough to imitate, and I know of several instances in which it has been imitated, and the imitation so perfect as to defy detection except by analysis. Yet soil thus manufactured did not answer. Could it be, then, that the native soil contains some elements of which our imitations are destitute? or could it be that the same salts being present in both soils, our water

growing semivestita, and the exceedingly pretty and dwarf species just sent out by Messrs. Backhouse, of York, under the name of *G. polypodioides*. This, although a somewhat more delicate-looking species than most of the others of the same section, is highly interesting and thoroughly distinct in appearance, owing to the lovely pea-green colour of its elegant little fronds. The plants belonging to the second section are totally different in general appearance from the preceding ones, and have been designated by the name of *Mertensia*; they are distinguished by a more erect habit of growth, and also by their pinnae being larger and linear, instead of being like those of the other section, beaded or orbicular; their fronds are also broader; they are generally dichotomously branched, and are borne on much stouter stems. The same differences are also noticeable in the rhizomes, which are much thicker and generally grow underground. The best known species belonging to this section is doubtless *Gleichenia*, or *Mertensia*, flabellata, a magnificent plant, which grows to fully 6 feet in height, and which is often seen in flower shows 5 feet or 6 feet through. Its appearance—that of a forest of fan-like fronds—is somewhat singular, yet handsome. Next comes *G. dichotoma*, which seems to have a very accommodating constitution; it is particularly distinguishable by its beautiful glaucous colour. *G. pubescens* is also one of the most striking among the species belonging to this group. It has stout fronds several times dichotomously divided, their under surface being covered with a peculiarly light brown pubescence. *G. Cunninghami*, also belonging to the *Mertensia* section, is very seldom seen, but always much admired. It is of erect habit, and possesses a peculiar appearance, owing to its segments, about 6 inches long, being strongly incurved and very glaucous underneath. With the exception of the last-named species and flabellata, which are natives of Tasmania, all the others comprised in this section come from the West Indies, Ceylon, Brazil, &c. The culture is the same for plants of both groups; they thrive very well grown together and under similar treatment, but the *Mertensias* being stronger growers are benefited by a little fibrous loam broken up in small lumps, a small quantity of pieces of charcoal being added to the soil. They are both all the better for being kept dry overhead, although they require an abundance of water at the roots. S.

INDOOR GARDEN.

COMBRETUM PURPUREUM.

THIS belongs to a somewhat numerous family, mostly evergreen twiners from hot regions, but it is the only one that has found favour with plant growers. It does not get so large as many stove climbers, and on that account is more suitable for places where the space that can be afforded to it is limited. Its flowers, which are very handsome, are borne in large-spreading, fan-shaped sprays a foot in length and nearly as much in width; the colour, reddish crimson, is rich and deep; the flowers are individually small, but they are produced in large numbers, standing close and erect on the upper surface of the spike, which assumes a horizontal position. The plant is suitable for twining round a pillar, clothing a rafter, or training as a specimen on a trellis. In the latter case it can be used when in bloom for decorative purposes in a warm conservatory or heated Fern house; yet it must not be subjected to draughts in a cool house, as it is essentially a warm stove plant, coming from the hot, moist regions of Madagascar, and therefore cannot bear for any length of time either a low temperature or a dry atmosphere.

PROPAGATION.—It is increased by cuttings, which by many are found rather difficult to strike. The strong young shoots are somewhat pithy, long-jointed, and liable to damp off. If cuttings made from growth of medium strength that has got two-thirds ripened in the summer are put singly in small pots, drained and filled with clean sand, placed in a brisk heat moderately moist and kept close, they will callus in a few

weeks and ultimately emit roots. As soon as these exist in sufficient quantities to support the cuttings, they should be gradually inured to air by tilting the propagating glasses by degrees until they can be dispensed with altogether. The young plants should be kept at the warmest end of the stove, and when they have got enough roots to bear moving, ought to be put in 4-inch or 5-inch pots. The soil should consist of good fibrous peat, without anything added, except sufficient sand to insure its keeping for years quite porous. This latter is essential, as the plant, from its evergreen character, cannot bear shaking out like some things. The soil must be kept moist, but not too wet. Syringe daily overhead, and slightly shade from the sun until the middle of September, when both may be dispensed with till the spring. As the days get shorter reduce the temperature, which may be kept during the season of rest at 65° in the night, with 5° higher by day. Less water should be given through the winter. About the middle of February let them have 5° more heat day and night, but do not pot them until the roots have begun to move freely, as they do not require nearly so much root-room as other plants. At the beginning of April they may be moved into pots 3 inches larger, giving them soil similar to that in which they were potted before. They should now have a few neat sticks inserted in the soil, round which to train them. They ought to have their points pinched out, so as to induce them to make several shoots. The night temperature further on may be raised a few degrees in the daytime, letting it run up to 80°, after which give air, closing with sun-heat and syringing each afternoon. A thin shade will now be required in bright weather. Do not over-water, as this *Combretum* is comparatively a slow-rooting plant, and until the roots have begun to enter the new soil it is better to keep it a little dry. Continue to syringe overhead when the house is shut up in the afternoon, with a moist atmosphere day and night. As growth is made keep the shoots trained regularly round the sticks, for if allowed to become entwined in each other, they are liable to get injured by undoing them. Nothing further will be required, except a continuance of this treatment until the middle of July, when, if the plants have made sufficient progress to bear a

SECOND SHIFT, again give them pots 3 inches larger, using the peat in a little larger pieces than previously. It is safer practice with subjects of this description that do not make rapid growth to give two moderate shifts in the season than one large one, as if the work is carefully done, they will not receive any check. They will now need larger and stronger sticks to support them, and through the remainder of the summer will simply want attending to as before. In September cease to syringe or shade, giving more air and less moisture in the atmosphere, as well as at the root, so as to discourage their making much growth, and to ripen up the shoots. Reduce the temperature 5° both day and night through the autumn, ultimately lowering it to the point recommended for the preceding winter. During the winter keep them in a light situation well up to the glass, for upon the wood being well matured will depend their flowering freely the ensuing summer. As the days lengthen, again raise the temperature gradually as before, and in April move them into pots 2 inches or 3 inches larger, according to the quantity of roots they are found to have; in these they must remain through the summer. They should now be taken off the sticks and have stout wire trellises placed to the pots, round which the shoots should be trained, arranging them so that the bottom of the trellis shall be well covered. Their treatment through the growing season will require to be similar to that which was recommended for the preceding. By midsummer they will show flower, which will open some weeks later on. It will not be advisable to remove them from the stove to cooler quarters this season, as it would check their progress, and the object will be to increase their size and ability to bloom the ensuing summer. As the autumn advances, again give more air and less moisture, treating them as before through the winter. Before growth com-

mences the ensuing spring, if any over-long shoots exist they may be shortened back, but the knife must on no account be used too freely, or it will limit their power to flower. About the same time as previously they should be turned out of their pots, and any loose soil at the tops of the balls that the roots have not taken hold of ought to be removed. Give them a 2-inch or 3-inch shift, and treat subsequently through the season as previously. When in flower they may be moved, as already mentioned, to a somewhat lower temperature during the warmest part of the summer. Each spring they ought to be turned out of the pots, and as much of the soil removed as can be got away without much disturbing the roots, replacing it with new material; but the pots already recommended will be large enough for ordinary purposes, assisting them during the growing season with manure water once or twice a week. When grown on the roof or similar position, all that is required is to keep them regularly trained, not tying the shoots in too closely; in most cases it will be found better to confine the plant to a pot than to turn it out—not the least advantage of which is that so grown it can be at any time moved to another place, and it will last for years in a pot when fairly treated.

INSECTS.—Aphides, thrips, and red spider can easily be kept down by the use of the syringe. If affected with scale or mealy bug, dip in or syringe with some insecticide. T. BAINES.

HERBACEOUS CALCEOLARIAS.

THE first step in connection with the cultivation of these plants is to secure a good strain, and there being so many who are in possession of really first-class strains, this should not be difficult. The seeds should be sown now. Select a deep seed-pan, as the soil in a shallow pan dries through more quickly than in a deep one, and the less water the seed requires the better. It is so very small, that it cannot be buried deeply, and therefore frequent waterings are apt to disturb it too much. The pan must be moderately well drained and filled to within an inch of the rim with fine rich soil. The surface soil should be made more sandy, and should be run through a fine-meshed sieve, for when the young plants first begin to grow their roots are so small, that they cannot grapple with hard lumps. Before sowing give the soil a good soaking of water. The seed may then be sown, and just a dust of moist soil sprinkled over it. A shady position in a cool house where the pan can stand upon a bed of soil or coal ashes is the best place for it, and in order to keep the surface moist a square of glass should be put over it, or a layer of Moss will do as well as anything, and at the same time reduce the quantity of water needed, but whatever the pan may be covered with it must be removed directly the young seedlings appear above ground, and at this stage more light and air will be necessary in order to give them strength. As soon as they have made four leaves they are large enough to prick off into other pans, which should be prepared in much the same way as the seed-pan. In these the plants should be put an inch apart every way, and they should receive a gentle watering. They must still have cool quarters, but an ordinary cold pit or frame will answer if the pans stand on a cool bottom, and are shaded from bright sunshine. After being subjected to this kind of treatment for a month they will be large enough to be put into single pots.

SOIL.—This must be of the most substantial kind; a good fibrous loam is a prime necessity. It should not be fresh from the pasture, but from a heap that has lain some time in preparation. Three parts of such a loam and one part rotten hotbed or cow manure, with a good sprinkle of sand, will make an excellent compost. For the first potting these ingredients must be sifted, but in subsequent shifts the loam should be made sufficiently fine by beating it to pieces. It must not be divested of its fibrous matter, for it is important to have an open soil in which the roots can work freely. From the seed-pan let them be transferred to 3-inch pots; this is best done as

soon as the leaves meet each other in the pan. From 3-inch pots we usually shift into a 6-inch size, and those required to make large specimens are transferred into 8-inch pots when they have filled the others with roots. A few plants in 6-inch and 7-inch pots are useful for many purposes, and to get them in good condition it is necessary to keep them well supplied with liquid manure as soon as they have filled their pots full of roots. Those to form specimens must be put into the pots in which they are to flower early in January. With reference to the

WINTER QUARTERS of these plants, we find that they are impatient of fire-heat, and that if they can be kept secure from frost they are better without it than with it. Our own plants we keep in cold pits, and by using plenty of external coverings on the lights and thick linings of long manure against the walls, we never trouble to remove them until the thermometer outside registers 20° of frost. When such is the case, we select the middle of the day to uncover the pit and remove the plants to a structure in which there is just sufficient heat to keep the temperature above the freezing point. Directly the frost is gone the plants are taken back to the pit again. In respect to watering, it is necessary to understand at the time of potting that these Calceolarias are impatient of too much water about the roots, and therefore ample drainage must be provided. For a 6-inch pot the crocks should be 1 inch deep, with a piece of rough peat or loam over them; for an 8-inch pot 2 inches of crocks and the covering on the top will be necessary. With drainage in proper order, the health of the plants is in a great measure secured; but at the same time the watering must be done with care. If they have too much, the leaves will soon get yellow and cease to grow; on the other hand, if the soil in the pots is allowed to get dry for a few times the plants will soon get infested with green fly, and will get into such a weakly condition as to be past recovery. Under treatment similar to that just recorded, specimens may be produced that will carry great heads of bloom, which for showiness and richness of colour are unsurpassed by those of most other plants.

J. C. C.

5028.—**Transplanting Lapagerias.**—I have had to do with the planting out of some two or three dozen large and medium-sized specimens of Lapagerias, not one of which has failed to do well; they were all turned out early in the season before growth had made any progress—a better plan than planting, when both roots and tops are in motion or about completing their growth. The roots should be loosened from the twisted coil they have formed in the ball—a separation which cannot fail to stop the shoot growth, if any is going on, and if the growth is about completion, as in many cases it will be now, or nearly so, it is not well for the roots to lie dormant in the soil until spring after having been disturbed. If there is any particular reason for the plants being at once planted, the roots in the balls should not be opened out, but transferred intact to the bed, ramming the new soil round them, so as to make it solid enough to force the water given through the balls, otherwise the roots will get so dry as to seriously injure the plants. Lapagerias require shade, and should not be planted at the south side of a house if avoidable; and if need be that they must be so placed, the young growth ought to be shaded, particularly if any warmth has been used, so as to bring them into growth before the sun has much power in spring, as when the leaves are in a soft state they cannot stand full exposure. They are water-loving plants, and whilst growth is going on the soil ought to be kept well moistened; even when at rest the soil should never be allowed to get so dry as many things require. They are amongst the easiest of plants to grow, provided their peculiarities are understood and attended to. Your correspondent has done well in not turning his plants out into a bed before they have attained moderate size and strength. Too great a body of soil given in this way to comparatively little plants has killed many.—T. BAINES.

SEASONABLE WORK.

INDOOR PLANTS.

ALLAMANDAS.—Plants of these that have been flowering for some time in pots will be strengthened if an inch or two of rotten manure is put on the surface of the soil; as much may be laid on as will fill the pots to the rim, as the manure being porous will not interfere with the watering, and very shortly it will be full of roots that will be of the greatest assistance to the plants in enabling them to continue blooming. This surface dressing will be found much better than depending alone on the use of manure water.

IXORAS.—Where large specimens of these or other subjects of a similar bushy habit have finished their first blooming they may be cut back freely, reducing them to one-third or so of their size. If plants of this description are allowed to keep on making an unlimited number of growths they will be proportionately weak, and will only bear small flowers, while if well headed in now and the whole of the weak shoots cut away, they will break strongly and push growth that will make a fine display of bloom next spring. By occasionally cutting them in hard in this way the plants may be kept in a satisfactory condition for a length of time, producing flowers more abundantly and quite as large as younger plants. When they have broken well a portion of the old soil, say one-third, may be shaken away and replaced with new material.

ACHIMENES AND GLOXINIAS.—The latest batch of Achimenes started to come into bloom when the earliest are over ought not to be where they will have more warmth than is just sufficient to keep them growing, but they should not be pushed on into flower faster than can be helped; give them sufficient support in the shape of sticks and ties to prevent the shoots hanging about in a loose, untidy manner. Seedling Gloxinias, as well as the last potted bulbs, should likewise be kept as cool as they will bear. If the earliest flowered plants have been kept free from insects, and managed so as to promote healthy growth, they will bloom a second time, and will be much assisted by having liquid manure given every other time they want watering. Gloxinias are not now propagated much by means of cuttings, fine kinds being readily obtained from seed, but where good named sorts are grown, or any extraordinarily good formed or well marked seedlings have appeared, it is well to guard against losing them in the winter by raising some young bulbs. The leaves will now be in the right condition for propagating, being well matured. Put three or four together into 6-inch or 7-inch pots filled with leaf-mould and fine peat, two parts of the latter to one of the former, with a fourth part of sand, inserting the leaves round the edges of the pots. By this means much better bulbs will be secured than by cutting the mid-rib of the leaf and placing it on the surface of the pot. These leaf-cuttings must not be confined over much, or they will be liable to rot. It may be well to remark that the more perfect and well matured the leaves are the better, as the longer they remain green and fresh the better bulbs they will make.

STREPTOCARPUS BIFLORUS AND S. SAUNDERSI.—These are most useful, long-blooming plants, and should be given every encouragement, letting them, if possible, have a position on a front stage close to the glass, or on a shelf over-head if there is one. If located in a situation of this kind they should be taken down and syringed frequently, for if this is not done they are liable to be attacked by thrips. Their flowers, differing as they do in form as well as in colour from those of the generality of other plants, are extremely serviceable in a cut state.

EUPHORBIA JACQUINIEFLORA.—Attend to stopping the shoots of this as needed. The amount of stopping advisable will be regulated by the greater or less strength of the plants to be operated on; if late and weak, removing too much of the shoots will only weaken them still further, but where strong, they should be fairly pinched back

or bent down. Where this Euphorbia is planted out and employed to cover a back wall, it will, if strong, be an advantage to stop all the shoots, as by so doing there will be a much greater quantity available for cutting.

FRUIT.

PEACHES.—Should we have a change to dry weather one of the most important matters in the management of late Peaches under glass will be the liberal application of water to the roots and foliage. With every leaf and branch spread out and trained within 2 feet of the glass a mere surface watering is of very little use to inside borders at any time, and when the heavy strain of a full crop of fruit is in force a watering that does not reach the drainage is misleading and frequently induces the premature ripening of the fruit before it has completed the last swelling. To avoid this, let all inside borders be heavily mulched and watered until the latter finds its way into the drains. Syringe copiously every fine morning and again about four o'clock in the afternoon, when the house may be closed for two hours to swell the fruit. Elevate all the Peaches that can be got up by placing short pieces of lath under them and across the wires of the trellis. Give night air much or little according to the intended period of ripening, and, if portable, draw the lights quite off for a few hours on fine settled days to infuse colour and to give the fine flavour which Peaches grown in cold or warm houses never attain. When elevating the fruit make a point of shortening back every shoot that will be taken out after the crop is gathered, for the two-fold purpose of increasing the size and letting in light and air.

SUCCESSION HOUSES.—As these are cleared of fruit the first effort will be copious washing to cleanse the foliage, and watering to set the roots and laterals in action. Then will follow the annual cutting away of all the shoots which can be dispensed with to insure the proper ripening of the trees. If they are aged and show signs of weakness, fresh mulching and stimulating liquid may be advantageously applied, but vigorous young trees will do well with plenty of pure water. The weather up to the present time has not been sufficiently warm and settled to admit of stripping the early house; but in the event of a change the lights may be taken off and properly repaired and painted under cover, when the material used will last much longer than it would do if applied when the houses are at work, and the wood is more or less charged with moisture.

MELONS.—Where efficiently heated pits or houses are used for winter Cucumbers, the last batch of Melon plants should be put out before the end of this month. If some free, quick turning-in kind, like Eastnor Castle or Improved Victory of Bath, is used, the crop will be ripe by the middle of October, which is quite late enough to expect really good-flavoured fruit and a very good time for putting out strong plants of Telegraph Cucumber. Unless the weather continues very bad no fire-heat will be needed before the female blossoms begin to open, but it will be necessary to plunge the pots in a brisk heat of 80° to 90° from fermenting leaves or tan, and to place them within the influence of the bottom-heat pipes, as they will be indispensable when the fruit is setting and ripening. If very late fruit is wanted, a few more seeds may be sown in small pots and shifted into the fruiting size as soon as they come into rough leaf. They will then grow away freely without a check and will set plenty of fruit on the first laterals. If 12-inch pots are used, allow each plant to carry a pair of evenly set fruit. Top-dress when they begin to swell and feed at every watering. Discontinue feeding in houses in which the fruit is ready to change for ripening, and reduce atmospheric moisture, but guard against producing a check by allowing the foliage to flag through the want of pure water. Keep the plants thoroughly under command in pits and frames. Train the leading shoots towards the extremities, pinch out the

points when 1 foot from the sides, thin out the laterals, and fertilise every flower as it opens. Do not be in a hurry to stop the laterals, as a sudden check may throw the fruit; when quite safe remove every bit of useless spray. Feed well and water overhead with water at a temperature of 85° to 90° about 3 p.m. and shut up for the day. Cover up at night and give a little air to let out steam, as linings must not be neglected.

STRAWBERRIES.—Young plants that have been recently shifted from small 3-inch into fruiting pots may be removed from partial shade to a light, open spot, free from worms and within easy reach of water, of which they will take liberal supplies until the time arrives for storing them away for the winter. In placing the early kinds, which generally occupy very small pots, the latter may be made to shade each other from the direct rays of the sun until the foliage requires more room, when every alternate plant may be taken out, or, better still, the whole block may be turned over and rearranged to prevent them from rooting into the bed. Up to the present time the weather has been more favourable to the rapid production of runners than the formation of good ripe crowns; so much so, that a thousand 7-inch pots filled and placed on a nursery bed in this garden are now half filled with roots and occupying their summer quarters, never having been watered with the hand; but we are now hoping for a decided change, otherwise early forcing will be far from satisfactory. Should the weather continue wet, cold, and unfavourable, all the plants should have full exposure to light and air by being placed in rows on planks, platforms, or dwarf walls, as it is in every way better to have a few well-ripened plants than to swell expenses by wintering a greater number than can be properly grown and tended through the summer. When the potting of the forcing plants is brought to a close, provision must be made for another year by planting out the surplus runners before they begin to suffer from confinement in the small pots in which they have been layered. In the selection of a site the first consideration should be light and air, as plants which are shaded and drawn cannot be expected to produce good runners. Next comes the soil, which should be well prepared by the use of manure and deep trenching, and if a little new heavy calcareous soil can be placed round the ball of each plant, the labour will not be thrown away. If, in addition to the foregoing conditions, a situation near water can be selected, its importance should not be overlooked; but it will be better to incur expense in carrying water than to choose an unsuitable site, as a robust stock cannot be raised from weakly parents. Growers who have not been in the habit of exchanging runners with distant friends and neighbours will do well to try the experiment.

CUCUMBERS.—Where the Cucumber house proper is devoted to the growth of Melons in summer, the raising of young plants must be regulated by the time at which it is likely to be ready for their reception. A manure frame or pit with fermenting material for giving bottom heat is the most suitable structure for raising and growing the plants in, as they can be kept near the glass until they are large enough for shifting into the fruiting pots. Immediately after the Melons are removed, clear away all the old soil and plunging material, thoroughly cleanse the walls, wash the glass, and paint the woodwork if necessary; then fill the pit to the usual level with fresh fermenting leaves, plunge the fruiting pots and introduce the compost, but defer planting until the heat of the bed has subsided to 90° and the soil is thoroughly warmed through. If due attention is given to early closing with solar heat and moisture, and a sweet bottom heat is kept up, the firing of houses now in full bearing may be discontinued. Dress the plants three times a week, and avoid over-crowding by stopping at the first joint beyond the fruit and by the removal of a few of the old leaves and vines as they can be taken away without producing a check. Add fresh turf to the hills, little and often, feed copiously with warm diluted liquid, draw the lights off occasionally when warm rain

is falling, syringe well, and shut up not later than three o'clock on fine afternoons.

FRAMES.—Renovate the linings back and front alternately, and cover well with dry mats. Keep the vines and foliage regularly thinned, stop close, and guard against over-cropping. Follow up the system of cutting away all the fruit, old leaves, and vines, as the plants which have been longest in bearing show signs of failing in the production of fine, straight fruit. Peg the young growths down into the hills, pack with pieces of fresh turf, and keep close and moist until fresh roots are formed.

PROPAGATING.

Now is a suitable time for grafting choice Coniferae, that is, where stocks are established in pots, and where this mode of propagation is preferred to cuttings. In grafting, smaller pieces can be employed than in the case of cuttings, an advantage where the variety used is scarce; some kinds, too, root with difficulty, while if grafted low when planted out, the union can be covered with soil and the plant is then equal to being on its own roots. The best stocks are young seedlings, as nearly related to the scion as possible, and they should be potted and plunged out of doors till required. When the stems are about the size of a straw is a very suitable stage at which to perform the operation. For the different kinds of Biota the Chinese Arbor-vitæ (*B. orientalis*) is used, and the American Thuja occidentalis for the different Thujas, while with either of them the Retinosporas will unite, but the Chinese is the best stock for the majority of them. Cupressus Lawsoniana is used for all its allies, and the common Yew for the Taxaceæ. The different kinds of Abies must be grafted on stocks belonging to the same section, thus those generally employed are, Abies canadensis for the Tsuga group, A. Douglasi for that class, and the Norway Spruce (*A. excelsa*) for the others. The common Silver Fir is used for the Piceas, and in grafting the various Pinuses both stock and scion must belong to the same section, i.e., both should have the same number of leaves in a sheath. Where conifers strike readily from cuttings grafting is not recommended. Moreover, amongst the larger kinds, as a rule, neither grafted nor cutting plants make such fine trees as seedlings, but in the case of those of a bushy habit, when grown up the difference between the two is not noticed.

The stocks should be cleaned, straggling shoots shortened back, and placed in a cold frame till wanted, in order to get the sap in brisk circulation. Side or veneer grafting is that generally preferred, and is performed as follows: Make a slight incision in the stock at a sufficient height from the ground to accommodate the tying material, the incision to penetrate a little deeper than the bark; after that commence about an inch above and make a sloping cut down to the first, the head of the plant not being touched. The scion must be cut in a corresponding slanting manner, so as to fit exactly the place of the piece removed from the stock, and great care should be taken to unite properly the barks of both stock and scion. The scion must be tied in its place carefully, but firmly, for which purpose nothing is better than what is known as grafting cotton, thick, soft, but strong material, as if the bark be injured in the least decay takes place. When finished, place the grafted plants in a close frame, one that is thoroughly air-tight being necessary, and shade heavily during sunshine. If kept quite close and the tying has been done securely, no wax or other composition will be required, and the progress of the union may at any time be ascertained. Of course they must be watered when necessary, but it must be done so as to wet only the roots, as if it touches the wounded part the chances of success will be lessened. When a union takes place, air must be given slightly at first, and the head of the stock must be shortened back by degrees till it can be removed entirely, leaving the scion to take its place.

If, as sometimes happens, signs of damping are perceived a short time after grafting, give air for

a little time, but only just long enough to dry up some of the moisture. In grafting, the sharpest knife should be used only for removing the strip from the stock and in preparing the scion, as if employed for cutting the cotton in tying it will soon become blunt.

GARDEN FLORA.

PLATE CCCXCVIII.

IRIS STYLOSA.*

To the lover of the Iris, the waning days of July are days tinged with sadness. The glory of the *I. Kämpferi* is over. A few late blooms, their beauty sadly marred by the dragged remnants of their predecessors (cut down this year in their pride by a brief, but fierce hail-storm), are still unfolding their bright tabular petals, and a stray flower of *I. Monnieri*, of brightest golden yellow unspotted by any flecks or streaks, still gladdens the eye; but the truth comes home to one that the Iris year is over. Save for a few stray, difficult, and little known forms, and some uncertain second blooms of the dwarf biflora type, we can now look for no more Iris flowers till the days of chill October are upon us. While I am thus mourning the departure of my favourites, the editor of THE GARDEN, mindful of the pleasures of hope, bids me write a few words concerning an Iris, which is a sort of herald Iris, leading us onwards through the dark days of winter till the spring comes again once more.

They who have spent a winter in Algiers will recognise in the accompanying plate a picture of *Iris stylosa*, whose bright, fragrant lavender-coloured flowers brighten the thickets and make gay the waysides of that land in the days which we here call the dark and dreary days of December.

In many respects *I. stylosa* is a peculiar Iris. The flowers are single and in reality stemless. The ovary, even when it has ripened into a capsule, only just appears above ground; and yet the flower often rears its head high among the narrow strap-like, dark green leaves. It is enabled to do this by possessing an enormously long tube between the summit of the ovary and the point where the petals diverge. The falls are somewhat lozenge-shaped, the pointed blade gradually narrowing into the claw. Beard there is none, but the insects are guided to the anther and stigma by the claw of the fall being marked above with a golden median streak, from which lavender or purple lines stretch away across a white ground, whereas the greater part of the blade is of a delicate lavender colour. The tall, graceful standards and the narrow styles, with their long, pointed, fringed crests, are of a similar chaste lavender hue. One marked feature of the plant is that the filaments of the stamens, instead of, as in other Irises, being quite free from their attachment to the base of the fall upwards, have become grown to the column of the style, so that the anthers alone are free. This may be an ancestral token, indicating the more direct origin of this Iris from some older forms, but more probably is a special modification introduced to serve some particular purpose. At any rate, it is a singular arrangement.

Though the flowers appear singly, they follow each other in rapid succession, several flowers appearing one after the other from the same part of the rhizome, and in a well-grown plant flowers thus break out from all parts of the foliage. Each flower is large (the blooms represented in the

* Drawn from plants at Munstead, Godalming, Jan. 20.



plate are, as far as my experience goes, small, nor is the colouring satisfactory, but this is difficult to render), and a well-grown clump bearing at the same time several blooms manifests a beauty excelled by that of few other Irises. Exposed to an adequate temperature, the flowers possess a somewhat faint, but delicious fragrance, but this is checked by the cold draughts of our winter days. Unhappily, too, not only are the blooms fugacious, soon passing away, but the petals are tender in substance and fragile, so that often a flower which has opened to a bright morning sky is torn and bruised by a sudden wintry blast.

The true *Iris stylosa*, sometimes called *Iris unguicularis* (chiefly, I fancy, because the latter is five letters longer, but for which very same reason I adhere to the older term), is, I believe, confined to Algeria. As far as I know, it is not one of those many plants which are common to Algeria and the south of Spain; nor does it itself, like so many other Algerian plants, spread away along the islands and shores of the Mediterranean to the east. There is, however, a closely allied plant, often, indeed, called of old *Iris stylosa* (the *Iris stylosa* var. *angustifolia* of Boissier), but now known under the name of *Iris cretensis*, differing from *I. stylosa* in the much narrower leaves, narrower, more oblong, and somewhat differently coloured petals, and less fringed crests of the styles. This is found in Greece, in Crete, the Ionian Islands, and Asia Minor. I have also had for some three or four years, but have never bloomed, a plant which I had from Mr. Ware under the name *I. agrostifolia*, which I understand from him comes from Greece, though I do not know the authority for the name. In foliage this plant is intermediate between *I. stylosa* and *I. cretensis*, inclining, perhaps, more to the former than to the latter. Since I have never seen a bloom I cannot say anything about its real nature. I have also seen, I think, in Mr. Ewbank's garden a plant exactly like this in foliage which came to him from Antibes, I believe, under the name of *I. stylosa*. In all probability there are varieties of *stylosa* not yet thoroughly recognised; and it may be that some of these live beyond the boundaries of Algiers, and are transition forms towards *I. cretensis*, to which Mr. Baker refers all the extra-Algerian plants called by various authors *stylosa*.

How far east *I. cretensis* spreads we do not as yet exactly know; nor can I at present say what connecting links between these two Irises (*cretensis* and *stylosa*) and the other forms of *Iris* there may be among the Central Asian species. The curious little *Iris humilis* found in Transylvania and South Russia and the Caucasus resembles *I. stylosa* and *I. cretensis* in having no stem, but the tube, instead of being long, is short, so that the flower is completely hidden among the long, narrow leaves; very frequently, indeed, the blooms are so hidden that they escape notice altogether. The ovary of *I. humilis* is also like that of *I. stylosa*, but the flower is very different, running away close, indeed, to the spuria group, so that its affinity to *stylosa* becomes very doubtful. A certain amount of resemblance may also be traced between *I. stylosa* and the little grassy violet-scented *I. ruthenica*; but the differences are great, and the real congeners of *I. stylosa* have probably yet to be made out.

In its native home *I. stylosa* flowers in December, and when it has been transplanted to our inhospitable land it often bravely attempts to do the same here, seizing the chance of some rare,

fine, open, warm, wintry day to open its blooms to a faint, sickly sun. In some favoured, sheltered spots of Southern England, such as that at Munstead, for instance, it will even bloom freely, on and off, from early December to late March or April. In the rougher districts of our native country, such as that in which my lot is cast, the outdoor blooms of *I. stylosa* raise hopes only to destroy them. As a general rule with me, the flowers throughout winter are few and far between, and all too apt to be torn by some wintry gale or nipped by the nightly frosts; though from time to time some rare succession of fine, sunny, calm, open days in February or March makes me glad that I have some plants of it about the place. Nor is it quite hardy; on my dry hill the plants fully exposed in the open survived the biting frosts of 1879-81, but in many other places they were killed outright. In fact, save in especially favoured spots, *I. stylosa* is in England a pot plant rather than one for the open ground; and in a pot it does admirably. It will grow very well in good loam with some peat and sand, and the only advice I can give is this: Push the plant on until it becomes a good sized bush, growing in a large pot which it has had time to completely fill with roots. Let it have just as much water as it needs in winter while it is flowering, but when, flowering over, it breaks in spring into new growth spare neither water nor liquid manure. As growth is completed stay your hand, and during summer keep it comparatively dry, but take care that it never really flags. Keep it in the open air as long as there is no fear of frost, and then place it in the cool greenhouse; but if you wish to enjoy the fragrance of the flowers you must, when it is blooming, bring it into a warmer atmosphere. Out of doors it seems to do best in some rich open soil thoroughly sheltered from the wind, but fully open to the sun and air, where it is on the one hand neither too wet in winter nor too dry in summer and spring.

M. F.

FRUIT CROPS.

METROPOLITAN AND SOUTH-EASTERN DIVISION.

Syon House, Brentford.—Here and in the neighbourhood fruit crops, with the exception of Apricots and Plums, are fairly good. Pears on standards are thin, but on walls abundant, especially on trees protected a little in spring. The varieties which succeed best here are Duchesse d'Angoulême, Old Colmar, Passe Colmar, Colmar Doré, Louise Bonne of Jersey, and Williams' Bon Chrétien. Those that do not succeed are Urbaniste, Brougham, Prince Albert, Beurri d'Hiver, Bon Chrétien Fondante, and Beurri Langelier. The Apple crop is very good. The varieties that do best here are Alfriston, Keswick and Manks Codlins, Hawthornden, Gloria Mundi, Warner's King, Loddington Seedling, Irish Peach, King of the Pippins, Adam's Pearmain, Royal and Boston Russets, and Quarrenden. Of Apricots, although protected in spring, there are no fruits. Peaches and Nectarines, too, are not a heavy crop; the trees this year have, however, been very free from blight. The varieties which do best with us are Royal George, Grosse Mignonne, and Barrington. The fruit of Early Rivers always splits. Of Nectarines, Elrude and Lord Napier do best. The Plum crop with us is a failure. Cherries, though not very plentiful, are very good. Bush fruit of all kinds is abundant, but Gooseberries rather small. Strawberries have been plentiful, but very soon over. Our soil is light and porous, and rests on gravel and sand.—JOHN WOODBRIDGE.

Coombe Lane, Surbiton.—Apples with us are a very heavy crop—all nearly laden alike, both

dessert and kitchen kinds. Pears are only a moderate crop, but what we have are likely to be very good in quality, like what Pears used to be six or seven years ago. Plums are a total failure, none even being on walls. Peaches are a good crop and the trees healthy. Of Cherries of the Bigarreau kind there are good crops; Eltons are, however, thin, and of Morellos we have scarcely any. Nuts an almost total failure. Raspberries are a very fine crop. Gooseberries and Currants, medium crops. Strawberries a heavy crop. Our soil is a sandy clay, changing to brick earth as we go deeper down, and we are well sheltered from north and east winds. Aspect south-west, very hot in summer when the sun shines, and owing to there being little water in the neighbourhood, the air is almost always very dry, both winter and summer.—W. DENNING.

Claremont.—Peaches and Nectarines are very good crops. The trees were protected with ordinary tanned garden netting, 1-inch mesh, and are this season in good health, after a tough battle with fly and red spider. The latter has been very troublesome, thanks, in some measure, to our old walls with their innumerable nail holes. Our trees, too, are very old; indeed, it is marvellous how in many cases the growth is maintained. One of the best specimens this year as regards crop, health, and vigour is a Late Admirable, with only the shell of the stem left; for a considerable distance the inside is completely gone. Royal George, Bellegarde, Chancellor, and Late Admirable in Peaches, with Elrude and Hunt's Tawny in Nectarines form the chief of our stock. Our soil is a sandy loam, well drained (naturally). All our borders had a good dressing of cow manure last spring. The soil for some yard and a half round each tree was gently pricked with a fork, and about an inch in depth of it was removed, and replaced after the manure was applied. We are keeping a sharp look out for earwigs; they were very troublesome last year, and committed sad havoc on both fruit and foliage. We have no Apricots; we had 14° of frost with bitter winds during the time when they were in flower. The trees are healthy, and there is no sign of canker. Morello Cherries are a good crop. Of dessert Cherries, we have only young trees planted last year. Plums are very thin, a remark which applies also to Pears with the exception of a few pyramids planted last winter, and protected with netting; these are bearing a fine crop. Alexandre Lambre and Marie Louise d'Ucle are fruited best. Big old Pears on walls were subjected to a severe pruning last winter; one half the spurs were cut away, and the other half tied in. I think of trying them one more season, but fancy their day is past; the subsoil of the border in which they are planted is very wet. Apples are a good crop, both on bush trees planted last winter and on standards in the old kitchen garden; the latter are in a most favoured spot, and well sheltered from cutting winds. Cornish Gillyflower is this year grand in quality, but, unfortunately, very thin. Amongst pyramidal and bush Apples, the best are Scarlet Nonpareil, Cox's Orange Pippin, and Pomona, Old Nonpareil, Forfar Pippin, Peasgood's Nonsuch, and Dumelow's Seedling. New plantations of Strawberries have done well, La Grosse Sucrée being most in favour. Of bush fruit we have a good crop, especially of Red and White Currants. With respect to the partiality of the bullfinch for Currant buds, I may remark that after pruning last season we syringed the bushes very lightly with warm water, in which a handful of soft soap had been worked, then we sprinkled with lime; the lime stuck fast until the new growth began to push in the spring, and I did not see a single bud removed from any of the bushes so treated.—E. BURRELL.

Bedfont, Hounslow.—In this locality Apricots are next to none, while Peaches are fairly plentiful. The chief market fruit crop this year is Apples, of which nearly all kinds are bearing more or less abundantly. This part of Middlesex has generally a stiff, clayey loam, and during the winter the soil is much saturated with water, which rises near to the surface. The most healthy

trees are found where there is good drainage, for excessive autumn rainfalls promote such exceeding activity in the roots, that growth is long continued, and the wood is full of sap when the sharp frosts of early winter set in. It is then that much harm is done to trees, especially of the softer wooded sorts, and the frost usually is responsible for canker and much decay in the branches, the burden of which is generally laid upon the roots. Specially fruitful amongst Apples this year are the Early Julien, Manks, and Keswick Codlins, Lord Suffield, Warner's King, Yellow Ingestre, Cox's Orange Pippin, King of the Pippins, Red Quarrenden, Blenheim Orange, and Wellington. These are, however, stock kinds grown largely, because they are found most reliable croppers and of good reputation in the market. Many of the fruits have, however, fallen, and therefore the trees are not nearly so heavily laden as they promised to be, but a finer and better sample will result. The Apple crop may be set down to be a grand one, and will help to set right many deficiencies on the part of other fruits. An experienced grower has just remarked that were he now to lay down a large piece of land in fruits, he would, in the face of the American competition, plant only of Apples such early kinds as Early Julien, Manks Codlin, and the favourite and very certain Yellow Ingestre. It will be interesting to learn this year, now that for once we have a heavy crop of Apples, how far our prices and samples will enable growers to check American imports. If a big crop will not do that, then let those who are ever calling out for the planting of more trees at home remain henceforth silent. Pears are few and are fitly described as a sprinkle. They will, however, be good, and, combined with better prices, will not leave the grower absolutely uncompensated. The most favoured kinds are the Hazel, Williams' Bon Chrétien, and Paradise, a delicious early ripener. Plums are scarce. Of Victorias there are a few, and also a few may be seen of Gisborne's, but the quantity is hardly worth taking into account. The two Plums named and the Crittenden Damson rank amongst the hardest and most prolific of these market fruits. Gooseberries have yielded partial crops—in some places heavy and in others light, but so many are grown that even half a crop gives an immense yield. The most favoured, because the hardest, finest, and freest, is Lancashire Lad. It is of good habit, and strikes well from cuttings. Raspberries are a very fine crop, and Strawberries have been, if not heavy, a plentiful crop, because the weather has spoiled none. Red Currants are moderate, but Blacks are very fine and heavy, and will pay well. Sweet Cherries have been very thin, and Morellos are not nearly so plentiful as usual. On the other hand, Walnuts, in some places an important produce, are very abundant, and much need thinning for the picklers. On the whole, the fruit crops in this locality, though moderately good, will make no fortunes.—A. D.

Langley, Maidstone.—With us the fruit crop generally will not be a large one, and some varieties, especially Plums, will be scarce. Black Currants are in some places a good crop, but in others a moderate one. Red Currants are not so plentiful. Cherries have been scarce, with the exception of a few favoured orchards. Plums are almost a failure; our chief bearer, as usual, is the Victoria, a Plum that ought to be in every garden with or without a wall. Damsons also are a failure even in this district, the home of the Crittenden Damson. Pears are not grown here for market purposes in any quantity. Apples would have been a very large crop had a great many not fallen; as it is, there are enough for the trees to bring properly to maturity. So many varieties are showing well, that it will be better to wait for another two months before a selection of the best bearers can be made. The Worcester Pearmain and Echlinville, as usual, are very promising. Nuts will be a small crop, and this, I believe, to be universal. Strawberries are not grown hereabouts to any extent, but I expect you will have good accounts of them from North Kent. The weather has been unfavourable of late. Most of the soft fruits are grown in cultivated orchards beneath

Plums and Apples, chiefly the former. Cherries are almost entirely grown in Grass orchards fed with sheep and never mown if a crop of fruit is required.—LEWIS A. KILLICK.

Goodwood.—The Apple crop in this locality is above the average. I never, indeed, saw Apples looking so well as they do at present. Pears with us are a good average crop, but thin in some exposed places. Peaches and Nectarines are a fair crop, and the trees are looking well. Regarding Peaches, you will doubtless remember me making some remarks respecting the Amsden June last year. I feel confident, as far as my experience goes, that it will become a great favourite. Although with us the weather has been very wet and there has been a great absence of sunshine, fruit of this Peach very highly coloured, and of good size and flavour, were gathered from the open walls on the 13th of the present month. Figs are looking well and excellent crops. Of Currants, both Red and White, we have heavy crops, being clean and free from blight, and unusually large. The Strawberry crops are excellent, also Raspberries and Morello Cherries. Plums are a failure in most places, doubtless owing a great deal to the severe storm which occurred on the 29th of April last year, when Plums suffered more than any other fruit trees. Apricots are generally thin, also Nuts. The subsoil in this locality is principally gravel or chalk, and doubtless the showery season which we have had has much favoured the growth of crops of all kinds.

POTATOES I never saw looking better than they do in this locality. Unfortunately, the disease is beginning to appear in the foliage, but if we get dry, warm weather the crops may yet be saved.—F. RUTLAND.

Leonardslee, Horsham.—Apples here are a large crop and good generally. The old Keswick and Hawthornden—in fact all the early kinds are well fruited. Of Pears we have a sprinkling of all kinds, but in the neighbourhood they are scarce, not more than a fourth of a crop. Plums on walls are less than half a crop with me, and on bushes and standards not a fruit is to be seen. Of Cherries we have half a crop; all kinds of small fruit are most abundant. Nuts (Cobs and Filberts) are less than a fourth of a crop. Figs good on bushes in the open border. I have not seen fruit trees look so healthy for some years as they do this.

POTATOES are looking well not only with me, but also in all the cottage gardens around here. Of early kinds there is every promise of a heavy crop. The Potato blight first appeared here on the 14th, and to-day, the 16th, I find it general on all kinds early and late. Parsnips are also much blighted. Blight on them was first seen on the 5th, and it is now general in all the cottage gardens.—SIDNEY FORD.

Bridge Castle, Tunbridge Wells.—Apples flowered very late in this quarter, and are therefore a very fine crop; even in the case of shy-bearing kinds we have an average amount. Pears on walls are an average crop, and so are the hardier kinds on standards, such as Citron des Carmes, Doyenné d'Ete, Beurré Bosc, Knight's Monarch, Seckle, Williams' Bon Chrétien, Beurré d'Amanlis, and others. Peaches and Nectarines are average crops, especially Stirling Castle and Thames Bank. Currants, Gooseberries, Raspberries, and Strawberries are very fine indeed in this district. Nuts will be an average crop. Figs are plentiful, but Apricots and Plums are very nearly a complete failure, the cold March and cutting winds which we then had were too much for them. Cherries of all kinds are a grand crop. Medlars and Mulberries are also well set with fruit. Our garden is 400 feet above sea level, with but little shelter, and a violent thunderstorm in June, accompanied with a perfect downpour of rain and hail, had such an effect, that scarcely an insect has been seen since on tree or bush. The rainfall is also in excess and the thermometer rather low, all of which has helped us in that way. Our soil is a stiff loam resting on marl.—J. RUST.

Royal Gardens, Frogmore.—Apricots are a complete failure here. The trees flowered well and strongly, but, owing to the continuous

east winds which we had early in March, scarcely any fruit set. Apples are an abundant crop; this will probably be the best Apple season in this district since 1875. Of Cherries we have not many on standards, but a good crop on walls and very fine in quality. The trees are clean and free from aphides. Of Peaches and Nectarines we have heavy crops in the case of early sorts and fair average crop of late kinds; the trees, too, are clean, and making vigorous growth. The old varieties still maintain their position. Pears flowered early, and suffered the same as Apricots. There are scarcely any on standards, and they are below the average on walls. Of Plums we have none on standards and very few on walls. Damsons, though not extensively grown in this district, are a failure. Strawberries have been most abundant, and the fruit has been very large and good in flavour. Sir J. Paxton is still one of the most reliable for a general crop, being a great bearer and the fruit large and firm and of good colour and flavour. Of the newer varieties The Countess is distinct and good for a mid-season crop; fruit large and flattened; colour deep crimson, very bright; flesh red, brisk, and good in flavour. Lord Napier, a good late one, is now bearing heavy crops of fine fruit, flavour not first-rate, but this is probably owing to the wet weather which has prevailed here during the last fortnight. On bush fruits crops are abundant and fine in quality. Currants (Red and White) on walls are always a useful crop here, coming in very early. Raspberries are plentiful, and the fruit very fine. Nuts (Filberts and Cobs) are very scarce, but Walnuts are a very heavy crop on high ground, but very few in low situations.

POTATOES.—Early crops have been excellent, and main crops are looking well. As yet we have no sign of disease.—THOMAS JONES.

Easthampstead Park, Wokingham.—The fruit crop, generally speaking, is favourable, although in some places only partial. Apples are much better than last year. The sorts we have heavily loaded this season are Manks and Keswick Codlins, Court Pendu Plat, Cox's Pomona (extra well fruited), Frogmore Prolific, Golden Pippin, Hawthornden, Old Nonpareil, Juneating, Summer Thorne, Oslin, and Alexander, and others—altogether the best crop we have had for several years. Pears are about an average. Our best trees this season are British Queen (extra good), Chaumontel, Williams' Duchesse, Forelle, Glou Morceau, Jargonelle, Louise Bonne of Jersey, Ne Plus Meuris, and Winter Nelis. Peaches are not worth growing here out-of-doors, but under glass they are very good, some fruit measuring 11 inches in circumference and well coloured. Apricots out-of-doors are quite as hopeless as Peaches, dying by degrees. Of Plums we have an average crop, especially on Victoria and Rivers' Prolific; also on Green Gage and Cox's Golden Drop. Cherries are an average crop. Bush fruits plentiful. Currants a heavy crop. Strawberries very good, especially Keen's Seedling, Garibaldi, President, British Queen, and Jas. Veitch. We protected our Apricots with great care, but the second week in March was intensely cold, on three nights there being 14° of frost, and the garden is exposed to east and north winds. Our soil is a stiff clay on a burning sand, that would absorb more manure than can be given it.

POTATOES are everywhere looking unusually well, and even now a good crop. Our favourite early is Rivers' Royal Ashleaf.—NEIL SINCLAIR.

Rydens, Surrey.—Of Apples we have very heavy crops; indeed, it would be difficult to find many trees in this neighbourhood bare of fruit. Blenheim Orange, Cox's Orange Pippin, Quarrenden, Ribston Pippin, and Wellington are very heavily cropped; Fearn's Pippin is rather thin. Pears are very thin indeed, only a few being on walls. Plums are under the average; Jefferson's, Victoria and Cox's Golden Drop on walls are bearing a few. Peaches on open walls are very good. I have some ripe fruit of Early Beatrice; the trees had no protection whatever. Nectarines are rather thin, and Apricots are quite a failure. Cherries are under the average; the White Heart kind has

been the best; Morellos are very thin. Of Raspberries we have a very heavy crop, and Strawberries have been magnificent. The following do well here, viz., President, Vicomtesse Héricart de Thury, Sir Charles Napier, Dr. Hogg, and British Queen. Gooseberries have been a very good crop in the garden here, but in a great many places in this neighbourhood they have been a failure. Currants (Red, White, and Black) are heavy crops, especially the last. This year I have not been troubled with Gooseberry caterpillar.—GEORGE CARPENTER.

Petworth.—Apples look remarkably well, and there is every prospect of a good crop. Amongst sorts that do best I may mention Lord Suffield, Dutch Codlin, Blenheim Orange, Emperor Alexander, Nelson's Glory, Dumelow's Seedling, Cox's Pomona, Rymer, Cox's Orange Pippin, King of the Pippins, Scarlet Nonpareil, Ribston Pippin, Cellini, Cockle Pippin, Early Strawberry, and Duchess of Oldenburgh. Pears are a thin crop; there was plenty of bloom, and they seemed to set well, but soon turned yellow and dropped off. The failure, in my opinion, was caused by the very cold nights which we had before they could swell off. Of Plums, I may say that there are hardly any in this county. From 200 trees I shall not gather a bushel. I have a few on Victoria, Green Gage, Purple Gage, and Red Magnum Bonum. Not one Damson have I seen this year. Peaches are abundant, and promise to be a fine crop. Nectarines are also plentiful and fine. So far Apricots are thin except on walls covered with glass coping; there they are abundant and good. Kaisha, Moorpark, Breda, and Hemskirk do well with me. Figs are looking remarkably well, and are an abundant crop. Of Cherries we have about half a crop; the late showery weather has spoiled a great many. Bigarreau, Bigarreau Napoleon, Knight's Early Black, May Duke, Bedfordshire Prolific, Governor Wood, Elton, and Black Tartarian, all do well in this neighbourhood. Of Gooseberries, we have very heavy crops and fine fruit; and the same may be said of Currants of all sorts, Black, Red, and White. Raspberries are remarkably good. Strawberries very fine, especially Garibaldi, James Veitch, Loxford Seedling, Sir Charles Napier, Sir Joseph Paxton, Dr. Moree, President Delacour, and many others. Of Walnuts, there are some good crops, but they are not general. Filberts and other Nuts are very thin indeed. Medlars promise to be a good crop, and Mulberries are a heavy crop. Petworth stands on high ground, exposed to west and south-west winds; the soil on the north side is rich and strong loam, that on the south and west more sandy, light, rich, and excellent for fruit growing.—GEO. M. BREESE.

Farnborough Grange.—Peaches and Nectarines, average crops, trees clean; Apricots, partial, in some places a failure; Plums, almost a failure; Cherries, under the average; Pears, under the average except on walls; Apples, over the average; Strawberries, Raspberries, Gooseberries, and Currants, very good and abundant; Nuts, very thin, same on Cobs. Our soil is light and sandy resting on a thick bed of gravel. Almost every kind of fruit tree bloomed profusely except Plums. But the cold winds which we had in March destroyed most of the Apricot bloom; so severe was the frost that we registered 18° on two or three occasions during the month. Both Apricots and Peaches were protected with thick blinds running on rods. Of Apricots I have a few dozen fruit, but I observe they are in every case close to the wall, not one being on a foreright shoot; had our trees been on wires we should not probably have had a single fruit. Pears bloomed and appeared to have set a heavy crop, but the fruit has kept dropping, till now many of the pyramid and standard trees are fruitless. Some attribute this to cold when they were in bloom, but the fruit set well enough, and I am more inclined to blame unripened wood, owing to the wet cold autumn which we had last year. The following sorts of Pears are bearing to a greater or less extent in gardens in this neighbourhood, viz., Jargonelle, Colmar d'Ete, Louise Bonne of Jersey,

Marie Louise, Glou Morceau, General Todleben, Duchesse d'Angoulême, Hacon's Incomparable, Beurré Diel, Beurré Clairgeau, Ne Plus Meuris, Winter Nelis, Josephine de Malines, Easter Beurré, Beurré Rance, Uvedale's St. Germain, and others could be named, but these are the principal. On walls in general the crop is an average one; few elsewhere. The following Apples are a full crop here, viz., Irish Peach, Red Quarrenden, King of the Pippins, Braddick's Nonpareil, Royal Russet, Sturmer Pippin, Lord Suffield, Codlins (Keswick and Manks), Warner's King, Dutch Mignonne, Betty Geeson, Deux Ans, Norfolk Beefing, Wellington, and Cellini. Should there be a few Plums on a tree, it is either Orleans, Victoria, or Pershore on walls. Cherries bloomed abundantly and set well, but dropped in the stoning till now they are not half a crop. Strawberries never were finer than this year, and the fruit is large and good. The sorts that do best with us are the following, viz., Vicomtesse Héricart de Thury, President, Oscar, Elton Pine, and Eleanor; the last is the best late Strawberry we can grow on our light soil. It comes in when the others are over. Of Gooseberries we find the following five sorts the best, viz., Red Warrington, Ironmonger, Crown Bob, Old Rough Red, and Whitesmith. Of Nuts we have a few on the prolific Cob, a good Nut, which has not wholly failed us for these last five years; during that time this is the shortest crop; there are no hedge Nuts in this neighbourhood this season. Raspberries are in every way large and good. Fastolf does best here, but Raspberries do not prove as satisfactory as on some soils. Fruit trees are not nearly so much affected with insects this year as in previous seasons. Peach trees are making clean growth, but Apricots are cankered off very badly. On the whole the fruit crop will not be a satisfactory one this year, although that most desirable of all fruits, the Apple, will be an average crop.—JOHN CROOK.

Leigh Park, Havant.—Of the present fruit crop I have to report favourably. Strawberries are an abundant crop; Vicomtesse Héricart de Thury has borne prodigiously, but the fruit has not been large. Kimberley, a local variety, but nevertheless good all round, forces well and bears plenty of fruit of good shape and colour. It also carries well, is a good garden Strawberry, and, last, but not least, is good in flavour. Sir J. Paxton, Wonderful, Prince of Wales, and Sir C. Napier do fairly well. Apples are in most places a heavy crop. Our recently lifted and root-pruned trees are again bearing a great crop, notwithstanding the heavy crop which they bore last year. The best sorts are Keswick Codlin, Lord Suffield, Blenheim Orange, Winter Hawthornden, King of the Pippins, Kerry Pippin, Ribston Pippin, Sturmer Pippin, and the old Deux Ans, one of the best and most useful Apples in this part of the country; it bears abundantly and is of robust habit. The soil here is sandy loam, and the garden is well sheltered by trees. Pears are a fair crop, Williams' Bon Chrétien, Marie Louise, Louise Bonne of Jersey, Beurré Bosc, Passe Colmar, Glou Morceau, Winter Nelis, Ne Plus Meuris, and Jean de Witte being amongst the best. Plums are not so good as last year, but a medium crop in some places. Small fruits generally are good and abundant.—C. PENFORD.

Heckfield, Winchfield.—Plums with us are a total failure; most of the trees blossomed moderately well, but an unusually low temperature and severe north-east winds while they were in flower killed all, including even those protected on a west wall. There is just a sprinkling of Apricots, and these we should certainly not have had but that the trees were well protected with canvas blinds. Moorpark is the only kind that does well here. Peaches and Nectarines are abundant; they bloom later than Apricots, and, therefore, under more favourable conditions as to weather, with the same protection as Apricots, such opposite results are not difficult to account for. Bellegarde, Royal George, and Noblesse are our principal varieties of Peaches, and of Nectarines, Elruge, Pitmaston Orange, and Violette Hâtive; the newer variety, Lord Napier,

does so well that it is likely to be largely grown. Apples are above the average and very clean; our best and most constant bearers are Keswick Codlin, Hawthornden, Blenheim Pippin, Cellini, Golden Noble, Wellington, Ribston Pippin, Lord Suffield, and Northern Greening. Pears on walls are a full crop, but on standards in open quarters very thin; they set well, but dropped badly, and are still falling, and what remains will be but a poor sample. All the fruit on walls are very good, thus showing that protection for these fruits is as necessary as for stone fruits. The following kinds seldom fail us, viz., Duchesse d'Angoulême, Pitmaston Duchess, Marie Louise, Williams' Bon Chrétien, Winter Nelis, Easter Beurré, Passe Colmar, Beurré Diel, Beurré d'Aremberg, Knight's Monarch, and Ne Plus Meuris. Cherries, except Morellos, are very scarce. Strawberries have been the fruit crop of the year; I never knew them better, or the crop to have been harvested in better condition. Gooseberries, Raspberries, and Currants are also immense crops, and extra free from blight. Our soil is a sandy loam, resting on gravel; all kinds of fruits do well on it when deeply trenched and heavily manured. Surface mulchings of manure are also indispensable.—W. WILDSMITH.

Palmer's Green, Southgate.—Fruit crops, taken collectively, are in this neighbourhood variable. Apricots are very thin. Plums, in most cases, except a few of the hardiest kinds, a failure. Cherries may be described as moderate. Of Peaches and Nectarines, in most places there are sufficient. Apples are an abundant crop, the freest bearing kinds, such as Keswick Codlin, Lord Suffield, Manks Codlin, and others of like character that seldom fail, are already weighed down with fruit, after more having fallen off than usual. Pears are thin in most cases. Gooseberries and Currants, the former an average crop; the latter full. Strawberries have been abundant, but not quite so good in flavour as in drier ripening time.—T. BAINES.

Highclere Castle, Hants.—Of Apples, some trees, such as Hawthornden, Blenheim Pippin, Keswick Codlin, Tower of Glamis, Wellington, Norfolk Beaufin, Northern Greening, Ribston Pippin, Besspool, and King of the Pippins, are carrying heavy crops. The earliest blooming sorts are deficient as regards fruit owing to the unfavourable weather which occurred at the time of flowering; but on the whole there is a fair crop in this locality. Pears are not so good; many trees are bare of fruit. Those on which there is most abundance here are Passe Colmar, Beurré d'Amanlis, Beurré de Capiaumont, Beurré Rance, Marie Louise, Beurré Berckmans, Jargonelle, and Winter Nelis. Figs are very good; Cherries not plentiful; and of Plums we have not many; the best here are Denyer's Victoria and Rivers' Early Prolific. Peaches and Apricots are light crops. Currants, Raspberries, and Gooseberries abundant, and Strawberries are an extra heavy crop.—S. ROSS.

Strathfieldsaye.—Apples are perhaps our best crop; many sorts that have been barren for years are now bearing well. Among those which seldom fail I may name Blenheim Orange, Court Pendu Plat, King of the Pippins, Cox's Orange Pippin, Cellini, Deux Ans, Keswick Codlin, and Northern Greening. I am working out the more uncertain sorts and planting those that bear freely. Plums bloomed well, but suffered so much from bitter winds in March that there are very few on either walls or standards. The same may also be said of Cherries except Morellos, which bloom later and are carrying a fair crop. Peaches on walls, where protected when in flower, are a fine crop. Apricots about half a crop. I have not seen such a crop of Strawberries for many years as we have had this year, though they have suffered much from drizzling rains and want of sunshine. Gooseberries experienced the most bitter of the March winds when in flower, and are very thin. Currants, excepting Black, are the same, except where well sheltered. Our soil is naturally a heavy clay (on the Bagshot sand), but now much ameliorated by thorough draining and liberal cultivation.—J. BELL.

Bearwood, Wokingham.—Taken as a whole, our fruit crops are good. Apples are clean and plentiful. Pears a thin crop. Peaches and Nectarines very good. Apricots, none. Plums are very scarce. Nuts thin. All kinds of bush fruits are fairly good, and also Strawberries. Our kitchen garden lies very low, and on stiff clay soil, close to a large sheet of water; therefore our fruit trees have suffered much from the severe winters which we have had. Many of our Apricot trees are killed, and also Morello Cherries. At present the weather is very cold for July, and mildew is making its appearance on Peaches and Nectarines.

POTATO crops never looked better in this neighbourhood than they do now. All the early kinds are turning out well, and late kinds are very promising. The only disease I have noticed was last week in one or two cottage gardens, the sort attacked being the Early Rose.—JAMES TEGG.

Oobham Hall, Gravesend.—Our crop of Apricots is poor, and the same may be said of Plums and Cherries. Red, White, and Black Currants are good, and so are Strawberries and Peaches and Nectarines. Apples, Pears, and Figs are average crops. The gardens about here are mostly on gravel or chalk.—F. DEUXBERRY.

SOUTH MIDLAND DIVISION.

Dropmore.—Peaches here are very good, and so are Nectarines; Plums are very inferior, and Pears are not in general good; Apples in most places are a heavy crop; Nuts not very plentiful near here except Walnuts, which are very good in some places; Gooseberries, Currants, and Strawberries are all good crops, and so are Raspberries in most places; Cherries are not half a crop hereabouts, but better elsewhere. The soil in this part of the country differs greatly; the subsoil is gravel, and in some parts chalk, the latter in some places very deep, and much used for improving the land and for preventing clubbing. Where possible, we protect wall fruit during the blossoming season. Cherries are much grown hereabouts, and in good seasons are considered very profitable. Apples also meet with a ready sale, but bush fruit is not so good, being much injured by birds.

POTATOES.—There is not as yet the least sign of disease amongst mine, and I have not heard anyone say they have seen it elsewhere.—PHILIP FROST.

Shardeloes, Amersham.—Peaches and Nectarines are a very fine crop here, and the trees look wonderfully well. Apricots are a very poor crop, and the Moorpark's are, as usual, losing their branches. Plums are thin—scarcely any on standards. We find Victoria to be one of the most useful sorts to grow. The trees are very healthy, and, being free from insects, promise well for next year. Apples are a capital crop. Pears generally a good crop. Bush fruits excellent; Raspberries and Strawberries abundant and very fine. We have also a good sprinkling of Walnuts, but Filberts are very thin.—THOS. BAILEY.

Moor Park, Rickmansworth.—Apricots here are a failure, except under Rendle's protectors. The whole of the trees were covered with woollen material, but the sharp frost with snow which occurred on March 26 finished what looked like a good Apricot year; the blossoms were quite frozen. There are fewer Apricots this season than there has been for the past ten years. Apples are a very heavy crop. Pears abundant on walls; on pyramids very thin. Damsons none, and of other Plums we have very few. The Victoria, a very useful Plum and sure cropper generally, has failed to maintain its reputation this year. Gooseberries, Currants, Raspberries, and Strawberries are abundant. Cherries on south walls a fair crop. The Morello on north walls set very thickly, but dropped its fruit at the stoning period, leaving but a thin crop. Filberts are a very partial crop.

POTATOES look very promising; haulm strong on rich ground. The early sorts are yielding well, and, should fine sunny weather set in, there will be fine crops of late Potatoes.—J. C. MUNDELL.

Ramsey Abbey.—The promise of heavy crops early in the season has only been partially fulfilled. Apricots are very thin, but Peaches and Nectarines are abundant. Plums, on the other hand, are a complete failure. Cherries are only middling, but Apples are a good crop. There are very few failures, the latter chiefly among young trees; all the old-established kinds are doing well. Pears are thin generally. Among bush fruits, Gooseberries and Currants are much under the average, but Strawberries and Raspberries are very good, as are also Figs. Grapes on a good aspect are carrying plenty of fruit, but elsewhere the bunches are thin and poor. Walnuts and Filberts may be classed amongst the failures. Apples, Peaches, Raspberries, and Strawberries are the only redeeming features as regards our fruit crops in this district. The soil is loam, various in character, overlying Oxford clay, intermixed with gravel, adhesive in damp weather, but parts with moisture rapidly. The climate and other conditions are not unfavourable to fruit culture.—E. HOBDAY.

Blenheim.—Apricots in this neighbourhood are a failure, owing to the severe weather which prevailed when they were in flower; we had then several times 22° of frost. Peaches and Nectarines are excellent; they withstood the effects of the frost much better than Apricots, though in flower at the same time. Plums upon walls are a partial crop, in exposed positions scarcely any, owing to the late frosts coming when they were just set. Pears in the open are likewise a short crop, but upon walls an average one, a remark which also applies to Cherries; the latter flowered most abundantly, but late frosts caused them to drop. Strawberries are abundant, but the wet we have lately had rotted a good deal of fruit. Raspberries are also good, and Red, White, and Black Currants are very heavy crops. Of Nuts we have a few. Apples are a heavy crop, especially Stirling Castle.

POTATOES have so far kept free from disease and are yielding well.—HENRY CLARKE.

Panshanger, Hertford.—Promising as appearances were early in the season for an abundant fruit crop, with the exception of Peaches, which are good, all other stone fruits are under the average. Apricots are very thin. I never remember seeing the bloom open so small and weak, a circumstance which I attribute to the unripened state of last season's growth. Plums, including Damsons, are a total failure, with the exception of a few Victorias on a northern aspect; the trees were a mass of bloom, but it was completely killed by the cold wet weather which we had. Pears suffered similarly; consequently they are thin on pyramids and standards, but a medium crop on walls. Apples generally are a heavy crop, but their leaves are much eaten by caterpillars. Cherries are a moderate crop on walls, but thin on pyramids and standards. Gooseberries and other bush fruits are abundant and good; Strawberries excellent. Walnuts are plentiful, but of Filberts and hedge Nuts we have none. From the increased amount of sunshine which we had early in the summer, our fruit trees are making good, healthy growth, and altogether are looking better than they have done for several seasons.—B. RUF-FETT.

WEST MIDLAND DIVISION.

Morningside, Kidderminster.—The crops here have been disappointing, owing in great measure to the terrible frosts in March, which took almost everything besides the Apples before them. Apples are about the only crop which remains. These are tolerably plentiful, the sorts being Dumelow's Seedling, Blenheim Orange, Lord Suffield, Cox's Pomona, Echlinville Pippin, Duchess of Oldenburg, Gooseberry Apple, Ribston Pippin, Cox's Orange Pippin, Melon Apple, Keddestone Pippin, Claygate Pearmain, Lord Burghley, and Sturmer Pippin, all of which are fairly good crops. Of Pears the crop is almost *nil*, the only sorts which show any tendency to bear being Williams' Bon Chrétien, Beurré Superfin, Louise Bonne of Jersey, Doyenné du Comice, Beurré d'Aremberg, Winter Nelis, Easter Beurré, Beurré Rance, Doyenné d'Alençon, Marie Benoist, Josephine de

Malines, Passe Colmar, Beurré Bachelier, Beurré Diel, Victoria, General Todleben, Durandeau, Pitmaston Duchess, Marie Louise, and a lot of others scarcely showing a specimen. In Plums the failure has been immense. In between twenty and thirty sorts there is scarcely a Plum to be seen. Apricots are almost the same as Plums—very little fruit to be seen. Peaches and Nectarines are tolerably plentiful on the whole, the walls having had a certain amount of protection, but uncertain as to general crop, the Royal George Peach and Lord Napier Nectarine being the surest croppers. Raspberries are abundant, and so are Strawberries, these being a little exception to the rest—Amy Robsart, Early Crimson Pine, Alpha, Gipsy Queen, James Veitch, Marshal Macmabon, The Countess, Sir John Falstaff, and Enchantress; these are the principal sorts grown, and the crops of all abundant. Nuts are a general failure. Gooseberries and Currants are tolerably good, but not a general crop, in some sheltered places being more abundant. Under glass crops are uniformly good. Grapes of Mrs. Pince's Muscat, Bowood Muscat, Black Muscat, Madre-field Court, Ryton Muscat, Muscat of Alexandria, Champion Muscat, and Trebbiano are especially fine. Duke of Buccleuch is rather disappointing. Peaches and Nectarines are also fine.

ROSES, though this is beside the question, have been specially numerous and fine. In the Potato crop Hero is remarkably fine, and bids fair to eclipse all.—W. RODEN.

Witley Court, Stourport.—Fruit crops in this neighbourhood are generally unsatisfactory, thus making the sixth season of failure. In so far as tree fruits are concerned, the promise early in the year of an abundant crop was favourable, much blossom showing upon Apples, and particularly Cherries; but the sharp frosts and severe, piercing winds which occurred when the trees were in bloom sadly marred results, and the long-continued low temperature so checked active growth as to cause the buds to drop, although they looked as if they would swell. This was particularly the case as regards Cherries, the buds of which dropped when of some size. Apples partial generally. In the garden here the following varieties are bearing a moderate crop—viz., Dumelow's Seedling, King of the Pippins, Peasgood's Non-such, Annie Elizabeth, Golden Reinette, Echlinville Seedling (a most reliable sort), Yorkshire Beauty (also a good sort), Lord Suffield, Stirling Castle, Rushock Pearmain, Cox's Orange Pippin, Yorkshire Greening, Worcester Pearmain, Scarlet Pearmain, Kerry Pippin, and Summer Golden Pippin. The situation is low, protected from the north and west, and the soil is of a rich, loamy character. Pears, with the exception of those upon walls, are a partial and thin crop, the greater part without a fruit. Upon walls the following bear average crops—viz., Marie Louise (heavily cropped), Beurré Diel, Beurré Bosc, Winter Nelis, Glou Morceau, Ne Plus Meuris, Durandeau, and Beurré Sterckmans. Bushes and standards which are bearing moderate crops consist of Passe Colmar, Williams' Bon Chrétien, Bergamotte d'Esperen, Pitmaston, Duchesse d'Angoulême, Prince Albert, Marie Louise d'Uccle, Doyenné d'Été, and a few others. Plums of all kinds are a failure on standards. The best fruited on walls are Reine Claude de Bayay, Transparent Gage, Golden Drop, and Jefferson. Apricots are a failure; Peaches and Nectarines very thin. Cherries are a very partial crop, standards bearing very few. Upon walls the best are May Duke and Morello. Small fruits of all kinds are abundant, superior in quality, and free from blight. Strawberries are a fine crop; the best kinds are Dr. Hogg, British Queen, Sir Joseph Paxton, Lucas, President, and John Powell. Raspberries are unusually fine, the best being Carter's Prolific, Antwerp, and Victoria. Black Currants are heavily cropped and fine in quality.

POTATO crops are looking well, and show no signs of disease; however, a continuance of close, rainy weather is almost sure to develop it. Early sorts are heavily cropped and of good quality. The best croppers are Covent Garden Perfection, Veitch's Improved Ashleaf, River's Royal Ash-

leaf, Porter's Excelsior, and Radstock Beauty.—
GEO. WESTLAND.

Tidenham House, Chepstow.—Fruit crops here and in the neighbourhood are, on the whole, fully up to the average, with the exception of Plums, which are scarce. Apples promise to be an abundant crop; the trees are free from blight, and the fruit is swelling fast. Pears are below the average; the bullfinches picked out most of their buds in March. Peaches, Apricots, and Nectarines are a full crop where they were protected. Cherries scarce; Red and Black Currants very plentiful; Gooseberries an average crop; Strawberries abundant and very fine; Raspberries a heavy crop, but the fruit is small. Figs are a good crop with us about here. Walnuts an average crop; other Nuts plentiful. Our soil is loamy, and we are sheltered from the north and east winds.

POTATOES.—I find that the Potato disease has made its appearance in some places within the last few days.—JOHN PADDOCK.

Tortworth, Falfield.—Speaking generally, fruit crops in this locality are below the average, although at the blooming period every kind looked most promising. The crop of Pears on pyramid bushes and standards is very thin, but trees on walls are bearing full crops, and good in quality. Apples are very partial indeed, low-lying gardens and orchards being by far the worst, owing, no doubt to the want of sunshine last autumn to ripen the wood. Those lying higher, and consequently much drier, are producing fair crops—at least, in the case of some trees, but still the crop is partial. Cherries, Plums, and Apricots are a complete failure. Peaches and Nectarines are with us a good half crop; but, generally speaking, these crops are poor. Bush fruit is abundant and good, but the birds are quite a match for it; indeed, I never knew them so numerous and destructive. Strawberries and Raspberries very good, and of Quinces and Medlars we have fair crops. Nuts abundant, and promise to be good.

POTATO crops are exceedingly vigorous, and promise to be good. There are no signs of disease at present.—THOMAS SHINGLE.

Attingham, Shrewsbury.—Our fruit crops are somewhat irregular this year. Apples are under the average in this garden, though in those of some of our neighbours they are a full crop. Apricots thin. Morello Cherries are a full crop, but other kinds do not succeed with us as a rule; they are a very light crop. Currants are a full crop, and Black kinds are remarkably fine. Of Figs we have none; they have not yet recovered from the effects of the late severe winter. Gooseberries are an average crop, and the same may be said of Peaches and Nectarines. Pears are under the average. Plums very scarce. Damsons quite a failure. Strawberries are an average crop and good in quality. Of Walnuts we have a good crop, but Nuts and Filberts are under the average.—G. PEARSON.

Blithfield, Stafford.—Fruit crops in this neighbourhood are very good, with the exception of Apricots, which are not very plentiful. Apples are abundant. Lord Suffield, Hawthornden, Dutch Codlin, German Spa, and Cellini Pippin do well in our cold stiff soil. Of Pears, Beurré Diel, Beurré Clairgeau, Brown Beurré, Knight's Monarch, Thompson's, and Louise Bonne of Jersey do best here. Keen's Seedling, President, and Premier are the Strawberries that do best with us. Currants, Raspberries, and Gooseberries are abundant.

POTATOES.—Royal Ashleaf and Myatt's Prolific are good and heavy crops; late sorts are looking promising. This has been the finest season we have had in this part of the country for twelve years, and all crops are looking well.—T. BANNERMAN.

Castle Gardens, Warwick.—With the exception of Apricots and Plums, fruit crops in this district are very fair. The exceptional cold weather which we experienced in the beginning of March completely destroyed the Apricot and Plum blossom. Apples and Pears promise to be good crops and excellent in quality. Cherries, though rather thin, are a fair crop. Peaches and

Nectarines are producing very fine crops; nothing could be better than those on trees which had a little protection while in flower. All small fruits abundant, especially Strawberries, which have been very fine and more plentiful than for several years past.—A. D. CHRISTIE.

Madresfield Court, Malvern.—The Apricot crop with us is a failure, though protected when in bloom with herring netting. The latter is, however, useless in such a severe March as last was, 20° of frost being repeatedly registered and the "north-easters" piercing. Apples are rather above the average, especially the coarser or cider kind. Cherries are very thin, Morellos excepted. Of Pears, Peaches, and Nectarines we have a fair sprinkling. Plums are a total failure, the trees having failed to blossom. Strawberries of all kinds are an enormous crop. Bush fruits fairly plentiful and good. Walnuts, an immense and healthy crop. Soil, a strong and retentive loam.—WILLIAM CRUMP.

Kingscot Park, Gloucester.—Apples hereabouts are an average crop. Pears not so plentiful. Plums and Peaches very bad. Cherries very good. Figs over the average. Strawberries an average crop and fine in quality. Raspberries very good. Black and Red Currants and Gooseberries abundant.

POTATOES, both early and late, never looked better, and there is as yet no trace of disease.—S. WATHEN.

Kingston, South Notts.—Fruit crops in this division have seldom been more abundant, particularly small fruits. Strawberries are a very heavy crop, the showery weather swelling up every fruit to perfection; the varieties that suit us best are Black Prince, Vicomtesse Héricart de Thury, Sir Joseph Paxton, and Lucas. James Veitch is magnificent for exhibition, but where quantity is required we find other varieties better. For a late sort Elton Pine stands still to the front; for market, President is the favourite. Raspberries are also heavy crops; Red Currants are lighter than usual; Black Currants are good and excellent in quality. Peaches on walls have a nice sprinkling of fruit on them; the trees, too, are in good health. We have not protected outside trees for some years, and find but little difference as regards results; our varieties are Walburton Admirable, the hardiest variety with us, Barrington, Royal George, and Bellegarde. Of Nectarines we grow Victoria and Elruge. Apricots are not doing well. Old trees are dying off. Pears on walls are well covered with fruit. Glou Morceau, Winter Nelis, Louise Bonne of Jersey, Easter Beurré, Beurré Rance, Duchesse d'Angoulême, Williams' Bon Chrétien, are all bearing well. The varieties that do not seem to suit us so well are Marie Louise, Comte de Lamy, and Autumn Bergamot. Standard trees of Louise Bonne of Jersey rarely fail to yield fruit. Huyshe's Prince of Wales and Victoria are good, as is also Josephine de Malines. Apples are a very good crop. Irish Peach, Devonshire Quarrenden, Keswick Codlin, Lord Suffield, Besspool, Blenheim Orange, Hawthornden New, Dumelow's Seedling, Northern Greening are our surest croppers. Our soil is a heavy clay. We have neither Plums nor Damsons; Cherries were but thin. Nuts seem to be abundant in the neighbourhood. The wet autumn has, therefore, been followed by an abundant supply of fruit. Wet autumns are supposed by some to be injurious to the ripening of the wood, but the contrary has been our experience. Some Peach growers under glass would do well to bear this in mind, and see that the borders are well supplied with water after the fruit is gathered in place of leaving them to become sadly too dry, as is too often the case.—J. W. BAYNES.

NORTH MIDLAND DIVISION.

Thoresby Park, Ollerton.—Spring here was late and cold, and fruits of all kinds were later than usual in opening their flowers; therefore every kind flowered abundantly, Apricots excepted; these did not show much bloom, and what they did produce was very weak, and a light crop is the result. Cherries on a west wall are about half a crop, while Morellos on a north as-

pect are a good crop. Of Plums, we have none and in our neighbourhood large orchards of them are equally as bad as we are. Pears promised to be a heavy crop, but many have dropped off, leaving scarcely half a crop. Apples showed abundance of bloom, and on some trees there are fair crops, but on others they are light. We find Atkins' No. 2, Stirling Castle, Duchesse d'Oldenburg, Blenheim, Keswick Codlin, Lord Suffield, and Cellini our most regular bearers. Small fruits are abundant; Strawberries are a heavy crop; and Black and Red Currants and Raspberries are also heavily cropped.

POTATOES are looking well, and at present there is no appearance of disease.—A. HENDERSON.

Lenton Hall.—We lie nearly as high here as Nottingham Castle, and are 2½ miles west of it. Soil varied (standing as we do on a "fault")—Keuper clay and Bunter sand rock. The results are about equal on each kind of soil. As regards protection, we have well-wooded country on all sides. Apples are a good level crop from Summerings to Greenings, and equal all through. Pears fair; an average crop. Plums, including Damsons, comparatively speaking, none. Cherries and Apricots, very few. Peaches, a good sprinkling. Bush fruit plentiful. Gooseberries fewest, but still fairly good. Strawberries, a good crop, rather lacking in flavour, and disposed to damp from stormy weather. Raspberries, a very good crop. A fair fruit season taking it all through.—N. H. POWNALL.

Belvoir Castle, Grantham.—The fruit crop of this year is singularly varied as regards production, going to the extremes of fulness and absolute failure. It is many years since so good a crop of Apples has appeared; both early, medium, and late kinds are equally prolific. Those very useful sorts, Lord Suffield, Bramley Seedling, Cox's Orange Pippin, Normanton Wonder, Blenheim Orange, Hereford Pearmain, and Northern Greening are bearing well on our heavy soils. Mutual shelter afforded in well-grown orchard trees is an advantage, evidenced by the failure of our exposed pyramid Pear trees. Lines of these in avenue form are doubtless effective in a large kitchen garden, but it is rare that the fruit they bear is worth the trouble given to the trees. The same kinds of Pears on walls are bearing well. Doyenné d'Été, Marie Louise, Bergamotte d'Autonne and d'Espérance, Knight's Monarch, and Beurré Rance promise an abundant bearing. Plums are exceedingly thin, and Damsons an absolute failure. The more tender Peach is showing a very heavy crop, and the trees are clean and full of vigour. The crop of Morello Cherries is thin; other kinds have failed. The crop of Raspberries is abundant. Currants, both Black and Red, moderately so. Strawberries are fine and plentiful. La Grosse Sucrée proved very early and excellent, Keen's Seedling following, succeeded by President, Paxton, Vicomtesse Héricart de Thury, Dr. Hogg, British Queen, and Frogmore Late Pine.—W. INGRAM.

Bloxholm Hall, Sleaford.—Our fruit crops have very much disappointed us this season. In spring all our bush and other fruit trees were covered with bloom, but a storm of hail, snow, and sharp frost which we had in May blighted our prospects. Apricots are a complete failure; also Plums and Dessert Cherries are a very poor crop. Pears, with the exception of a few of the hardiest sorts on walls, are also a very poor crop. Apples are a good crop in the case of some sorts. Calville Blanche on a south wall is a good crop. Court Pendu Plat is bearing a fair crop; also King of the Pippins, Boston Russet, Sturmer Pippin, Wyken Pippin, Betty Geeson, Lord Suffield, Manks and Keswick Codlin, Stirling Castle, and Northern Greening, all bush trees. Strawberries are abundant, the best being Garibaldi, President, Sir Joseph Paxton, and Loxford Seedling. Gooseberries are a fairly good crop, but not up to our usual average. Black Currants are a fair crop and good. Red Currants thin and small. Raspberries a full crop and good. Filberts a complete failure. Walnuts a thin crop. Peaches on open walls a good crop where protected in

spring when in bloom. Taking all in all, we are not up to our usual mark with fruit this season in the neighbourhood.—DAVID LUMSDEN.

Welbeck.—Apricots set well, but the 26° of frost which we had in March killed a great many of them, and consequently they are but a light crop. St. Ambrose and Kaisha stood the ordeal best, and are bearing heavy crops. Apples are under the average. The trees flowered profusely, but did not set well. Pears are much under the average; like the Apple trees, they flowered profusely, but most of the blooms did not set. Plums are a total failure. Peaches and Nectarines are a fair average crop, and the trees are very healthy. Mulberries on walls are a good crop. Strawberries, Gooseberries, Raspberries, and Currants are fair average crops. Strawberry plants suffered much in March from the severe frost. Cherries are a fair crop.—R. CARR.

Shipley Hall, Derby.—In this locality fruit crops are very variable, but generally unsatisfactory. Plums are for the most part a complete failure, having suffered severely from easterly winds and cold, frosty nights. Apples will be small and not more than half a crop. Pears very thin indeed, both in orchards and on walls. Of the choicer kinds of fruits, such as Peaches, Nectarines, and Apricots, none are grown here out of doors. Morello Cherries are a full and a fine crop. Of the sweet kinds we had a fair crop, and around here I have seen good crops of May Duke and Bigarreau on standards. Of Currants, Gooseberries, and Raspberries, the crop is excellent. Strawberries, which were actually stripped of foliage in March by cutting winds and severe frosts, are a good crop, especially President and Hélène Glodé. The latter I entertain a high opinion of as a late Strawberry; it is a good bearer, good in flavour, and has a constitution which stands this very variable climate better than any other variety tried. Our garden is on the summit of a hill, and the soil of a cold, tenacious character, but of good average depth.

POTATO crops are excellent, and up to the present I have not seen or heard of disease, but am daily expecting it, as the weather is very showery and conducive to its appearance.—WM. ELPHINSTONE.

SOUTH-WESTERN DIVISION.

Wilton House, Salisbury.—Apples in this district are a good crop. The fruit will be small generally, the trees having scarcely recovered from the effects of the two last unfavourable years. The sorts most reliable here are Devonshire Quarrenden, Keswick Codlin, Early Harvest, Lord Suffield, Margaret, Blenheim Orange, Cox's Orange Pippin, Downton Pippin, Hawthornden New, Margil, Rymer, Yorkshire Greening, Alfriston, Braddick's Nonpareil, Court Pendu Plat, Northern Greening, Striped Beaufin, Warner's King, Boston Russet, Royal Russet, Sturmer Pippin, and Wellington. Apricots, though protected with glass coping and thin woollen net suspended in front, are only a moderate crop. The best sorts are Moorpark, Kaisha, Large Red, Hemskirk, and Royal. Cherries are a bad crop, except against a south wall protected in spring with canvas blinds. The best are Belle d'Orleans, Bigarreau Napoleon, Black Tartarian, Frogmore Early Bigarreau, Governor Wood, May Duke, Elton, and Morello. Currants are a good crop. Figs moderate. Gooseberries a partial crop. Peaches a fair crop on south walls protected by canvas blinds. Our best sorts are Early Beatrice (now ripe), Early Louise, Hales' Early, Grosse Mignonne, Dr. Hogg, Stirling Castle, Royal George, Noblesse, Exquisite, Barrington, Walburton Late Admirable. Nectarines are a fair crop. The best varieties are Lord Napier, Rivers' Early Orange, Elruge, Pitmaston Orange, Pine-apple, and Victoria. Nuts are a fair crop, and so are Pears. The most reliable sorts are Jargonelle, Williams' Bon Chrétien, Autumn Bergamot, Beurré Superfin, Gratioli of Jersey, Beurré de Capiaumont, Beurré Diel, Beurré Sterckmans, Chaumontel, Duchesse d'Angoulême, Gansel's Bergamot, Louise Bonne of Jersey, Pitmaston, Duchesse d'Angoulême, Marie Louise, Doyenné du

Comice, Glou Morceau, Huyshe's Victoria, Josephine de Malines, Bergamotte d'Esperen, Beurré Rance, Ne Plus Meuris, Black Pear of Worcester, and Catillac. Plums very bad; none, except where protected, on walls. The best sorts are Belle de Septembre, Denniston's Superb, Diamond, Early Orleans, Green Gage, Jefferson, Kirke's, Mitchellson's Damson, Pond's Seedling, Magnum Bonum, Victoria (Denyer's) and White Magnum Bonum. Raspberries are abundant; Fastolf and Carter's Prolific are the best. Strawberries are excellent. The best sorts are Auguste Nicaise, Sir J. Paxton, President, James Veitch, and Elton Pine. The gardens in this neighbourhood are generally situated in the valleys, which as a rule are somewhat narrow, and through which invariably runs a rapid stream. They are surrounded by the lofty, bleak, and rounded hills which compose the Salisbury Plain, and from which at times, especially in spring, descend terrific storms, as well as intense cold, such as to render fruit growing, except under glass, very precarious and unprofitable. The staple soil is very shallow, and rests upon chalk and gravel. It is generally of a marly character, largely mixed with chalk and flints. When incorporated with a good proportion of minute sand it is fairly fertile, but in dry seasons it parts with moisture too freely, and unless abundantly watered and mulched, not only the fruit, but the trees also fail quickly. Under these unfavourable circumstances only the hardiest varieties of fruit trees can be cultivated with success.—T. CHALLIS.

Longford Castle.—The severe frosts and chilling winds which prevailed in March and the early part of April had the effect of destroying our fruit prospects, which till then were promising. So intensely severe was the weather which we experienced during those six weeks that the chances of trees which happened to be in flower out of doors at the time bearing a crop of fruit were few indeed, and of the correctness of this statement we have unfortunately too conclusive evidence, as a glance at the bare condition of the trees, especially wall trees, at the present time will show. Plums, excepting a few of Coe's Golden Drop, are conspicuous by their absence; and Apricots, Peaches, and Nectarines are very little better. Of Apricots we have very few, although like the Peaches and Nectarines, the trees had the protection of good blinds, raised and lowered by means of ropes and pulleys every night, and sometimes during the biting east winds for a couple of days together. But the experience of another year shows that any protection, short of glass, is of very little use, and cannot be depended upon as a means of saving the blossoms of choice fruits, more especially those of Apricots and Peaches, from the effects of such weather as that to which they were subject last spring. Of Peaches, Violette Hâtive, Bellegarde, and Early Louise are, however, bearing fairly good crops, and the same may be said of Violette Hâtive and Elruge Nectarines. Morello Cherries are a fairly good crop, but nothing like so heavy as during the past four or five years. The following varieties of Pears are carrying good crops, viz., Glou Morceau, Marie Louise (two sure croppers, no matter what aspect they occupy or mode of training to which they are subjected), Easter Beurré, Beurré Rance (heavily cropped on a west wall), Catillac, Chaumontel, Josephine de Malines, Bon Chrétien, Fondante, Jean de Witte, and Ne Plus Meuris. The crop of Apples, the most important of any, taken altogether, may be pronounced a good average one; some trees are heavily cropped, while on others there is no fruit. Mulberries are a good crop, as are also Medlars and Figs; Strawberries are very plentiful and fine, and the same may be said of bush fruit. I may add that our soil, from 2 feet to 3 feet deep, is light and rests on a gravelly subsoil close to the water.—H. W. WARD.

Cothelstone, Taunton.—The Apple crop hereabouts is likely to be the best we have had for the past four years. Our most reliable kinds are Lord Suffield, Cellini, Hawthornden, Tom Put, Ribston Pippin, King of the Pippins, French Crab, Blenheim Orange, Manks Codlin, Tower of

Glamis, Worcester Pearmain, and Wykin Pippin. Our land for the most part is rather heavy. This is not a good Pear year. There are not many barren trees, but there is not a full crop on any of them. The most fruitful on our walls are Beurré Diel, Althorpe Crassane, Williams' Bon Chrétien, Beurré Clairgeau, Marie Louise, Winter Nelis, and Huyshe's Victoria. Plums are scarce. We have a few Green Gages, but very few others. Apricots are only about a third of a crop, though protected with a wide glass coping, and either Frigi-domo canvas or fish net in front. One tree of the Musch-Musch variety has a heavy crop on it. Our other trees are all of the Moorpark variety. Morello Cherries are a fair crop, and the trees fairly healthy. Figs in favoured spots are a good crop. Strawberries have been very abundant and fine. Our most reliable kinds are President, Sir C. Napier, Black Prince, Vicomtesse Héricart de Thury, and Brown's Wonder. Raspberries are exceptionally fine and numerous; and Gooseberries and Currants are also a heavy crop.—J. C. CLARKE.

Prideaux Place, Padstow.—The following is the state of the fruit crops in this neighbourhood: Apples over the average and good in quality. Apricots not grown. Cherries and Currants over the average, and in good quality. Gooseberries and Pears average. Peaches much under the average; also Plums. Strawberries over the average and good in quality. Raspberries, average. Nectarines much under the average. Filberts not grown. Our prospects of a good Peach crop were blasted by the cold winds which prevailed in March. Gooseberries suffered a great deal at that time, as did also Plums. We are exposed here to east, south, and west winds, but are fairly well sheltered on the north and north-west. Our gardens slope sharply to the south, and the soil is a light deep loam on a gravelly subsoil, so that in dry seasons we suffer considerably from drought, but this moist season has suited us perfectly. Although we seldom suffer much from frost at any time of the year, yet the nights are rarely warm even in summer, owing, I suppose, to our close proximity to the Atlantic Ocean.—J. C. TALLACH.

Enys, Penryn.—Apples here are an average crop. Plums scarce. Cherries, early sorts scarce; late sorts a better crop. Peaches and Nectarines and Pears below the average. Figs an average crop. Strawberries abundant. Gooseberries a good crop; other small fruit an average crop. The past month has been dull and wet.—HENRY MILLS.

Marston, Frome.—We have had most extraordinarily heavy crops of small fruits, such as Strawberries, Raspberries, Gooseberries, Red and Black Currants, and Apples are also extremely plentiful. Of Pears we have good average crops, but Plums, Apricots, Peaches, Nectarines, Figs, and Cherries are very thin indeed. Filberts are scarce, but Walnuts are abundant, remarks which apply to the whole district. Of Strawberries Sir Harry proved to be the heaviest cropper among early kinds, but it is scarcely so good in quality or so firm as Keen's Seedling, and the latter is preferred. Vicomtesse Héricart de Thury cropped heavily, but ripened badly, and La Grosse Sucrée was not so satisfactory as usual. Sir J. Paxton, President, Sir C. Napier, and Dr. Hogg were all first-class in every respect, and for the late supply Eleanor and British Queen prove profitable. Raspberries are all doing well, but we prefer the Fastolf variety. Gooseberries Red and Yellow Champagne, Red Warrington, Early Sulphur, Whitesmith, Crown Bob, and Rifleman are again about the best. Black Naples among Black Currants, Ruby Castle and Red Dutch Red Currants, and White Dutch White Currants are all good. Of early kitchen Apples the best are Carlisle Codlin, Keswick Codlin, Hawthornden, Manks Codlin, and Lord Suffield; of later sorts, those which are most prolific are Cellini, Tower of Glamis, Blenheim Pippin, Lord Derby, Winter Greening, Lemon Pippin, Dumelow's Seedling, and Rymer; the best cropping dessert varieties are Devonshire Quarrenden, Irish Péach, Red Astrachan, Golden Reinette, Cox's Orange Pippin, Margil, Ribston Pippin,

Blenheim Pippin, Reinette du Canada, Court Pendu Plat, Kerry Pippin, and Sturmer Pippin. Of early Pears the heaviest croppers are Doyenné d'Ete, Jargonelle, and Citron des Carmes; and such late sorts as Beurré d'Amanlis, Fondante d'Automne, Louise Bonne of Jersey, Beurré Superfin, Marie Louise, Van Mons Leon Leclerc, Doyenné Boussoch, Easter Beurré, Beurré Diel, Calebasse Grosse, Beurré Bosc, Beurré Clairgeau, Beurré d'Aremberg, and Crassane are well cropped. The only Plums bearing at all well this season are Early Orleans, Victoria, and White Magnum Bonum. All the Apricot trees, both under glass coping and unprotected, bloomed abundantly and set well, but the severe frosts in March destroyed all the embryo fruits on all, with the exception of one sheltered tree and directly under the glass coping. The winds were too strong and frosty for the frigidom blinds to be of any service. Early Moorpark appears to be the hardiest and most generally prolific variety we have, and the quality is also excellent. Some of the early Peaches, such as Early Beatrice and Early Alfred, are swelling off small crops, and Bellegarde, Grosse Mignonne, and Barrington have a sprinkling of fruit on them. Lord Napier Nectarine is also fairly well cropped. Figs were nearly all destroyed by late frosts. Cherries, Elton, Bigarreau, and Black Tartarian perfected fairly good crops, but Morellos are thin. Filberts were all destroyed by frost. Our garden is rather low lying and well sheltered from all but the easterly winds. Soil, heavy retentive clayey loam, resting on clay sub-soil, not well drained.—W. IGGULDEN.

Sherborne Castle, Dorset.—The Apple crop in this neighbourhood is the most promising we have had for several years past both in gardens and orchards, and the foliage looks well. Apricots are a complete failure. Cherries do not do well in this locality, with the exception of Morellos, and of these we have a very fair crop. Pears on walls are half a crop; on pyramids and bush trees very few, and much deformed. Plums are thin—almost a failure. Peaches and Nectarines on open walls are thin, and we have very few Figs. Bush fruits of all kinds are plentiful and good in quality. Strawberries have been very plentiful and fine, but, owing to so much rain, we lost nearly all the earliest and finest fruit. President and Sir Charles Napier are the favourites hereabouts for outdoor work, and Vicomtesse Héricart de Thury for forcing. Of Nuts we have very few.

EARLY POTATOES are very fine, and an excellent crop. Late sorts are also looking well, and we have little or no disease worth speaking of.—W. G. PRAGNELL.

Powderham Castle, Devon.—The cold and severe weather which we had about the middle of March, by which time the whole of the Apricot bloom was expanded, destroyed the whole of it, so that an entire failure is the result. Peaches and Nectarines were cut very much, but late blooms escaped, and we are pleased to say we have a fair crop. Plums are bad generally. Early Cherries were good, but Morellos dropped off considerably during the stoning period, owing in a great measure to the exceedingly cold weather, though dry, during the period of blooming; still we have a fair crop, but not up to the average. Apples are excellent; such kinds as Hawthornden (new and old), Blenheim Pippin, King of the Pippins, Loddington, Warner's King, Lord Burghley, Keswick Codlin, Irish Peach, Lemon Pippin, Gravenstein, Hollandbury, Winter Quoining, Winter Majetin bear heavy crops. Orchard fruit generally is good. Of Pears, some kinds are bearing full crops, such as Williams' Bon Chrétien, Marie Louise, Moor Fowl Egg (a Scotch variety), Catillac, Vicar of Winkfield, Bellissime d'Hiver, and Beurré Rance. Gooseberries are an average crop, and very fine. Black, Red, and White Currants heavy crops and fine. Strawberries are very heavy crops, especially of Sir Joseph Paxton and President. The other principal kinds grown are Sir Charles Napier, Oscar, James Veitch, Loxford Hall, and Elton Pine. Walnuts are very abundant. Raspberries, which are better than they have been for several years past, are bearing heavy

crops. The weather of late has been very wet and unfavourable for the gathering of both Strawberry and Raspberry crops. Gooseberries have also burst very much from the same cause.

POTATOES everywhere are looking very well. Everyone has a good account to give of the early crop. Beauty of Hebron ranks as one of the very best early Potatoes grown, and I consider it to be one of the greatest acquisitions of late years to the Potato list. Disease is making its appearance on the haulm in places, but I have not seen or heard of it yet in the tuber.—D. C. POWELL.

Killerton, Exeter.—Apples are a good crop; they are chiefly in orchards. Among the best are Cellini, Court of Wick, Cox's Orange Pippin, Blenheim Orange, Dumelow's Seedling, Hawthornden, Hubbard's Pearmain, Autumn Pearmain, Manks Codlin, Keswick Codlin, Ross's Nonpareil, Sturmer Pippin, Lord Suffield, and Warner's King. Pears, some sorts very good, others very light. Knight's Monarch, Bergamotte d'Esperen, Ne Plus Meuris, and Comte de Lamy very heavy. Good crops of Williams' Bon Chrétien, Louise Bonne of Jersey, Winter Nelis, Glou Morceau, Le Curé, Jargonelle, Beurré Rance, B. Bachelier, Madame Treve, and Beurré Clairgeau. Plums are very scarce. Cherries are under the average. Nectarines and Peaches are very scarce, but the trees are very healthy; they were slightly protected by netting when in bloom. Apricots very scarce, but the trees are very healthy. Figs are a fair crop. Nuts and Filberts scarce. Walnuts plentiful. Raspberries a very fine crop. Strawberries excellent, but injured by the heavy rains. Gooseberries scarce. Black, Red, and White Currants good crops. Soil, red loam on the red sandstone, naturally well drained.

POTATOES generally look remarkably well and promise to produce heavy crops. Early Ashleaf in gardens is very good; main crops in field consist of Beauty of Hebron, Early Rose, York Regent, Magnum Bonum, Reading Hero (strong branching stalks 3 feet high), and Scotch Champion. Disease is slightly affecting the early sorts, but not the later ones.—JOHN GARLAND.

Merriott, Somerset.—Fruit prospects in this neighbourhood were unusually good early in the year; we had a great profusion of blossom on all our trees except Plums. Pear and Cherry blossoms set well; but, alas! through the stoning crisis every Cherry dropped; the Pears progressed favourably for a few weeks after setting, and looked remarkably well, but then they vexingly dropped by thousands, leaving us with a very poor crop. Of Plums we have none; even our most surest croppers, Victoria, Syston, Early Prolific, Orleans, Transparent Gage, Lawson's Golden, Pond's Seedling, and Prince Englebert, are scarcely furnished with a single fruit. Of Apples there is a fair crop, and in some of our large cider orchards very large crops. Black, Red, and White Currants, Gooseberries, Raspberries, and Strawberries are bearing enormous crops. The following Apples are producing fine crops, viz., Alfriston, Baron Ward, Cellini (this good well known sort is very fine this year, and I might mention that we have fruit now—July 18—measuring 5½ inches in circumference on trees only four months old—i.e., trees grafted in March last), Manks Codlin, Keswick Codlin, Deux Ans, both Hunt's and Hambleton's, Forge, Frogmore Prolific, Golden Noble, a most beautiful Apple and sure cropper; Rhode Island Greening, Hawthornden, Jacques Lebel, a glorious Apple, very like old Blenheim Pippin, Joannetting, Lord Suffield, Non-such, White Nonpareil, Echlinville Seedling, Oslin, Chester Pearmain, Golden Winter Pearmain (this most beautiful and delicious Apple is again to the front with clusters of fine fruit), Pitmaston Pine-apple, Blenheim Pippin, Brown Cockle Pippin, Downton Pippin, Fearn's Pippin, Cox's Orange Pippin, Sturmer Pippin, Twining's Pippin, Pott's Seedling, a very sure bearer, having fruit the size and quality of Lord Suffield, but more compressed at the ends; Reinette Blanche, Royal Somerset, Powell's Russet, Stibbert, Old Scarlet Tom Put, and Colbrook Tom Put. Amongst Pears, the following are producing fair crops, viz., Belle et

Bonne, Bellissime d'Automne, Beurré Navez, Old Calebasse, Comte de Lamy, Knight's Monarch, Althorpe Crassane, Dr. Trouseau, Duchesse d'Angoulême, Peche, Theodore Van Mons, Vicar of Winkfield, Williams' Bon Chrétien, Hazel, Williams' d'Hiver, Philadelphia, and Conseiller de la Cour. Amongst Black Currants, our best are Black Maples, Goodall's Seedling, and Black Sweet-fruited, a delicious Currant, well adapted for dessert; and amongst Red Currants, Ruby Castle, Long-bunched, Red Champagne, and Red Versaillaise. All our Strawberries have borne large crops, but taking flavour and size combined, the following are the best, viz., Sir Charles Napier, President, Vicomtesse Héricart de Thury, Carolina Superba, Eleanor, Goliath, Keen's Seedling, Myatt's Eliza, Oscar, Sir Joseph Paxton, Premier, and Fairy Queen.

POTATOES look unusually well. The disease has appeared amongst some of the early kinds, but as yet it has not touched late kinds.—W. ROBERTS.

Moreton, Dorchester.—Fruit crops in this neighbourhood taken as a whole are not so good as we at one time thought they would be, owing to the very cold weather which we had all through April. Pears are light, and Plums are a failure. Apples, blooming later than usual, are, however, a good crop—much better than we have had for several years. Peaches and Nectarines in orchard houses, or where they have had the protection of a glass coping, are good, but where unprotected they are a failure and an annual source of disappointment. Figs are fairly good, and Cherries of the Morello kind are bearing fair crops. Strawberries are very abundant and of large size, the earlier pickings being of good flavour, but later gatherings not so good, owing to the rains we have had. In our light soil we find no kinds equal to President and Vicomtesse Héricart de Thury. Raspberries and Currants of all sorts are good. Gooseberries about half a crop.—D. UPHILL.

NORTH-WESTERN DIVISION.

Haigh Hall, Wigan.—Fruit trees came into flower in this neighbourhood at least three weeks later than usual, set well, and received very little check from frost; consequently crops are better than they have been for many years past. The trees are also healthier and freer from insect pests than they have been for several seasons. Apples are an abundant crop; Cellini, Lord Suffield, Keswick Codlin, Yorkshire Greening, Small's Admirable, and Cox's Pomona are our favourite sorts. Pears on south walls and espaliers are a good crop. Easter Beurré, Beurré Diel, Marie Louise, Louise Bonne, and Glou Morceau are the most suitable sorts for this district. Plums are a thin crop. Strawberries are a fine crop, and the fruit larger than usual. Black Prince, Duc de Malakoff, Garibaldi, and Keen's Seedling succeed best in our cold tenacious soil. Raspberries, Gooseberries, and Currants of all sorts are an abundant crop. Of sweet Cherries there is a large crop; Morellos are also heavily laden. The Peach, Nectarine, Apricot, and the Fig are not cultivated in the open air in this part of the country.—ANDREW JAMIESON.

Crewe Hall, Cheshire.—In this district Apples, Pears, and Cherries are about an average crop. Peaches on walls, protected when in bloom, are generally good, but of Apricots in the same situation we have very few; the trees of both these and Peaches are looking very healthy. Plums and Damsons a very light crop. Strawberries about an average, and all other small fruits very plentiful. All the fruit crops here, with the exception of Apricots, Plums, and Damsons, are a great improvement on those of last year. These last-named blossomed very sparingly, the cause, no doubt, being the want of heat and sunshine, and the excessive moisture of the previous autumn, and when the flowers were open, as so often happens, there came a period of cold frosty weather, which destroyed much of the tender blossom and embryo fruit. Our soil is a light, friable loam. We are well sheltered from the north and east, but rather too much shaded by

tall trees on the south. Most kinds of Peaches and Nectarines do well with us, except in very bad seasons. Early Rivers' Peach I have discarded, as it becomes hollow at the stone; and Royal George, one of the very best Peaches for growing under glass, is very subject to mildew out-of-doors. President is one of our best Strawberries for forcing and general crop, but a sort which seems to be a local one, called Barnes' Seedling, had a larger crop of fine fruit than any other that I have heard of in this neighbourhood. Our best bearing Apples are Keswick Codlin, Cat's-head, Lord Suffield, Irish Peach, Hawthornden, Mère de Ménage, and some other standard kinds. Of Pears the best are Winter Nelis, Beurré Clairgeau, Althorpe Crassane, Beurré d'Amanlis, Louise Bonne, and Williams' Bon Chrétien.—WM. WHITAKER.

Abney Hall, Cheadle.—The best of the Strawberry crop has just been gathered, and a most satisfactory one it has been. President is the best variety we have. In weighing a few of the finest fruit just as they were gathered, 22 weighed rather more than a pound. Myatt's Prolific and Sir Joseph Paxton, both of which are grown in this neighbourhood, have also been very fine, the largest weighing about an ounce each. Red and Black Currants are scarcely so good as last year. Raspberries are a good crop. Cherries, both early and late, very good. Apples are an abundant crop. Pears not quite so good. Plums here are a failure. There is a fair sprinkling of Peaches and Apricots on the trees outside, though they seldom do well here. Gooseberries are a very good crop.—ROBERT MACKELLAR.

Waterdale, St. Helen's, Lancashire.—With respect to the fruit crops of this neighbourhood, Apricots and Plums are a complete failure. Peaches and Nectarines in sheltered situations, and where protected with canvas, are a fair crop. On Pears there was a good bloom, but the keen dry winds which occurred at the time left them very thin. Apples are a good crop all round, and the same may be said of Morello Cherries. Black Currants, too, are plentiful and fine. Of Red Currants we have plenty, but they are irregular in size and poor. Gooseberries good, Raspberries the same, and Strawberries the heaviest crop we have had for years. President is first favourite in this quarter, Vicomtesse Héricart de Thury second, and Eclipse third, on a stony soil resting on cold clay.

VEGETABLE crops of all sorts are very promising, Potatoes particularly so.—JAMES SMITH.

EASTERN DIVISION.

Woolverstone Park, Suffolk.—With the exception of Apricots, the blossoms of which were open very early and cut off, crops of most fruits hereabouts are very abundant, and especially is this so in the case of Apples, Pears, Strawberries, Raspberries, Gooseberries, and Black Currants, which have been very large and good. The maggot has been rife amongst Apples, which is perhaps fortunate, as they set very thickly, and as many have fallen those left will be all the larger and finer and quite enough for the trees, which look healthy in leaf and are fast swelling their fruit. Pears we have had to thin severely, in many cases taking quite half off, and we shall yet go over the trees and cut away more. The sorts that have most on them are Bergamot Esperen, Passe Colmar, Louise Bonne of Jersey, Marie Louise, and Ne Plus Meuris, the skins of which, as well as of all other kinds, look clear and healthy, without that tendency to crack so common when we get dry summers. After such soaking rains it is to be hoped the fruits will escape that malady and be very fine, which they certainly promise to be. The sorts of Apples that give the most satisfaction here are Blenheim Pippin and Cox's Orange Pippin, both of which should be largely grown, as they are of first-rate quality and last in season a very long time. Plums are thin, both on walls and standards, the only trees with anything like a crop on them being those favoured with a south-east aspect, which sheltered them from the cold winds and frosts we had in the spring. The soil in this district is light sandy loam, resting on a sandy or

gravelly bed, which suits stone fruits and Pears on the Pear stock, but is not stiff enough for those on the Quince, nor for Apples, as the latter canker, and are apt to die back before they reach any great age.—J. SHEPPARD.

Henham Hall, Wangford.—Gooseberries in this neighbourhood are very thin. Strawberries, I am glad to say, have been abundant, in fact, all that could be desired. Of Raspberries and Black Currants we have abundance of very fine fruit. Red Currants are also a good crop. Apples in most of the orchards around are plentiful, but with us they are only a moderate crop. Pears are showing up well, not heavy crops, but very regular. Williams' Bon Chrétien and Marie Louise are the best. Apricots are scarce. Of Peaches we have again a good lot unprotected with blinds, but they had a fine season when in bloom. Figs on walls outdoors are again plentiful. Standard Plums are a failure, and on walls there are but few.

POTATO crops are looking well in both field and garden.—G. W. EDEN.

Hardwicke House, Bury St. Edmunds.—Apples varied, fell very much up to June 18, and now only an average crop. Pears very scarce, Plums none. Apricots almost a total failure. Cherries varied, partial crop. Peaches splendid crop, very full, protected with Spruce boughs; equally full without protection—the crop of this season. Gooseberries very thin. White, Red, and Black Currants a moderate crop. Nuts various, fair crop; Walnuts scarce. Strawberries and Raspberries a fine full crop.—D. T. FISH.

YORKSHIRE.

Wortley Hall, Sheffield.—Apples and Pears are a better crop than they have been for some years. Cherries and Plums indifferent. All small fruits good. The season, on the whole, has been favourable, but very cold and changeable of late, the thermometer dropping to near 40° about the middle of July.

Vegetable crops were late in beginning to grow, but are good, Potatoes especially.—J. SIMPSON.

Stourton Castle, Knaresborough.—I regret that I cannot send a very favourable report of the fruit crop here or in this neighbourhood. There was a great deal of blossom in spring, but much of it was weak and imperfect, and the greater part fell off. Apricots are a complete failure; so are Plums. Pears are very light. There is, however, a sprinkling on standard trees of Williams' Bon Chrétien, Beurré Bosc, Dunmore, and Beurré Diel; on some of the pyramid and wall trees there is also a light sprinkling of fruit. Apples promise to be an average crop, but in general they are light. Some trees here have a fair crop on them, but the greater number have only a few fruit. Peaches on most of the trees are a good crop, and the trees are making good clean growth, as are likewise most kinds of fruit trees. The late heavy rains have cleared them of insects. Bush fruit is in general plentiful. Gooseberries are a good crop in open, exposed places, and a light crop in sheltered situations. Strawberries abundant.—M. SAUL.

Brantingham Thorpe, Brough.—We are situated about two miles from the river Humber, and are 200 feet above sea level, at the commencement of the range of hills that form the Yorkshire Wold. Soil, chalk, marl, and limestone. We suffer from cold easterly winds generally during the spring months. The fine weather last February caused the sap in fruit trees to flow freely and the fruit buds to swell, and in some cases to expand and give promise of an abundant crop of bloom; but severe weather commenced the second week in March. On the 10th the thermometer ran down to 7°, causing great destruction, and blighting all our hopes for crops of Apricots, Cherries, and Plums. Peaches and Nectarines are very thin indeed. Apples, Pears, Gooseberries, and Currants are very variable in crop, according to locality, exposure or shelter, on the hill, or in the valley. Raspberries and Strawberries are remarkably fine and large, and also abundant; we want more sun this season; they are very acid. Kinds that succeed well here are the following:

Apples: Cellini, Court Pendu Plat, Duke of Devonshire, Sturmer Pippin, Keswick Codlin, Lord Suffield, Hawthornden, Bedfordshire Foundling, Warner's King, Alfriston, Dumelow's Seedling, Dutch Mignonne. Pears: Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise, Napoleon, Passe Colmar, Winter Nelis, Bergamotte d'Esperen, Easter Beurré. Strawberries: Keen's Seedling, President, Lucas, Vicomtesse Héricart de Thury.—ROBERT C. KINGSTON.

Ribston Hall, Wetherby.—Of Apples we have here a very thin crop; we have nearly fifty sorts. Those bearing this year are Ribston Pippin, Winter Nonsuch, Court Pendu Plat, Kerry Pippin, Cox's Pomona, and Bridgewater Pippin. Pears are a light crop. Out of many sorts we have fruit only on Marie Louise, Beurré d'Amanlis, Winter Nelis, Colmar, and Beurré Diel. Peaches are a very light crop. Grosse Mignonne, Bellegarde, Royal George, and Barrington are bearing light crops. Nectarines none outside. Plums none. Apricots very thin. Morello Cherries good, other sorts a light crop. Walnuts very thin. Gooseberries a very good crop, and so are Strawberries, Raspberries, and Currants. The soil of our garden is light and sandy and well drained. The garden lies to the south and is well sheltered on all sides.—THOMAS JONES.

Baldersby Park, Thirsk.—Fruit crops in this locality are generally unsatisfactory. Plums are for the most part a failure. Apricots are a fair crop, so also are Cherries on a south wall. The Apple crop is very deficient; Pears, too, are about the worst I have known. Peaches and Nectarines on open walls are scarce. Bush fruits of all kinds are very good. Strawberries have been very plentiful, but much damaged by rain. Nuts are very scanty.

EARLY POTATOES are very good; Myatt's and Royal Ashleaf excellent, and the late crops are looking very promising. No disease has appeared as yet. The soil here is heavy and the subsoil sandy.—THOS. ROWLANDS.

Thorpe Perrow, Bedale.—Apricots are a failing crop in this district. The trees have not recovered (and many have died) from the injury which they received during past severe winters. Apples generally are abundant, although in some places where the frost caught the bloom they are a blank; others have fallen until they have thinned themselves bare. Nevertheless, for all that, we shall have a good crop in this district. Among the sorts that generally bear best are the Yorkshire Cockpit, Yorkshire Greening, King Apple, Hawthornden, Lord Suffield, Keswick Codlin, Norfolk Beaufin, and Dutch Mignonne, where on the Paradise stock. Of bush fruit we have enormous crops; all our bush fruit are well mulched, so that a heavy crop does not exhaust them. I must again say a good word for Baumforth's Seedling Raspberry; it is the leading sort here, and much liked for dessert; it is a strong grower, very hardy, and never fails to bear fine fruit. Cherries are a bad crop here; our soil is too heavy for them. Plums are bad everywhere in this district; the best trees we have are on a north wall. Pears are a fine crop, especially the good sorts that do well in the north, such as Marie Louise, Winter Nelis, Beurré Clairgeau, Doyenné du Comice, Beurré d'Amanlis, Pitmaston Duchess, and Williams' Bon Chrétien. Strawberries good, but much spoiled by wet. Peaches are a good crop, but I fear too late to ripen well. Many of the trees suffered past recovery during our late severe winters. Nuts are a very moderate crop, even in the hedgerows.—WILLIAM CULVERWELL.

NORTHERN DIVISION.

Seaham Hall, Sunderland.—Apples vary very much; on some trees there is abundance, while on others there is none. Coe's Golden Drop, Orange Pippin, Ribston Pippin, Keswick Codlin, Lord Suffield, Rymer, and Hawthornden are sure bearers. Cherries on walls are a fair crop. Currants, both Black and Red, are good. Gooseberries only half a crop, owing partly to late spring frosts and the severe winters of late, which have killed the old spurs. Peaches and Nectarines do not

succeed outside in this district. Of Pears only the common sorts will ripen here, such as Jargonelle, Louise Bonne of Jersey, Bœurré Hardy, Seckle, and Marie Louise. Plums do not ripen near the sea. Our soil is various in texture, lying on limestone. Most crops look well, the foliage is good and free from insects.

No diseased Potatoes as yet.—R. DRAPER.

Raby Castle, Darlington.—Apples here are a superabundant crop; and of Pears we have plenty. Plums of all kinds thin, except Victoria on walls, and almost a failure on standards. Of Apricots we have very few. Cherries of all kinds superabundant, especially Morellos. Peaches, Nectarines, and Figs are but little grown on open walls in this district. Bush fruits of all kinds are very good; indeed, of Red Currants and White we have an excessive crop. Raspberries, too, are good, and so also are Strawberries. We are well sheltered on all sides with trees, and lie well to the sun, and having a deep, rich soil and a dry gravelly bottom, we get a crop of most of the better kinds in favourable seasons. Young growths of both trees and bushes have been very strong and short pointed and remarkably free from all kinds of insects, but the low temperature we have lately had, and especially at night, have given a check to the tender points of the shrubs on which aphides are establishing themselves.—R. WESTCOTT.

PLANTS IN FLOWER.

DRACOCEPHALUM RUYSCHIANA is a pretty hardy plant, not very showy, but graceful in growth, both stems and foliage being very slender. The flowers are in dense terminal clusters and of a deep violet-purple. From Mr. Poë, Riverston, Nenagh.

LILIUM CORDIFOLIUM, one of the rarest of Lilies, is now in bloom in Messrs. Dickson's Piling Park Nursery, Edinburgh, where it has stood out of doors quite unprotected for several years. It is in the way of *L. giganteum*, but less showy and dwarfier.

WHITE TIGER FLOWER (*Tigridia Pavonia alba*).—This has been sent to us by Mr. Smith, Caledonia Nursery, Guernsey, who describes it as a gem of the first water, and even finer than its description led him to expect, being a pure milky white in colour. It is a charming companion for the brilliant typical form.

CRINUM LONGIFLORUM.—Flowers of this handsome bulbous plant are sent by Dr. Wallace, who says it is grown admirably out-of-doors in summer in the New Plant and Bulb Company's nursery at Colchester. The flowers have long curved tubes and slightly dilated corollas, the colour being a reddish pink, tinged with a deeper colour.

DOUBLE CRIMSON SWEET WILLIAM.—This is one of those flowers that do not lose much in beauty by being made double. It is a beautiful plant, with deep maroon-crimson rosetted blossoms in large dense heads which last much longer than those of the single sorts. It comes from Mr. Poë, who thinks highly of it as a garden plant.

COTTON GRASS.—Mr. Alfred Parsons sends us from Keswick a very fine tuft of this wild Grass. "I wish," he says, "you could have seen this growing in patches on a high brown moor, with the wind waving it and the sun shining on it." In such a state it is interesting, but in a garden we have always found it a trouble, though it is pretty now at Kew.

SINGLE DAHLIAS.—The first gathering of these that has reached us comes from Mr. Kingsmill's garden, at Eastcott. Among them are White Queen, Paragon, a lovely maroon crimson, and some scarlet varieties all finely developed. These single Dahlias are most valuable garden plants, as they continue to flower without intermission till cut down by frost.

SWAINSONA OSBORNI.—Every year, when this beautiful climber is in flower at Kew, we take the opportunity of recommending it for general culture; it is not only beautiful, but an easy plant to manage, and never fails to produce an abundant

crop of bloom. Just now a fine plant of it in the conservatory (No. 4) is profusely ornamented with flowers, which are about the size of those of the garden Pea, but of a delicate mauve, with two conspicuous eye-like blotches on the upper petals. The foliage, too, is elegant, and altogether it is a fine plant for adorning the roof of a greenhouse. It is one of those old-fashioned shrubby climbers which once were so highly esteemed in gardens, but which are now seldom met with, though they have not been supplanted by others possessing more beauty or greater value.

THE DANEBROG POPPY has been in blossom with me for the last week from seed sown in April. When open in the sunshine the conspicuous cross formed by the white blotches at the base of each fringed scarlet petal makes this Poppy a very unique representation of the Danish national banner. With me the plants are not dwarf, being over 3 feet high.—L. L.

CAMPANULA RETRORSA.—A pretty annual species, growing about 6 inches or 9 inches high, and bearing erect, deeply-lobed flowers of a reddish purple colour marked with deeper veins and a white eye. The edges of the leaves and stems are clothed with minute bristles, which give a peculiarly harsh sensation to the touch, and remind one of some of the Bedstraws.—R. C.

IMPATIENS PLATYPETALA.—As a companion plant to the Zanzibar Balsam (*I. Sultani*) this is well worth growing. It somewhat resembles the latter in habit, but is less dense; the flowers are as large or even larger, of the same shape, but pure white. Sprays of the two placed by themselves in a vase would have an extremely pretty effect. Both are in bloom just now in the T range at Kew.

DIANTHUS ATKINSONI.—This is, we consider, the brightest of all the mule Pinks. In colour it is vivid carmine-crimson, and very striking. The flowers, which are single, measure $1\frac{1}{2}$ inches across, and have a dark zone towards the centre. It has for some time past been one of the brightest plants at Mr. Ware's nursery at Tottenham, where it grows strongly, there being as many as fifty blooms on one plant.

GENTIANA GELIDA.—Mr. Poë sends us this species, and in speaking of it says: "It bears lovely flowers of a lapis-lazuli shade of blue—a colour by no means common, and the flowers are almost as large as those of the common *G. acaulis*, but produced in dense clusters on the top of stems about a foot in height." The small whitish dots which exist on the flowers and the web-like fringe between the petals add considerably to their beauty. It is an admirable border or rock garden plant.

GENTIANA ARVERNENSIS.—A specimen of this new Gentian comes to us from Messrs. Backhouse, of York. It appears to be of the section to which *G. Pneumonanthe* belongs. It grows about 9 inches high, the erect slender stems being furnished with narrow foliage, while the flowers which terminate them number two or three in a cluster. These are tubular and of a dull, purplish blue, not so bright as either *G. gelida* or *septemfida*, and the mouths of the corollas do not expand so widely.

GLOSSOCOMIA CLEMATIDEA.—This interesting Campanulaceous plant throws up slender stems a foot high, clothed with small ovate downy leaves, and bearing at their extremities comparatively large drooping bells of a pale blue colour, curiously marked within with purple, orange, and black. It has a quiet beauty of its own which makes it well worthy of cultivation; and, judging from my own experience, it has the additional advantage of being very hardy and thriving well in a town garden. Is this the same as *G. ovata*?—R. C., Kensington.

DWARF CAMPANULAS.—A gathering of these come to us from Messrs. Rodger, McClelland, & Co.'s nursery, Newry. Most of them belong to the species *C. carpatia* and *turbinata*. We give the names under which Mr. Smith has sent them—viz. *C. turbinata reflexa*, dwarf, a deep purple, with reflexing corolla segments; *C. turbinata pelvi-*

formis, flower paler than the last, and flatter, hence the name; *C. turbinata alba*, flower large, pure white except a ring of purple at the base; *C. turbinata macrocarpa*, tall and spreading, more like a form of *C. carpatia* than otherwise, flowers deep purple; *C. turbinata Dicksoni*, flowers a delicate mauve; and *C. turbinata*, true, dwarf, flowers large, cup-shaped, and of a rich deep purple. Besides these are the charming little *C. Rainieri*, *C. cæspitosa*, and an annual species named *C. drabifolia*, which seems to be a miniature *Specularia perfoliata* (Venus's Looking-glass.)

ALSTROEMERIA AURANTIACA.—Blossoms of this beautiful hardy flower come to us from Mr. Poë, Riverston, Nenagh. He says, "I send you flowers of *Alstroemeria aurantiaca*, of which Miss Jekyll, to whom I sent plants of it, writes, 'The grandest flower I have now is your *Alstroemeria aurantiaca*.' I have never seen so good a kind. What they sell in nurseries and I see usually in gardens is much poorer." It is indeed a grand plant, which no garden, small or large, should be without. It is very valuable in a cut state, as its bright heads of bloom last a long time in perfection.

LILIUM CANADENSE RUBRUM.—A specimen of this red variety of the Canadian Lily from Mr. Kingsmill shows what a charming hardy flower it is. It has a distinct beauty of its own apart from that which belongs to other Lilies, none of which possess such pretty bell-shaped pendulous flowers as this variety of *L. canadense* does. It is a most satisfactory Lily to grow, as it is not so fastidious as many others, provided it is placed at the outset in a deep, moist, peaty soil in a partially shaded position. There are several forms of it, but the warm, red one is, we think, the best of them.

KEMPEER'S IRIS.—A large and varied selection of varieties is sent to us by Mr. Dartnall from Messrs. Cripps & Son's nurseries, Tunbridge Wells, which shows admirably what a wealth of beauty there is in this Iris alone. The colour varies from the purest white to the deepest velvety purple, with every intermediate shade, and some are beautifully pencilled. Some of the flowers are 6 inches and 8 inches across, and some have even been larger. The plants have been growing in company with *Spiræa palmata* in a moist situation, which suits them well.

ANACYCLUS RADIATUS.—This annual composite belongs to a genus that is not considered very ornamental, but specimens now in bloom (self-sown from last year's plants) show that *A. radiatus* possesses some attractions as a garden plant. It grows from 1 foot to 2 feet high, and produces finely-divided feathery foliage and sturdy flower-heads, the rays being yellow or white and marked with a reddish colour at the back. It blooms for several weeks in succession, and the flowers are very useful for cutting.—R. C.

LILY ALICE WILSON.—This, a variety of *Lilium elegans* or *Thunbergianum*, is a most distinct and beautiful Lily, with large cupped flowers of a warm orange tint, profusely spotted with reddish brown. A specimen of it has been sent to us by Dr. Wallace from the New Plant and Bulb Company's nursery at Colchester; also a curious form of *L. longiflorum* Takesima having all the flowers split in the tube—not a desirable character. The Alice Wilson Lily is also sent by Mr. Whitehead from Borden Wood, Milland, Liphook, who considers it very beautiful.

SINGLE PINKS.—Herewith we send you the results of our attempts to follow out your suggestions in the way of improving single Pinks, and we hope they will please you. In our opinion Nos. 32, 54, 11, 24, 34, and 16 are the best, but of course people's tastes differ. Whatever may be thought of the quality of the flowers, everyone must be satisfied with the quantities produced and the length of time during which they continue in bloom. Of the double Pinks sent one is a novelty in being a Clove-scented white; it is a very healthy grower and profuse bloomer. The smooth white, Mrs. Wm. Welsh, has already had two certificates. The little bouquet show Pink is very bright and

free.—DICKSONS & Co., 1, Waterloo Place, Edinburgh.

. It is difficult to judge of the value of these plants without seeing them growing. They, moreover, arrived in a half withered state. Of their interest we have no doubt, as they differ wholly from the usual types. We may say a word in their favour without comparing them with the admirable kinds we now have. We hope Messrs. Dicksons will select and increase the best forms.—ED.

CORONILLA VARIA.—Anyone having a dry, sunny bank of poor soil, on which the majority of plants will not flourish, will find in this *Coronilla* a most accommodating subject—one that will never fail to spread and firmly establish itself in such a situation when once it gets a foothold. Nevertheless, it is not a rubbishy plant, but really a pretty one when in flower, and that is nearly throughout the summer and autumn months. Though straggling in growth at first, it will become in time compact, and will carry a profusion of clusters of mauve-pink flowers. On a dry raised border in the herbaceous ground at Kew there are a couple of good-sized plants of it which confirm what is here said respecting it. Even the microscopic bits which one gets from most nurseries will grow into good-sized plants in the course of a season.

CARNATIONS IN LONDON.—We notice with pleasure some Clove Carnations blooming well in Leicester Square. If such things are possible in London, our country friends can have little excuse for not having plenty of such handsome midsummer plants. We are glad to announce that our friends the florists are waking up to the beauty of these kinds, and we hear that there is some hope of a prize being given for them next year by the Carnation Society. It seems to us that societies with broader bases than the present would greatly help some of our flowers, though the love of the public is the best guarantee that we shall see more and more of these flowers.

MONTBRETIA CROCOSMEFLORA.—This new hybrid bulbous plant comes to us from Mr. Smith, Guernsey. It has a vigorous constitution, and is similar in habit to *Tritonia aurea*, but its flowers are intermediate between that and its other parent *Montbretia Pottsi*. It possesses the size of flower of the *Tritonia* and the bright colour of the *Montbretia*. We have no experience of its hardiness about London, but no doubt it is as hardy as either of its parents; if so, it will be a fine border plant as well as an excellent subject for pot culture for conservatory decoration. Mr. Smith says "it will certainly hold its own when better known."

SCOLYMUS HISPANICUS, or the Oyster Thistle, as it is popularly called (for what reason does not seem clear), is really a fine plant in its adult stage, and we have never seen it so fine as it now is in the herbaceous ground at Kew, where the light, warm soil evidently favours its development. These plants are some 4 feet high and fully a yard through. It is a Thistle-like plant when out of flower, but now the stems are furnished at intervals upon their upper halves with bright yellow heads of bloom. It is a plant that can hardly be recommended for a choice border, but for the rougher parts of the garden it is decidedly worthy of a place, always remembering that its requirements are a light, warm soil and a fully exposed situation.

DASYLIRIONS IN FLOWER.—I saw in THE GARDEN of last week inquiries as to the flowering of *Dasyliirions*. Here in the gardens of the Chateau du Val may be seen two finely in flower. The one *Dasyliirion* gracile is 16 feet high above the tub and has 6 feet of stem up to the leaves—a fine towering spike. M. Sallion, our *chef*, says the same plant flowered just nine years ago, but was in a poor weak state for some time afterwards. This plant was wintered in a cool house and kept rather dry. It is now out of doors and doing good service as a centre plant in a little, but pretty French garden. The other plant is here named *glaucom*, but of its correctness I am not very sure. It is 8 feet high, and has a good spike of clear

yellow flowers, which appear to me to be all male flowers. The spike is much prettier than that of *gracile*; the foliage also is larger. This is a small plant. We have here a fine collection of *Agaves*, &c., amongst which two plants of *A. filifera* are in flower. The first one is now 12 feet high and the stem 4 feet up to the flowers, so there will be some hundreds of flowers. It is a fine plant, but of course quite lost now. It is surprising with what rapidity the spikes mount. This grew 6½ inches in twenty-four hours. That day the sun was unusually hot. The other plant is smaller, being 9 feet high at present, and growing fast. It is, I expect, a rare occurrence to find four such plants all in flower together. I am under the impression that *Dasyliirions* flower at Nice, but am not sure.—H. HOWARD-CHESSHIRE, *Chateau du Val, St. Germain-en-Laye*.

LILIUM BROWNII.—A flower-stem of this handsome Lily, bearing three finely developed blooms, comes to us from Mr. Kingsmill, who says it is a sturdy and vigorous grower, and one that does not cause those little anxieties which attend the culture of some of the other Lilies, so capricious in their likes and dislikes. The bulb from which this stem was cut was received amongst other Lilies from Japan by Mr. Kingsmill; hence it may be assumed that the plant is Japanese, notwithstanding the fact that its native country is generally thought to be not definitely known.

GENISTA ELATA.—When the flowering of the majority of the large tribe of Pea-flowered shrubs is past this one is in full beauty; hence its great value as an ornamental plant. At Kew there are some grand specimens of it in the arboretum, some being from 10 feet to 15 feet high. It is a loose growing wiry looking shrub with but little leafage, but the flowers are very profuse, and just now the bushes are aglow with bright yellow colour. There are some specimens of it near the lake at Kew encircled by a clump of evergreens, and the effect is uncommonly pretty. *G. elata* is considered to be a tall variety of the common *G. tinctoria*, but there is as much difference between them as between a giant and a dwarf.

PARCELS POST AND FRUIT AND VEGETABLES.

TO THE EDITOR OF THE GARDEN.

SIR,—With the introduction of the parcels post I am disposed to think a new and profitable industry might be undertaken by growers of flowers, fruits, and vegetables. Those of us who live in the midst of provincial towns have to be dependent upon our greengrocers for our supplies. Their produce has frequently been gathered for days, and is unfit for food. The grower has sent his produce to the market; the middleman has then bought it, and distributed it to his customers throughout the country by railway, which has led to much delay. Why now should not the grower deal directly with the consumer? Small quantities only are wanted for daily consumption. The produce could be gathered in the evening, packed in cheap tin boxes, and be in the consumer's hands 300 miles away by the early morning's post. It may be said the cost of packing and postage would render this impossible. I do not think so. It must be remembered that now there are three, and often four, parties by whom profit has to be made, whereas there would be only one; and I feel sure that those growers who would be satisfied with a small profit and supply good produce only would find a large and remunerative custom. On the other hand, it would be a great boon to the consumer to secure fresh-gathered produce, and what could be nicer than the arrival at the breakfast-table of fine freshly gathered fruits long before the greengrocer's cart with his three-days-old produce arrived? I hope that some growers may be disposed to advertise their produce by post in

THE GARDEN, and I know several who will be glad to give them a trial. SAMUEL LEAROLD.
Sherwood House, Huddersfield.

PUBLIC GARDENS:

ENLARGEMENT OF REGENT'S PARK.

THE First Commissioner of Works has succeeded in throwing open a considerable area of Regent's Park which has hitherto been monopolised by a few residents in the neighbourhood. By far the most important acquisition which has been made is a portion of the enclosure which stretches along the outside of the park on its west side from York Gate to Hanover Gate, a distance of nearly three-quarters of a mile. On one side of this enclosure runs the Outer Circle road, and on the other lies the ornamental water. Access by the general public to the water on one side through nearly its whole length is thus completely cut off. The whole margin of the lake will, however, now be thrown open, abundant access will be afforded opposite each gate of the park, and only where the enclosure is of sufficient width to allow of its being divided lengthwise into two broad bands will any portion be still reserved for limited use. Those who merely pass through or round Regent's Park or look at its area on a map probably have little more than a general idea that it is a very handsome open space. If a few fences and enclosures are brought to their notice they associate them with the Botanical and Zoological Gardens. It is only those who know the park well who are aware how large a deduction from its area must be made for private houses with their gardens and paddocks, and for portions fenced off for the exclusive enjoyment of a select few. The extent of these appropriations may be estimated from the fact that Mr. Shaw-Lefevre speaks of the recovery of twenty acres as a compromise, and probably there would be no exaggeration in putting the whole area at between forty and fifty acres. The limited enjoyment of these enclosures dates from a period before the park was opened to the general public. They represent concessions to the convenience and comfort of the lessees of Crown property in the neighbourhood, and may, at the time they were first made, have conferred a benefit upon the public through the withdrawal of the land from building operations. But the position has been entirely altered by the opening of the park. The Crown lessees have obtained the advantage of a wide area of unoccupied land, an extensive tract of Grass and foliage, at their doors, and there is no reason why, subject to any legal rights they may possess, special privileges in the way of open spaces should be continued to them. The law officers, Mr. Shaw-Lefevre states, are of opinion that the lessees are entitled, as a matter of fair dealing, though not of law, to some consideration at the hands of the Crown, and the compromise which has been announced may not in this view be undesirable. But it will be the general opinion that the time had come for some review of the circumstances under which large portions of the park were withdrawn from general use, and the public will be grateful to Mr. Shaw-Lefevre for taking action in the matter.

Winter garden at Eastbourne.—A public winter garden is, according to the *Builder*, to be immediately erected on a spacious site, having its frontage to Terminus Road, the leading business thoroughfare in the town. The site belongs to Messrs. Hart, and at present forms one of the largest and finest private gardens in Eastbourne. The winter garden is to consist of glass, wood, and iron, forming a kind of local Crystal Palace. It will have a frontage of 150 feet in length, and internally will contain a walk or promenade, nearly half a mile in length, under a glass roof. There will be a large show house in front, approached from Terminus Road, with conservatories falling back at each side. The building throughout will be heated by hot-water pipes two miles in length.

SOCIETIES.

ROYAL HORTICULTURAL.

JULY 24.

THE usual fortnightly meeting of this Society, together with the annual show of the Carnation Society and the competition for special prizes, all combined to render this exhibition a most interesting one. Among the plants and fruits submitted to the committee the following received first-class certificates, viz. :—

ODONTOGLOSSUM EUGENES.—A very fine variety, supposed to be a natural hybrid between *O. Pescatorei* and *O. triumphans*. Its growth is similar to that of *O. crispum*; its flowers are some 4 inches across, with broadish sepals and petals, white, broadly edged with yellow, and heavily blotched with chestnut-brown. The labellum is like that of a fine *O. Pescatorei*. This grand novelty, which bore eight flowers on one spike, came from Mr. Stevens, the Duke of Sutherland's gardener at Trentham, Staffordshire.

ANGRÆCUM SCOTTIANUM.—A singular and attractive species of small growth, having subteretely fleshy leaves. Its flowers have narrow inconspicuous petals and sepals, the characteristic long tail-like spur, and a broad heart-shaped labellum of snowy whiteness—the most attractive portion of the flower. This was shown by Mr. Baxter from Sir Trevor Lawrence's garden, Burford Lodge, Dorking.

LILIUM PARDALINUM WAREI.—A distinct and pretty variety of the Panther Lily. The habit is similar to that of the type, but the flowers are much smaller, of the same turban-like shape, and of a clear spotless yellow of a warmish tone. Shown by Mr. Ware, Hale Farm Nursery, Tottenham.

COLEUS ELEN TERRY.—A remarkably fine variety, with bright foliage of varied hues. The middle of the leaf and veins are rich crimson, mottled with a deeper hue, while the broad margin exhibits various shades of green and golden yellow. Shown by the well-known Coleus raiser, Mr. King, florist, Rowsam, Aylesbury.

SPIRÆA PALMATA ALBA.—A snow-white variety, the spreading plummy flower-heads of which have not a trace of colour in them. It is a lovely plant and a charming companion to the rosy pink typical form. Exhibited by Messrs. Veitch, Chelsea.

BEGONIA COUNTESS OF ROSSLYN.—Flowers large, almost circular in outline, and of a warm orange colour, a distinct and valuable variety; Mrs. ANSON, a very fine sort, having very large flowers of good substance and fine shape, and of a delicate rose-cerise; Miss TURNER, flowers very large and round, firm in texture, and of a deep rich rose; SURPRISE, a kind with enormous flowers measuring fully 6 inches in depth, and of massive substance; the colour is a rich deep crimson. These are all of excellent habit, floriferous and vigorous, and all of them were exhibited by Messrs. Laing & Co., Stanstead Park Nurseries, Forest Hill.

CLEMATIS JACKMANI ALBA.—A lovely variety and a real gain; it is an albino of the popular Jackman's Clematis now so beautifully in flower, and which flourishes so well in the open air. The plant shown bore a profusion of blossoms which possess only the faintest suggestion of a mauve tint. It will undoubtedly become a popular plant. Exhibited by Mr. Noble, Sunningdale nursery, Bagshot.

COLEUS HENRY IRVING.—One of the richest coloured varieties yet raised, and one distinct from any that has been shown. Its leaves are a deep maroon-crimson, mottled with brighter shades and broadly edged with emerald-green and golden yellow—a striking combination of tints. Exhibited by Mr. J. King.

FICUS ELASTICA ALBA VARIEGATA.—A variety of the common India-rubber Plant in which the foliage is handsomely mottled with various shades of yellow, creamy white, and green, rendering the plant a very striking one. Exhibited by Messrs. Ker & Son, Liverpool.

ACTÆA SPICATA FRUCTO-RUBRA.—A variety of the Baneberry, having at this season dense clusters of bright red berries on spikes overtopping the foliage. It is a perfectly hardy perennial and a most effective and handsome plant. Shown by Mr. Ware.

BEGONIA J. W. PERKINS.—A double tuberous-rooted variety, remarkable for its extreme floriferousness. The flowers, which are not very large, are perfectly double, and of a rich deep scarlet crimson. It is a vigorous grower and of good habit. Shown by Mr. Perkins.

CALOCHORTUS MACROCARPUS.—A rare and beautiful Californian bulbous plant somewhat in the way of *C. venustus*. It grows from 1 foot to 2 feet high, and bears flowers with pointed sepals and petals, the latter being of a beautiful purplish lilac colour. Shown by Mr. Ware.

There were a few plants of a miscellaneous character shown, the most important being a few grand specimens of Orchids from Sir Trevor Lawrence's garden at Burford Lodge, Dorking. These included two magnificent specimens of the rare Necklace Orchid (*Renanthera (Vanda) Lowi*), each bearing four flower-spikes ranging from 5 feet to 6 feet in length, wreathed from top to bottom with large singular shaped flowers, those on the lower part being spotted with chocolate, those on the upper being of a brighter yellow densely spotted with brown. Besides these were *Grammatophyllum Ellisii*, bearing two gigantic spikes each with about three dozen blossoms—a grand specimen. *Dendrobium McCarthyi* with ten spikes and two cut patches of *Nepenthes Mastersiana* and *sanguinea*, the first being large enough to hold 14 ounces, the other 17 ounces of water. A gold medal was worthily awarded to this fine group, and a cultural commendation was awarded to the gardener, Mr. Baxter. Californian Lilies, chiefly varieties of *Lilium pardalinum*, were shown by Mr. Ware, among them being the true pallidifolium and Michauxi, both very handsome forms, and the first valuable on account of its being late flowering.

Two new Roses were shown by Messrs. W. Paul & Son, Waltham Cross, said to be climbing varieties of the Gloire de Dijon race, which if so will prove most valuable, as the flowers of both are large, full, and of fine form, and both, moreover, have bright and pleasing colours. A showy collection of Hunt's strain of Sweet William was shown by Mr. Walker, Thame, and a large collection of Sweet Peas was contributed by Messrs. Carter and Mr. Eckford, which, however, comprised much the same sorts as shown on the last occasion. A cultural commendation was awarded to Mr. Child, Garbrand Hall, Ewell, for an uncommonly fine specimen of *Cypripedium Stonei*, bearing four spikes and carrying seventeen flowers.

A fine collection of blooms of seedling varieties of *Iris Kampferi* was exhibited by Messrs. Veitch, some of which were very large and all beautifully coloured. An extensive collection of cut Roses, numbering some twenty-four dozen trusses, came Messrs. Bunyard, nurserymen, Maidstone, who were deservedly awarded a silver medal. A collection of pot plants, double Balsams, was exhibited by Messrs. Cannell, Swanley. The flowers were very large, perfectly double, and of bright and varied colours, but the effect of the plants was spoilt on account of being tilted on their sides, presumably to show off the flowers—a mistaken method of exhibiting such plants. A silver medal was awarded to Messrs. Cutbush, Highgate, for a remarkably fine collection of *Ivies*, consisting of about half a hundred varieties, representing almost every variety in cultivation.

FRUIT AND VEGETABLES were numerous shown, the most important being the following: A silver medal was awarded to Mr. Roberts, gardener to Baroness Rothschild, Gunnersbury Park, Acton, for three superb bunches of Madresfield Court and three of Foster's Seedling Grape; both were the pink of perfection, the Madresfields we thought being finer than Mr. Roberts had ever shown, the bunches being large and of handsome shape, and the berries large and admirably coloured. Mr. J. Hughes, Eydon Hall, Byfield, showed three

Melons, viz., Favourite, a green fleshed sort, which the committee thought highly of and expressed a desire to see again; Mr. Page, which was considered to be of fair quality; and Beauty of Eydon, pronounced to be bad. A large oval-shaped Melon came from Mr. Ward, Longford Castle, also a well-grown fruit of Higheross Hybrid. Mr. Bonsall, Doncaster, sent a fine fruit of Campsmount Hybrid Melon; and Mr. Ford, Leonardslee, Horsham, sent Bellamore Hybrid, a handsome sort. Mr. Mortimer, Purley Park, Reading, sent three fine brace of his new Cucumber (Purley Park Hero), which was thought highly of by the committee, but not worth certifying. Mr. Walker, Thame, sent a new Pea called Magnum Bonum, which was considered promising for market growing purposes, and was recommended to be tried at Chiswick. A new white kidney Potato named Earliest of All was shown by Mr. Hughes, and Messrs. Cannell showed samples of a fine curled Parsley named Beauty of the Parterre. Fruiting branches of an *Elæagnus* named *edulis* were sent by Mr. Ware, together with a sample of a preserve made from the fruits. A variety of Raspberry with preserve made from it was exhibited by Mr. Faulkner, Hungerford, and was highly recommended for preserves.

FIRST-CLASS CERTIFICATES were awarded to—

TOMATO BOWERMAN'S PROLIFIC.—A new variety, producing large and handsome smooth fruit in great abundance. Exhibited by the raiser, Mr. Bowerman, Basingstoke.

STRAWBERRY DUCHESS OF EDINBURGH.—A variety bearing large, flattish fruits of high colour and excellent flavour. Shown by Mr. D. Brown, Old Linthorpe, Middlesbrough.

EARLY LONG-POD BEAN JOHN HARRISON.—A new sort raised and exhibited by Mr. Laxton, possessing all the essentials of a first-rate sort, both in size and quality as well as in productiveness.

SPECIAL PRIZES.—On this occasion the Society offered prizes for groups and collections of Begonias, Gloxinias, Ferns, and Fuchsias, which added considerably to the importance of the show, though there was not a numerous competition in any of the classes. The tuberous Begonias were the finest, particularly the group from Messrs. Laing & Co., Stanstead Nurseries, Forest Hill, which for extent, variety, and high quality of the plants has not been equalled at any metropolitan show. There were between 200 and 300 plants shown, for the most part large specimens, and representing the cream of the innumerable varieties which Messrs. Laing have in their collection. Among the most conspicuous were those named Consul Darlington, Orange Boven, A. G. Soames, Golden Queen, Novelty (very fine), Empress of India, Black Douglas, Mr. Boscawen, Snowflake, G. C. Schwabe, Ball of Fire, Mrs. Morgan, New Colour (creamy white), Davis fl.-pl., and Juarez. These varieties are all first class kinds, the last being a new double, with flowers somewhat resembling in miniature those of the Cactus Dahlia. It need hardly be said that Messrs. Laing took the first prize, the second being taken by Mr. Coppin, Croydon, whose collection, though much smaller, was a good one, and contained some good light sorts, particularly the yellow Mrs. Coppin, one of the best of its colour. There were two collections of a dozen plants in the amateurs' class, but these were not very remarkable; the varieties were inferior, and the plants lacked the vigour of those in the nurserymen's class. A fine group of nine plants, however, was shown by Mr. Child. These were all gigantic specimens in vigorous health, and bore a profusion of bloom—in short, were the finest specimen Begonias that have been shown in London for a long time. Had there been twelve instead of nine plants, Mr. Child would easily have taken the first prize; as it was, an extra prize was awarded him. He also took the first prize for a group of Gloxinias; his plants were large and well flowered, and represented some superb varieties, one deep carmine variety similar to one called Radiance being particularly fine—the best of the group. The other group of Gloxinias came from Mr. Stevens, Putney, and

was very creditable. There was one collection only of Fuchsias which was from Mr. Weston, the plants being large and well flowered. Two collections of half-a-dozen Ferns were shown, the best being from Mr. Child, and indeed a very grand group, all being prodigious specimens. They were *Microlepia hirta cristata*, *Davallia Mooreana*, both about 6 feet through; *Todea superba*, a grand plant; *Adiantum farleyense*, *Phlebodium aureum*, about 7 feet through, and *Dicksonia squarrosa*. In the other group from Mr. Stevens, Putney, were *Adiantum concinnum letum*, *A. formosum*, *Platynerium alcornice*, and *Blechnum brasiliense*—all fine plants.

MESSRS. SUTTON'S PRIZES for Potatoes and Cabbages were competed for on this occasion. In the class for three heads of an early Cabbage there were no fewer than fourteen competitors, the first prize being taken by Wheeler's Imperial, and the second by Sutton's All Heart, while among other varieties shown were Enfield Market, Sutton's Imperial, Reading All Heart, and Heartwell Marrow. There were twelve collections of early Potatoes (six varieties), the best being from Mr. Ward, who had fine dishes of Reading Russet, Early Border, Prizetaker, Schoolmaster, Vicar of Laleham, and International. The second best, from Mr. Hughes, contained Earliest of All, Prizetaker, Early Border, Myatt's Prolific, White Emperor, and Wonderful Red. In the third collection, from Mr. Miller, were Covent Garden Perfection, Woodstock Kidney, Early Border, Early Ashleaf, Jackson's Kidney, and Royal Ashleaf; and in the fourth, from Mr. Miles, were Covent Garden Perfection, Porter's Excelsior, Veitch's Ashleaf, Lady Paget, and Myatt's Prolific. The varieties named in the prize-winning collections were principally shown by the other competitors. The best dish in the class for any round variety was from Mr. Meads, who had a white sort named Henderson's Prolific. Among the other ten dishes shown were Fillbasket, Bedford Prolific, Reading Russet, Beauty of Kent, Sutton's First and Best, Vicar of Laleham. There were nine dishes of kidney sorts, the best being from Mr. Gribble, who had fine tubers of Cosmopolitan. Among the other sorts were International, Jackson's Red, Woodstock, and Lady Paget.

MESSRS. CARTER'S PRIZES for six dishes of Tomatoes of the sorts Dedham Favourite, Green Gage, and Vick's Criterion brought out but one competitor, Mr. Phillips, The Deodars, Meopham, who had an uncommonly good collection of these sorts, which, judging by the samples shown, are first-rate kinds.

NATIONAL CARNATION AND PICOTEE.

JULY 24.

THE southern section of this Society held its annual show at Kensington, on Tuesday, in conjunction with the fortnightly committee meeting. The show on the whole was quite equal to those held previously, though it was generally considered that the quality of the blooms was not so high as last year. The competition was good, though, as the prize list shows, it was limited to a few exhibitors, the principal prize-takers being Messrs. Dodwell, Douglas, and Turner, all well-known florists. Among other exhibitors were some from Bath, Oxford, Ipswich, and Chesterfield, but the absence of the Lancashire florists was conspicuous, attributable no doubt to their blooms being not yet in condition. There were about a dozen classes in the schedule, and all were represented more or less numerously.

CARNATIONS.—The principal class for two dozen blooms of not fewer than twelve sorts was represented by five collections, the finest being that shown by Mr. Dodwell, which consisted of the following: Robert Lord, scarlet bizarre; Master Fred, crimson bizarre; J. Douglas, purple flake; Sybil, rose flake; Sarah Payne, purple bizarre; James Merryweather, rose flake; Edward Adams, scarlet bizarre; Rifleman, crimson bizarre; John Keet, rose flake; James McIntosh, Delicata, and Henry Cannell. This was a good representa-

tive collection, comprising the finest of the respective sections and colours. Mr. Turner and Mr. Douglas were adjudged equal seconds, both collections being uniformly fine ones, the most conspicuous sorts in them being E. S. Dodwell, Squire Llewellyn, Squire Penson, Sporting Lass, Rob Roy, Mr. Payne, Sir Garnet Walseley, Mrs. Bridgewater, John Ball, Mrs. Skirving, Sarah Payne, Jessica, Admiral Curzon, Sybil, Sportsman, Florence Nightingale, E. Adams, A. Medhurst, Robin Hood, Fred Mayor, and Mayor of Nottingham. The class for a dozen blooms contained seven collections, and again Mr. Dodwell was first with a similarly fine collection as his twenty-four blooms, and the varieties were much the same. He was followed by Mr. Douglas, while Mr. Laken, of Oxford, and Mr. Gibson, Sevenoaks, were third and fourth. The exhibitors of half-a-dozen blooms were few, there being but three only.

SINGLE SPECIMENS were, as usual, very numerous. Five prizes were offered in each section, and the judges selected the following sorts for the prizes: *Scarlet bizarres*.—Philip Thomas, first; Admiral Curzon, second, third, and fourth; Jas. McIntosh, fifth. *Crimson bizarres*.—E. S. Dodwell, first and second; J. D. Hextall, third; and Rifleman, fourth. *Pink bizarres*.—Squire Penson, first; Sarah Payne, second, fourth, and fifth; and Sir Garnet Walseley, third. *Purple bizarres*.—J. Douglas, first, second, and third; Florence Nightingale, fourth. *Scarlet flakes*.—Clipper, first; Sportsman, second, third, and fifth; a seedling, fourth. *Rose flakes*.—Sybil, first; Rob Roy, second; J. Keet, third; Sybil, fourth; and Rob Roy, fifth. The premier Carnation selected from the whole exhibition was Squire Penson, shown by Mr. Turner.

PICOTEES.—In the class for two dozen blooms Mr. Turner showed the finest collection, which included Louisa, heavy rose edged; Dr. Epps, heavy red edged; Dr. Abercrombie, heavy red edged; Lucy, light rose edged; Her Majesty, light purple edged; Empress Eugénie, light scarlet edged; Constance Heron (new), heavy scarlet edged; Mrs. Bower, light red edged; Clara Penson, purple light edged; Mrs. Chancellor, heavy purple edged; Princess Dagmar, heavy purple edged; Mrs. Fuller, heavy red edged; Cynthia, light purple edged; Picturata, heavy red edged; Mrs. Norman, heavy red edged; Violet Douglas, light red edged. The second best collection from Mr. Douglas contained, among others, Ethel, Princess of Wales, Olive Mary, Nymph, Mrs. Gorton, J. Smith, Jessie, J. Williams, and J. B. Bryant, besides many of those enumerated above. Mr. Douglas was first with a dozen blooms, which were very fine, while Mr. Dodwell was second. Six collections of a dozen blooms were shown, and four of half a dozen blooms.

SINGLE SPECIMENS.—*Heavy red edged*.—Picturata, first and second; Dr. Abercrombie, third; Princess of Wales, fourth; and John Smith, fifth. *Red light edged*.—Mrs. Gorton, first; Clara, second; and Mrs. Bower, third and fourth; Mrs. Gorton, fifth. *Purple heavy edged*.—Mrs. Chancellor, first and second, fourth and fifth; Zerlina, third. *Purple light edged*.—Alice, first; Baroness Burdett-Coutts, second; Evelyn, third and fourth; Nymph, fifth. *Rose or scarlet heavy edged*.—Mrs. Payne, first, second, and third; Louise, fourth; Edith Dombrain, fifth. *Light rose or scarlet edged*.—Lucy, first and second and fourth; Mrs. Alcroft, third; l'Elegante, fifth. *Yellow grounds*.—Prince of Orange, first, second, and fifth; Janira, third and fourth.

MISCELLANEOUS CLASS.—This included selfs, fancy or yellow ground varieties, which comprise so many beautiful sorts. Among the five collections of two dozen blooms, Mr. Turner was first with Rufus, Enchantress, Duchess of Connaught, Matador, Rosa Bonheur, Whipper-in, W. B. Milner, Thomas Moore, Jessica, Egyptian, Janira, l'Elegante, and Lady Cathcart, all excellent varieties. Among the other collections in this class were the following fine sorts: Rosy Gem, Hottentot, Hewson Morris, William IV., Lord Walseley, Ernest Wilkins, Harlequin, Titania, The Bride, and King of Scarlets.

There were but two collections of nine pot plants; these were from Mr. Turner and Mr. Douglas, who were placed in the order named. We were glad to see that the paper collars in which the flowers have previously been encircled were entirely discarded in these competing groups, and it was generally considered to be a commendable step. An extensive display of Carnations and Picotees was contributed by Messrs. Veitch, and was much admired and very highly commended. Messrs. Cannell also had a large collection of blooms, and Mr. Smyth, Drury Lane, had a fine stand of his new self Mary Morris, which was highly commended. Mr. R. Dean exhibited two beautiful Clove varieties, named Susan Askey, pure white, and Violet King, a rich crimson violet colour.

PRIZES FOR SEEDLINGS.—Mr. Douglas took the first prize for a fine new crimson bizarre named T. Moore, Junr., and also for a purple flake named Squire Whitbourn. Mr. Turner was first with a rose flake named Rob Roy, and Mr. Douglas second with Robin Hood. First class certificates were awarded to Carnation Sir Beauchamp Seymour, raised and shown by Messrs. Veitch. It is a large flesh tinted flower with red edged petals, very pretty, and sweetly scented; also to Royal Purple, shown also by Messrs. Veitch.

A prize list is given in our advertising columns.

MR. GEORGE, who for the past thirty years has been gardener to Miss Nicholson, and who has been such a successful hybridiser and raiser of Pelargoniums, Abutilons, &c., has left Putney Heath, and gone into business at Putney as a horticultural sundriesman.

NEW ZEALAND FLAX.—Mr. Wildsmith (p. 38) says that *Phormium tenax*, or New Zealand Flax, "is perfectly hardy here." Allow me to ask where, for he does not tell us where in the world he lives?—X. Y. Z. [Heckfield, near Winchester, in Hampshire.—ED.]

Names of plants.—*J. Graham*.—*Hypericum glandulosum* (not poisonous).—*T. W.*—1, *Veronica longiflora*; 2, *Oenothera Youngi*; 3, *Mimulus cardinalis*; 4, *Corydalis lutea*.—*W. O.*—1, *Ros multiflora*; 2, *Linaria cymbalaria*; 3, *Celsia Areturus*.—*C. B.*—*Eucomis punctata*.—*Pantaloons*.—*Sollya heterophylla*; Australia; not hardy; greenhouse climber.—*W. G.*—1, *Tamarix gallica*; 2, *Potentilla fruticosa*; 3, *Spiraea hypericifolia*; 4, *Phillyrea media*.—*G. T. B.*—1, *Lysimachia ciliata*; 2, *Epilobium angustifolium*; 3, *Malva moschata alba*; 4, *Geranium sanguineum*.—*T. Russell*.—Double *Nasturtium* *Hermine* Grasshoff, *Tropaeolum majus* fl. pl.; propagated by cuttings.—*B. Hooke*.—*Philadelphus coronarius*.—*J. Dundas*.—*Potentilla anserina* (yellow). *Labiata* is apparently the golden form of *Lamium maculatum*.—*A. Elder*.—1 and 4, cannot name the *Alliums*; 2, *Veronica longifolia alba*; 3, *Salvia verticillata*.—*A. Mansfield*.—*Pyrola rotundifolia*.—*Rev H. D'O.*—Cannot name correctly, but looks like what is called the Carnation Rose.—*H. M. H.*—*Stanhopea* species. *Gongora-like* Orchid is probably *Acropera Loddigesi*.—*Salopian*.—*Dendrobium Dalhousianum*.—*A. K.*—The composite cannot possibly be named by seeds only; probably a species of *Scorzonera*.—*Barmore*.—We do not undertake to name varieties of Roses, which can only be done by specialists.—*T. Mackay*.—1, *Athyrium Filix-femina*; 2, *Lastrea Filix-mas*; 3, *L. spinulosa*; 7, *Linaria cymbalaria*; 9, *Artemisia abrotanum argenteum*.—*E. Luckraft*.—1, *Adiantum cuneatum* var. *dissectum*; 2, *Asplenium Fernandesianum*; 3, *Adiantum hispidulum* (pubescens); 4, *A. decorum*; 5, *Polypodium appendiculatum*; 6, too small to name; 7, *Lastrea glabella*; 8, *Polypodium venosum*.—*Standfordham*.—The small leaved Lime, *Tilia parvifolia*.—*A. P. H.*—*Cratogeomys tanacetifolia* variety; impossible to name with certainty from such a scrap. The Elm is a plant of garden origin, sold in nurseries under the name of *Ulmus urticifolia*; it is a variety of *U. montana*, the Wych Elm.—*W. Wyton*.—2, *Begonia hydrocotylifolia*; 3, *Begonia Evansiana*; 4, too young to name; 5, species of *Blechnum*; send fronds with spores on.—*M. B.*—*Dendrobium Calceolus*.—*W. Forrester*.—1, *Diplazea boliviensis*; 2, *Acropera Loddigesi*; 3, *Pancratium caribbæum*.—*S. W. C.*—*Campanula lactiflora*, *Sparmannia africana*.—*E. F. T.*—1, *Heimerocallis fulva*; 2, *Spiraea filiciformis*; 3, *S. salicifolia*. The Peony mentioned is probably *P. albiflora* (typical), and has green foliage.

CATALOGUES RECEIVED.

E. H. Krelage & Son's (Haarlem) Bulb Catalogue.
F. W. & H. Stansfield's (Sale, Manchester) Hardy Perennials and Alpine Plants.

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES FROM NEW ENGLAND.

BOUVARDIA ALFRED NEUNER.—It is not often that I can find any fault with the beautiful coloured plates in *THE GARDEN*; but if your plate is a correct representation of this very beautiful novelty, then the English climate does not suit it, your florists cannot grow it, or you selected a very poor specimen. With us the plants grow very freely, and the clusters of flowers are almost as large as the Snowball (*Viburnum*), with from forty to fifty flowers in a single head. Though not as graceful and neat as the *B. Davidsoni* when worked into a bouquet, it is still a great acquisition, because the flowers last so much longer than the single varieties. The new variety, *B. General Garfield*, a perfect counterpart of *A. Neuner* except in colour, which is a lovely pink, is another gain of great value. I think your florists must acknowledge we do raise some new things here which are really worth growing. Another variety raised by the same growers, who seem to have had a stroke of luck, or skill, is one called *rosea multiflora*, a real perpetual bloomer—in fact, never out of flower. I have had small plants in 3-inch pots standing among a lot of stock plants on a shelf, where they were not half watered, and there has been scarcely a day from October up to this date that I could not cut a few fine blooms. It is rose coloured, with very large, long tubes, every way fine.

SINGLE FLOWERS.—I was glad to see that my friend, Mr. Miles, has spoken a good word for some of the old-fashioned single flowers, which were ruthlessly dug up and consigned to the manure heap as soon as a deformed half-double one could be obtained. How many double *Camellias* (so-called) have I paid 20 francs—yes, and £2 each—for a very mean plant!—such, for instance, as the old-fashioned *Eclipse*, *Kingi*, and a host of French kinds with which the catalogues were filled thirty or forty years ago. Speaking of single *Roses*, what can be more beautiful than the pure white *Cherokee* with its neat, dark green foliage, so glossy and smooth that it actually glistens in the sun, growing rampantly and flowering in the greatest profusion—a bunch of its snowy flowers in February or March making the fashionable *General Jack* hide his dusky head where beauty and real fashion is the rule. And so are the *R. rugosa*, red and white, lovely additions to our gardens, and still one more from Japan with slender, short, minute foliage and single white flowers, little larger than a sixpence, which clothe the plant in greater profusion than a *Syringa*. It is perfectly hardy. And of *Pæonies*, too, I have now some six or eight single seedlings of the herbaceous class which are truly exquisite with five large petals, disposed in cup form, of the palest blush, rose, lilac, and the deepest crimson-purple with numerous clusters of golden stamens which fill the centre. Talk of *Poppies*! nothing comes up to these single *Pæonies*. They are my pets, and I shall name one of them *W. Robinson*, one *Frank Miles*, and a third *G. F. Wilson*, a trio of worthy horticulturists, and a trio of as lovely flowers as one can have in one's garden.

THE SEASON.—After one of the most destructive winters to vegetation that I ever experienced, we are now having—as if to compensate in a very slight degree for our losses—most beautiful weather, and the country looks delightful; though we have had scarcely more than two what might be called hot days in June, yet the month was the highest mean average for at least 15 years, June, 1883, being 69°, and the next one, June, 1874, 68°. We have also had frequent showers, almost always at night, so that labour in the garden or nursery has not been interrupted one single day. Everything indicated a very backward season (May 1), but now it is ahead of many previous years. The Pear crop promises well, *Strawberries* have been abundant, and all kinds of berries from the near and remote south fill our markets—*Strawberries*, *Blackberries*, *Raspberries*, *Gooseberries*, *Apricots*, and *Plums* (from California), *Currants*, *Grapes*, *Peaches*, *Tomatoes*, *Cherries*, *Water Melons*, *Musk Melons*, &c. *Strawberries* have brought from eight cents to twenty cents per pound, *Apricots* ten cents a dozen, so you see we can supply our tables with all the products of the globe without the cost of forcing houses, coal, &c., and so plentiful that the poorest need not go wholly without these luxuries.

Boston.

C. M. HOVEY.

NOTES FROM HECKFIELD.

TUBEROUS BEGONIAS.—Very few plants have so quickly attained the popularity that this class of *Begonias* has, and there can be little doubt that they are destined, and that very shortly, to become as generally grown for flower garden purposes as are bedding *Pelargoniums*. For the last three years we have used them somewhat sparingly, but they are so effective, and withstand both drought and wet so well—far better even than *Pelargoniums*, that they are noted to be grown in largely increased numbers. Our tubers were bought from a firm which grows them largely for seeding purposes, as well as for the sale of the tubers that are sent out with seed orders whilst the tubers are at rest; and, though the kinds were stated not to be first-class for bedding purposes, they justly merit that designation. I name this, that buyers may confidently speculate without fear of getting worthless kinds. Some plants that we raised from seed sown in January last, and that are now being grown on in cold frames, will make excellent tubers for planting out next season. Our tubers are lifted at the end of October and wintered in shallow boxes, in which they are packed as closely together as possible, and the interstices filled in with fine soil; they are then placed in any out-of-the-way shed or cellar that frost cannot penetrate—a decided gain this in comparison with *Pelargoniums*, that must have both heat and valuable space in greenhouses the whole of the winter season.

SWEET PEAS.—It may not be generally known that from a single sowing of these a constant succession of flowers may be had throughout the entire season. We are so accustomed to see the rows withered up after the first flush of beauty, that some may think that constant flowering is an impossibility, but from repeated tests for several years past I confidently assert that it can be done, and that too at but little cost of labour. The first requisite is well manured soil, and in light soils surface mulchings are a necessity; the seed-pods should be kept picked off. Our plan is to go over them for this purpose regularly once a week; the points of the haulm are pinched when about 3 feet high, and this causes lateral extension; they are again pinched at 5 feet, and it is to these side shoots that the extended season of flowering is due. The whole treatment may be summed up as follows: plenty of manure and water, regular removal of seed-pods, and pinching out of the points of the haulm, including the points

of laterals when the plants have extended to 2 feet or so in length.

TYING OUT DAHLIAS.—Supplementary to my former note on pegging down these I now add one as to tying out. We have a long row of mixed colours, single varieties, which are backed up with an evergreen hedge (*Cupressus Lawsoniana*) and having run strings along supported by the stems of the *Cupressus*, the *Dahlias* have been tied up in a flat spreading fashion, and the colours, which are white, scarlet, pink, yellow, and purple in regular succession, produce a very novel effect, and which is all the more telling owing to the glaucous green background to which they are trained. In comparison with the usual mode of supports for *Dahlias*, of course taking into account position, the odds are greatly in favour of this spreading-out fashion.

ROSES.—Considering the value of a good autumnal *Rose* bloom, I think at this season we scarcely give that attention to the plants that we ought to do. This neglect is, no doubt, due to the feeling that the *Rose* season being past, it is useless to trouble further about the plants, a fallacy that does not deserve a moment's consideration, except it be as to how quickly one can get rid of it. This should be effected by at once cutting off all bad flowers and stems, shortening back lanky shoots, destroying *Brier suckers*, and then having the beds or borders well soaked with manure water, or, in lieu thereof, giving them a good dressing of artificial manure and watering it in; such labour will quickly be repaid by a healthy, vigorous growth, and a bloom scarcely second to that in June, whilst as to succession of flowers, it will be a long way in advance of it.

PLANTING AND CLEARING STRAWBERRY PLOTS.—*Strawberries* are perhaps as easily grown as any fruit of equal value that we have under cultivation, but for all that their culture is not always of the best description. First, they should never be allowed to continue on the same ground beyond the third season—two only is our rule—and new plots should be made from runners taken off as early in the season as possible, for, by early planting of the earliest runners, a grand crop of fruit is a certainty the following season. Ours are now ready to plant; they have been taken from plants a few of which were purposely reserved for their production, the flowers having been taken off. We thus not only get early plants, but can gather the fruit from the main plots in comfort, not having the destruction of runners before our eyes, simply because our plants have been previously secured. Plant in the richest ground at command, and, above all, plant firmly. Old plots that have been cleared of fruit ought at once to be freed from runners and dried-up foliage—no other. The surface soil should be stirred, and afterwards be given a good dressing of manure, and beyond keeping the ground clear of weeds, nothing else will be needed for a very long time. For autumn fruiting no plan equals that of planting out of the earliest forced plants. These, if the flowers be kept picked off till the end of July, will produce really good fruit from the middle of September till destroyed by frost. The only good variety for this purpose is *Vicomtesse Héricart de Thury*.

W. WILDSMITH.

Milla biflora for cut flowers.—This beautiful *Liliaceous* plant comes from Mexico, and has, as a rule, been everywhere badly cultivated, owing to receiving treatment too artificial to suit its constitution. About two months ago I received from England a few bulbs of it, which on receipt I planted in the open ground in the same manner as one would plant *Gladioli*, and now they are in full bloom. The flowers are nearly as large as those of a *Encharis* and snowy white. They last a very long time in perfection, and in a cut state cannot easily be superseded. This plant grows naturally near the city of Mexico, together with *Bouvardia longiflora* and *Tigridia Pavonia*, and the natives gather the flowers in the same way as we do our *Primroses*, and bring the flowers to market, where they are much appreciated. The

bulbs resemble those of a Crocus. In autumn they should be taken out of the ground and kept dry, and planted again in the spring. *Milla biflora* delights in sandy, loamy soil; it should have full sunlight and abundance of water. Under this simple treatment it might be made to succeed in every garden, and its beauty is so great that it will repay any little trouble growers may take with it. We have among bulbous plants nothing to be compared with it.—B. ROEHL.

FERNS.

GLEICHENIAS AND THEIR CULTURE.

THIS genus consists of plants, whose habit, growth, and appearance are wholly different from those of any other Ferns, peculiarities which greatly add to their natural charms, for all of them are elegant and highly decorative. Their growth, instead of being limited to the production of fronds which, as in nearly all other Ferns, when once developed remain stationary, possesses an altogether distinct character, inasmuch as their fronds, which spring from creeping rhizomes, are either bifurcate or dichotomously divided, according to the different species. There is in the centre of each of these fronds a bud, which for an indefinite period remains latent, but which at a given time produces in its turn a prolongation of the fronds in question by giving birth to a slender stem, terminated at its end by fronds similar in shape to the one from which it originated. Each of these fronds, or even portions of fronds, will in turn produce more of the same form and habit. It is this production of fresh fronds from the centre of the older ones several times repeated which gives the plants quite a sarmentous, if not even a climbing, habit, which is rendered all the more interesting by the fact that plants in good health will retain their fronds for a very long time. Indeed, it is not rare to see good specimens bearing foliage five or six years old. One of the principal causes of their scarcity is attributable to their slow

PROPAGATION, as, with the exception of seedlings of *G. Spelunceae*, *semivestita*, and *rupestris*, which have of late years and at different times been raised at Messrs. J. Veitch's, the mode of increasing all the other species has always been limited to the division of clumps, an operation which is very tedious, extremely hazardous, and not always attended with complete success. Those with beaded fronds, such as *dicarpa*, *microphylla*, *hecistophylla*, &c., have much more slender rhizomes, and can be propagated more readily than those of the group with fronds produced in whorls, such as *flabellata*, *Cunninghami*, &c., whose rhizomes are coarser and of less rapid growth. I have never heard of seedlings being raised of any of the species in that section, and that is undoubtedly the reason they are so rare, the more so inasmuch as the importations direct from their different habitats seldom give entire satisfaction. Moreover, the amount of difficulties, real or imaginary, to be encountered in their culture has for a long time been one of the main causes of their not being so often met with in collections as they otherwise should be. But in that respect at least we are gaining ground rapidly, thanks to successful growers of them having made the knowledge of their requirements public. It is generally known and understood now that in the majority of cases cool treatment is the most suitable for them. A light and well ventilated house where during the winter the temperature is kept between 40° and 50°, no higher, is all they need. As to the

SOIL, that in which the best results are obtained is, for the species with slender rhizomes, fibrous peat made porous by the addition of one-fourth of silver sand, and for the species with thick rhizomes two parts of fibrous peat, one of fibrous loam, and one of sand; the plants to be potted firm, and the rhizomes of those of the slender or beaded class to be pegged on the surface of the soil; whereas it will be better in the case of those with thick rhizomes to let them plunge into the ground. They should be grown in pans of a more

than ordinary deep shape, but not in pots, as they are all shallow rooters; and great attention should be paid to the drainage, for although they require a great quantity of water at the roots, they will not bear stagnant moisture there, and would soon show the ill-effects of it. The following are a few of the best species:—

G. CIRCINATA (*microphylla*).—A very pretty kind from Tasmania and New South Wales, with very fine orbicular pinnules or segments perfectly flat underneath, differing in that way from several other species from the same habitat, whose segments are pouched below, forming a little cavity as if meant to hold the spores, even in barren fronds. This is one of the most minute, and also one of the most scanty, species in cultivation; its stems and branches are clothed with chaffy hairs of a reddish brown colour.

G. CIRCINATA GLAUCA (*Mendeli*).—One of the most distinct and free growing kinds; probably a variety of the preceding species, from which it differs, however, by being much more robust in growth, of a thicker texture—in fact, it is a very compact growing plant; whereas *G. circinata* is loose and slender, and has the under part of its pinnules green. This variety has them very thick and also very glaucous on the under side, and not pouched at all. This makes a very handsome exhibition plant and is a capital grower.

G. CUNNINGHAMI (*Mertensia Cunninghami*).—This, also a native of New Zealand, where it is known as the Umbrella Fern, is a species very rarely seen at present. Although it has been imported by different firms at various times, it does not seem to have ever become very popular, for the simple reason that all, or nearly all, died after their arrival in this country; or else it is a species worthy of the attention of every cultivator. It is erect in habit; its handsome fronds, which are produced from thick, underground, creeping rhizomes, are large and fan-shaped, or several times dichotomously divided; they grow to 3 feet or 4 feet high, and the segments, instead of being beaded, are linear, of a bright green colour above and glaucous, or even bluish, beneath. The appearance of the young growths in this species is very peculiar, as until they are perfectly developed they are clothed all over with large, brown, chaffy scales.

G. DICARPA.—This very elegant Tasmanian species is distinguishable from all the other species belonging to the same section by its beautiful fronds of indefinite length being borne on hairy stems, but smooth branches. They are scanty, dichotomously divided with branches pinnate and pinnatifid. It is also distinct from most other sorts by having the pinnules or segments small and orbicular, deeply pouched, pale green below and of a dark shining green above.

G. DICARPA LONGIPINNATA.—A splendid form of the above, not generally cultivated yet on account, no doubt, of its being of somewhat recent introduction. Although up to the present time no fertile fronds have been seen, these are very deeply pouched, the pouching being formed by the recurved form of the margins of the pinnules; these are roundish and smaller than in the type and form pinnæ about 5 inches long. The younger or partly developed fronds are of a dark green, shaded with a sort of metallic bluish tint which they gradually lose to become of a dark shining colour; their underside is slightly glaucous and their stems shining black. It is besides a remarkably good grower, forming elegant specimens in a much shorter space of time than most of the other forms.

G. DICHOTOMA (*Mertensia dichotoma*).—This very fine species is one of the most widely distributed of the whole group, as it is found in Ceylon, Penang, Assam, Hong-Kong, Jamaica, and even Japan, and naturally is subject to slight variations according to the different localities where it comes from. It is, I think, the only species of the section provided with wiry creeping rhizomes requiring to be kept out of the ground; the fronds, which are erect in habit and dichotomously divided, vary from 2 feet to 4 feet in height with pinnæ about 5 inches long by 2 inches

in width, bright green above, but very glaucous underneath. It is of a most accommodating constitution, doing fairly well under the cool treatment recommended for other species, but still preferring stove temperature.

G. FLABELLATA.—This, no doubt, the most popular and best appreciated of the species belonging to the *Mertensia* section, is of easy culture; it is an erect-growing Australian and Tasmanian kind, making a very fine exhibition plant. Its handsome fan-shaped fronds, produced from thick underground rhizomes, grow to about 6 feet high; the segments are narrow, linear, and of a bright green colour on both surfaces. It presents a charming effect when surrounded by other Ferns from which it is thoroughly distinct. It is one of the species which thrive best under cool treatment.

G. HECISTOPHYLLA.—A slender-growing and very handsome New Zealand species in the way of *dicarpa*, which it resembles also by having pouch-shaped segments, but these are larger and form part of dichotomously divided fronds growing to about 5 feet high, and whose stems and branches are densely covered with short reddish brown hairs; the pouched segments are orbicular, smooth, light green below, and bright dark green above.

G. LONGISSIMA (*glaucæ*).—This magnificent species, from Japan, is very seldom met with. After having been several times imported and as many times lost it is at last being established in this country. It is an intermediary form between the beaded kinds and those belonging to the *Mertensia* group, but more vigorous, or, at any rate, of larger dimensions than any of the other species in either groups. The fronds are very robust, of rather short stature, and borne on very stout stalks of a shining brown colour; they are produced from very thick underground rhizomes and bifurcate. Now, instead of those being beaded, as in *G. dicarpa*, *circinata*, &c., or having their segments linear, like those of the *Mertensias*, they are bipinnate, with pinnæ alternate and pinnules dentate, and closely set. It is difficult to say what size these will attain, but they are very large comparatively to other *Gleichenias*; for, although the specimen has been imported only three years and was very weak—so much so, in fact, that very little hope was held out when it reached here—the bifurcations already measure 22 inches in length by 12 inches in breadth, the pinnæ being about 6 inches long, gracefully drooping, and the pinnules perfectly flat and beautifully glaucous underneath. The young growths are entirely covered with large, dark (almost black), chaffy scales, which hold on until their perfect development. The bifurcations are very thickly set at their base with pinnules closely set and forming a sort of frilling round the stalk. The whole of the plant is of a delightful light green.

G. POLYPODIODES.—A very pretty species of thoroughly scanty habit and of comparatively recent introduction, producing elegant, small fronds as slender in their habit as those of *G. microphylla*, but richer in texture. The fronds are produced in greater abundance than in most of other species belonging to the beaded class; their pinnæ, loose and drooping, are set with close, orbicular pinnules, which are not pouched, bright pea-green on both surfaces. It is easily distinguishable from any other species on account of that peculiar colour as well as by its extremely slender habit.

G. PUBESCENS (*Mertensia pubescens*).—This very handsome species from Guadaloupe and most of the adjacent islands is very rare in cultivation, although it cannot fail to become a general favourite when more plentiful, as it grows rapidly and in a very short time forms magnificent specimens. The rhizomes are thick and run mostly underground, like those of *Mertensias* in general; they produce at long intervals splendid fronds, several times dichotomously divided and of indefinite length, with linear segments; they are of a dark, dull green colour above and a little lighter underneath. The under surface is, besides, covered with a light brown woolly pubescence which ex-

tends also on to the stems of the segments, and add much to the attractions of the plant. This is a species which requires stove temperature.

G. RUPESTRIS.—This species, from New South Wales, is of a very dense and more symmetrical habit than most of the other plants of its class, and is thoroughly distinct from any of them by the glaucous colour, which is not confined to the underneath part of the fronds only, but spreads all over the surface and forms a striking contrast with the stems of moderate thickness and of a reddish purple tint. These fronds, produced from wiry rhizomes, are of indefinite length and bifurcate, with beaded segments loosely set and perfectly flat on both surfaces.

G. SEMIVESTITA.—A beautiful kind of the beaded section from New Caledonia, somewhat similar in form to *G. circinata*, but of a much more sturdy habit, with forked fronds of a more robust constitution and of indefinite length; these are produced in greater quantities and are more compact, with pinnae closely set and pinnules orbicular and not pouched, of a rich dark glossy green above, a little paler underneath, and slightly dentate. The stems and stalks of the segments in this species are covered with short ferruginous hairs.

G. SPELUNCÆ.—This New South Wales and Tasmanian species is perhaps the most handsome and decorative of the whole group of sorts with beaded fronds. It is a large growing species which makes in a very short time a splendid specimen for exhibition, as it produces in great abundance beautiful forked pinnate fronds of indefinite length, with elegantly arching or pendulous pinnatifid pinnae loosely and gracefully set. The pinnules, also set far apart, are orbicular and not pouched; they are glaucous below, and the whole plant is of a charming light green colour, having quite a different aspect from any of the others of its class. It is also one of the best growers of all *Gleichenias*. PELLÆA.

ORCHIDS.

Calanthe sylvatica.—A spike of this Orchid has been sent to us by Mr. Denny from Sir William Marriott's garden, Down House, Blandford. It is about 15 inches long, and carries about two dozen flowers. It is, however, no great beauty, as the flowers have greenish petals, and the colour of the labellum is a dirty purple. It is only fit for the connoisseur or collector of species.

Stanhopea Wardi.—A spike bearing five flowers of this superb Orchid has been sent to us by Messrs. Horsman, Colchester. The flowers are large and of singular shape, the petals being a warm orange-yellow, heavily spotted with chocolate. The aromatic perfume emitted by the flowers is very strong, but not so powerful and much pleasanter than that of several of the other *Stanhopeas*.

Cattleya crispa superba.—The finest spike of this Orchid that has come under our notice has been sent to us by Messrs. Thomson & Sons, Tweed Vineyard, Galashiels. It bears seven fully-expanded flowers, representing the best variety. The petals and sepals are snow white, broad, and stand out well, while the lower lobe of the lip is an intensely deep maroon-crimson, pencilled and veined with the same beautiful colour, and exquisitely frilled and crisped at the margin—the peculiar characteristic of the species. It is one of the best of midsummer Orchids, and one which has but few rivals when grown to such perfection as at Clovenfords. The plant from which the spike sent was cut bore six others, carrying thirty-nine flowers in all, seven blooms on three of the spikes and six on the others.

Odontoglossum Pescatorei.—Of this cool Orchid Mr. Harvey, of Aigburth, sends us a fine spike cut from a plant which bore five similar spikes, and which is an uncommonly fine variety. It is remarkable for the large size of its flowers, the broad petals and sepals, but especially for the broad labellum, the largest we ever remember to have seen in this species, and, moreover, prettily blotched and spotted.

Maxillaria venusta is one of the handsomest of July Orchids, and a valuable one on account of its being distinct from others that habitually flower at this season. The flowers are large and of ivory whiteness, the sepals and petals being long and pointed. The blooms are well adapted for cutting, being borne singly on stalks from 6 inches to 9 inches in length, issuing from the base of the bulbs. It has been sent to us by Mr. Harvey, Riversdale Road, Aigburth, Liverpool.

Phalænopsis intermedia Portei.—We are reminded of the extreme beauty of this rare Moth Orchid by some flowers which have been sent to us by Mr. Harvey, Riversdale Road, Aigburth, who possesses a very good form of it. Its sepals and petals are white, firm, wax-like in texture, and the labellum is a beautiful amethyst. The flowers are about the size of those of an ordinary form of *P. Schilleriana*. It is to be regretted that such a charming plant as this should remain such a rarity.

Epidendrum nemorale.—A branchingspike of this charming Orchid, bearing upwards of a score of flowers, comes to us from Sir William Marriott's garden, at The Down House, Blandford. It serves to show what a graceful and delicately-toned Orchid this is—one peculiarly distinct from any other. It is not often that such a fine spike comes under our notice—a striking proof that Mr. Denny well understands its requirements. It would be interesting to learn his mode of treatment.

Cattleya superbasplendens.—There is a considerable difference between the finest forms of this *Cattleya* and the inferior ones as regards depth and richness of colour. The most remarkable in point of colour is one which has been sent to us by Mr. Denny from Sir William Marriott's garden. The spike sent bore three broad-petalled flowers of the richest carmine-purple, the labellum being intensely deep maroon-crimson. Such a fine form as this unexpectedly turns up now and then in a batch of imported plants, and in some measure compensates one for the host of inferior varieties which are the rule rather than the exception in the case of this *Cattleya*.

Masdevallia Roezli.—This is probably the darkest coloured species of all the host of *Masdevallias* now in cultivation. It is one of the *Chimara* race, and indeed may be but a variety of that species, as the flowers seem to differ only in colour, which is almost a soot black, rendering the whiteness of the tiny pouched or shoe-like labellum all the more conspicuous. Mr. Harvey, of Aigburth, is the fortunate possessor of specimens of this rare *Masdevallia*, flowers of which he sends us as well as specimens of the singular little *M. Houtteana* and the rather rare *M. Reichenbachiana*, not, however, a very attractive species.

Propagating tuberous Begonias.—These Begonias can be so readily propagated by means of cuttings put in in early spring, and from seeds which produces flowering plants so quickly, that it may be thought no other mode of increase is necessary, but having experimented successfully in another way with a few last spring, I will just record my mode of proceeding. Several tubers were beginning to push up two, three, or more shoots, and for my purpose requiring them with a single stem, I cut up the tuber as one might a Potato into as many pieces as there were eyes, and potted each in the same way as a perfect tuber would have been done; after that I kept them in the greenhouse. The cut pieces started into growth as quickly as those that were not divided, and, under the same conditions, it has not been possible at any time since to distinguish one from the other. Those divided are growing quite as freely and flowering as profusely as those that were not. This principle cannot be carried out to any great extent, as many good sized tubers have only a single stem, and, moreover, large masses are generally preferred, but still a mode of increase that requires no propagating cases or different treatment from the bulk of the collection deserves, I think, to be mentioned.—H. P.

PLANTS IN FLOWER.

CARNATION GLOIRE DE NANCY.—The odour of this is delicious. It is a large free Clove, many-flowered, the buds strong and handsome. It ought to be as popular as another flower of French origin, viz., the *Gloire de Dijon* Rose.

ROYAL WATER LILY.—This is now flowering beautifully at Glasnevin, and the public are afforded increased facilities for seeing it by keeping the garden and Victoria house open a little later than usual in the evening, when the flowers are seen to the best advantage. It is also associated with other plants of a highly interesting character.

ROSA CAROLINA.—I enclose a spray of this Rose, which is worth growing for its scent alone. I received it as a small seedling from Mr. Meehan, of Philadelphia, in the spring of 1882. It is now a large plant. It grows on a bog.—A. C. BARTHOLOMEW, *Park House, Reading*. [A pretty species, with deep pink blossoms produced plentifully on every twig.]

MOUNT ETNA BROOM (*Genista ætnensis*).—Mr. Gumbleton sends from his garden at Belgrove, near Queenstown, a spray of this bright pea-flowered shrub, which has slender naked branches wreathed on their upper parts with bright yellow blossoms about the size of those of the *Laburnum*. Being an autumn bloomer, it is a valuable ornamental shrub.

FRANCOA APPENDICULATA.—All *Francoas* are pretty plants, but this one is apparently the best of them. It bears tall cylindrical spikes, carrying crowded rosy pink blossoms spotted with crimson. Some fine spikes of it from Mr. Stevens show how well it succeeds in the light soil of his garden at Byfleet in the open. Usually it is grown as a pot plant.

EURYBIA PARVIFLORA, also known as *Olearia Haasti*, a pretty Australian shrubby composite of neat growth, bears dense clusters of small white blossoms. Mr. Gumbleton, who sends a good flower spray of it, says that in his garden it is quite covered with bloom. It is hardy about London, but requires to be placed in a light warm soil and in a sheltered situation.

THE CHINESE PRIVET (*Ligustrum chinense*), a handsome shrub, is now beautifully in flower. Its growth is elegant, and it bears wide spreading tabulated branches and pale green foliage. The large clusters of pure white blossoms are borne on almost every twig, so that a good sized specimen is an attractive object. Some admirable examples of it come from Mr. Stevens, Byfleet.

VENIDIUM CALENDULACEUM.—I send you blooms of this showy annual, which resembles *Arctotis* in form of bloom, and I cannot find better words to explain it than those of one to whom I recommended it last year, who writes: "I have got a good patch of *Venidium calendulaceum*, and like it much. It has none of the rubbishy thin look which so many annuals have."—JOHN T. POË, *Riverston, Nenagh*.

CEANOTHUS ARNOLDI.—This is one of the best of all the blue *Ceanothuses*, but scarcely so fine as *Gloire de Versailles*, noticed a short time since. The *Arnoldi* variety bears plump clusters of tiny blossoms of a soft lavender tint. Mr. Gumbleton, who sends us specimens of it, remarks that it is very free blooming and quite hardy in his garden at Belgrove, near Queenstown, against a wall.

SEEDLING PANSIES.—Herewith I send you a very interesting series of hybrid *Violas*, one flower from a plant, and all raised from white seedlings similar to the bunch enclosed, and which, I think, I raised from the *Pilrig Park* variety. Some 470 plants were raised from this seed, 200 of which have been cast out, and probably 250 or 260 more will be thrown away. This batch of flowers proves most conclusively the power of pollen and the value of hybridising. If last year the material I had to work with had been of a higher class, the result would have been much better.—A. CLAPHAM, 24, *West Kensington Gardens, Hammersmith Road, W.* [An interesting gathering, which not

only shows what beautiful plants may be obtained from seeds, but also to what perfection the Pansy may be grown in a suburban garden. The white variety to which Mr. Clapham alludes is a very pretty one, somewhat like that called Mrs. Gray.]

PEACH-LEAVED BELLFLOWER.—This is a large form of *Campanula persicifolia*. I am not certain where I got it, but think it was one I found in an alpine valley near the lake of Geneva.—G. J.

* * It differs from the ordinary single form of the plant in the greater length of its large and handsome cups. In fact, they are bells more than cups. The species is widely distributed and no doubt varies a good deal.

LARGE WHITE ALPINE POPPY.—A fine form of this comes to us from Munstead with the following note: "A beautiful white Poppy, given me as the white alpine Poppy of Linnæus, and so named in the herbaceous ground at Kew, otherwise I should have thought it was a white variety of *P. nudicaule*, though the leaves are smoother and brighter green than *nudicaule*, and the stalks rather shorter."—G. JEKYLL.

EUGENIA APICULATA, as now in flower in the temperate house at Kew, is really a pretty shrub well worth general cultivation. It resembles a Myrtle in growth and foliage. It is a neat and compact grower, and even when only about 2 feet high bears a profusion of white flowers as large or larger than those of the common Myrtle. It would be a nice shrub to cut from and possesses the advantage of flourishing in a cool greenhouse.

ACONITUM VARIEGATUM.—This, one of the finest of all the Monkshoods, is in great beauty this season everywhere we have seen it—the dull rainy weather apparently having suited it well. The finest specimens we have seen are from Mr. Stevens' garden at Byfleet, and singularly enough each of the spikes he brings is fasciated, and bears an enormous number of flowers, which are white edged with deep purple, hence very attractive. It is a most desirable plant, and one easy to cultivate.

ISMENE (Pancratium) CALATHINA.—This, though grown and bloomed out of doors in England, I thought advisable to cultivate in pots in this climate. It bears from two to three blooms on a stem, and is a fine bold white flower for the greenhouse, very easy to grow, but seldom met with, success depending on the perfect maturing of this year's growth before having a dry rest during the winter months.—JOHN T. POË, *Rivers-ton, Nenagh, Ireland*.

MAGNOLIA GLAUCA.—In the rich tree collection at Claremont this Magnolia is now beautifully in bloom on one of the lawns. The flowers are white, and about half the size of those of *M. grandiflora*, and exhale a delicious aromatic perfume. It is a low-growing tree of spreading habit, so that the flowers are within one's reach. There are also at Claremont several grand examples of other North American Magnolias, notably of *M. acuminata* and *macrophylla*, the latter with large handsome foliage.

VARIETIES OF THE WHITE LILY.—I send you some white Lilies (badly grown, as all white Lilies are in our sand) to show some varieties. You said last year it would be interesting to have white Lilies from different places and see if the forms were always the same, so I had some from Algiers and some from France. The Algerian are very different, so much narrower in the petals, and the latter so much straighter, while in the French, which seem finer even than our garden kind, they are broad and much recurved.—G. J.

FLOWERS FROM HAWICK.—From the Buccleuch Nurseries, Hawick, Mr. J. Forbes sends us a large gathering of double Potentillas, Snapdragons, and Pansies in great variety and finely grown, showing how well these plants flourish in a northern climate. The Potentillas include some uncommonly fine varieties, those with large rosetted blossoms of deep maroon-crimson being particularly fine, as well as one named Vase d'Or, a sort with large and very double blooms of a clear, rich yellow. The most beautiful of the Snapdragons

are the selfs, which, in our opinion, are much superior to the fancy speckled strains that are coming so much into vogue. Among the Pansies and Violas is one called Bronze Queen, a colour which, as Mr. Forbes observes, is a desideratum, being a rich purple overlaid with a bronze-like lustre. It is quite distinct from any similar sort now in cultivation. It is said to be of neat growth, throwing its flowers well above the foliage, and consequently well adapted for bedding purposes.

CAMPANULA LATIFOLIA ALBA.—A fine specimen of this uncommon and extremely handsome variety has been sent to us by Miss Owen from Knockmullen, Gorey, Ireland, who says that when well grown it stands between 4 feet and 5 feet high, and is very effective amongst tall plants in a mixed border. It appears to differ in no way from the original except in the colour of the flowers, which, instead of being purple, are almost white, being but faintly tinged with purple.

WATSONIA ROSEA ALBA.—An absolutely pure white flower is uncommon, but this white form of the old *Watsonia rosea* has not a trace of colour in its blossoms. Even the stamens and anthers are white. It is the most chastely beautiful flower we have seen for many a day, and that it is so rare is to be regretted. A specimen of it bearing a tall many-flowered spike is now the admiration of every visitor to the Cape house in the T range at Kew. This white *Watsonia* was figured in *THE GARDEN*, Vol. XVII., p. 390, in company with *W. Meriana* and its variety *coccinea*.

DOUBLE ACROCLINIUM.—A double red *Acroclinium* was sent out last year, and we have now obtained a double white one, of which a considerable quantity is growing in our sample ground. The flowers herewith sent have been gathered a little too old, and have also been a little spoiled in bringing them to London, but they will serve to show that we possess now good doubles of a flower that will be in this colour of great value in "immortelle" work.—HOOPER & Co., *Covent Garden*. [A pretty white *Everlasting*, which will be valuable for the purposes named by Messrs. Hooper.]

SPIRÆA LINDLEYANA.—When grown to perfection this *Spiræa* is one of the finest things we have in the way of hardy shrubs, as, combining as it does such elegant foliage with such handsome flower clusters, it is one of the finest objects just now in the Hampton Court gardens, where there is a long row of gigantic specimens of it in full flower. Some of the clusters of white flowers are upwards of a foot in breadth, and as they are borne on slender branches they hang gracefully in all directions. These fine specimens show well what may be done in public gardens with ornamental shrubs if some attention is paid to their culture, by giving the plants space enough in which to develop themselves.

CARNATIONS FROM THE OPEN GARDEN.—We have been charmed with the beauty of a number of bunches of border Carnations from Mr. Ware. The variety of colour is great—from delicate, creamy whites to deep crimsons; also pretty striped, margined, and tinted kinds, but with long stems. They are excellent for room decoration, and we hope Mr. Ware will add to his collection of these flowers, and embrace all the best of them from every source. His beds, we should say, would now form a very good "Carnation show." It is a pity that in private gardens these plants, when grown at all, are too often thrust carelessly in a poor mixed border, or worse in the exhausted soil of a shrubbery fringe, where there is neither good soil nor a chance of the plants getting the sun they enjoy so much. The undermentioned are among the best sent by Mr. Ware: *W. P. Milner*, one of the best whites, the flowers being large and full; *Fire-eater*, a bright rosy crimson; *Lydia*, like the last in colour, but a better and fuller flower; *Gloire de Nancy*, flowers very large (almost as large as those of the perpetual *Souvenir de la Malmaison*) and pure in colour; *Illuminator*, the brightest crimson of all, and a splendid sort in every respect; *The Bride*, remarkable

for its broad petals, which are white, faintly edged with pink; another named *Laura* is similar; *Eclipse* is in the way of *Illuminator*, but with tooth-edged petals; *Sambo* is a very rich deep crimson with a maroon shade in the colour. The above are among the finest of the self-coloured varieties, and all are distinct enough to have in a collection. Among the edged, striped, and flaked sorts are *Precision*, white, heavily edged with carmine-purple; *Helen*, a beautiful rose flake; *Triumphant*, white, heavily edged and striped with deep crimson; *Redbraes*, in the way of *Precision*, but much finer—indeed, it is the finest edged variety sent; *John Allan* and *Perdita* are two speckled and spotted varieties quite different from the rest and very pretty.

DESFONTAINEA SPINOSA.—A fine flowering branch of this noble shrub was the first thing sent to our office by the new parcels post, which is calculated to do so much to help communication in the gardening world. The flowers came from Mr. Garland, at Killerton, where this shrub is hardy and flowers profusely.

MILLA BIFLORA.—Of this chastely beautiful Mexican bulbous plant, hitherto so rare, a fine specimen has been sent to us by Messrs. F. Horsman and Co., Colchester, who have been successful in importing a large quantity of bulbs, hundreds of which are in flower. The plant is of slender growth, having small rushy foliage and tall slender stems, carrying one, two, and sometimes three blossoms, starry in outline, wax-like in texture, and pure white. It is indeed a lovely flower and well worth a little care in the way of cultivation.

THE FRINGE TREE (Chionanthus virginica).—A good sized specimen of this rare North American shrub or small tree on one of the lawns at Claremont, Escher, has lately been an attractive object, being laden with its elegant drooping panicles of white fringe-like blossoms. It forms a neat round, headed shrub having rather large, broadly lance-shaped leaves. It makes a handsome object on a lawn every season—particularly when in bloom. As the plant is naturally of slow growth, this specimen must be of great age—probably planted in the beginning of the present century. It is so distinct from any other tree or shrub, that it is well worth cultivating on that account alone.

CRINUM MACOWANI.—From the New Plant & Bulb Company's nursery at Colchester comes a specimen of this lovely tropical bulbous plant—one of the finest amongst many beautiful species of *Crinum*. "The flowers," Dr. Wallace writes, "were cut from a tall spike an inch or more in thickness and 4 feet high, bearing at top from nine to twelve flowers. We have had as many as two spikes from one plant. It has large, arching leaves—from ten to twelve each plant—6 inches broad and 2½ feet long, forming, with the spike, a beautiful and ornamental plant of stately habit." The colour is a delicate blush-pink, and the perfume very pleasant.

SHRUBBY SPIRÆAS.—The following beautiful *Spiræas* have been sent to us by Mr. Gumbleton from his garden at Belgrove, Queenstown, viz., *S. carpinifolia*, a kind in the way of and probably but a variety of *S. salicifolia*; it has long plummy clusters of pink flowers terminating the current year's shoots, and is a most profuse flowerer. The leaves, as its name implies, resemble those of the Hornbeam (*Carpinus*). "*S. Bumalda*," Mr. Gumbleton says, "is a dwarf grower and most profuse bloomer, but unfortunately exhales an evil odour." It is in the way of *S. callosa*, the flat corymbose clusters of blossoms being deep rosy pink. *S. callosa alba* is a pretty shrub, differing only from the type in its flowers being white. The fourth specimen is named *S. callosa* by Mr. Gumbleton, but it is so distinct in foliage and in the colour of the flowers, that we doubt its being *callosa*. The foliage is similar to that of *S. callosa* in size and shape, but of a deeper purplish green; the flower clusters, too, are similar to those of *callosa*, but the blossoms are of a deep carmine-crimson, a lovely colour and the deepest we have seen in shrubby *Spiræas*.

FLOWER GARDEN.

LILIUM AVENACEUM.

THE Lily first exhibited at South Kensington, which the authorities believed to be *L. avenaceum*, proved to be *L. Hansoni*. This Lily has entirely distinct bulbs, is yellow instead of red, and is of much stronger growth than *L. avenaceum*; the foliage is similar, though on a much larger scale. *L. avenaceum*, I believe, takes its name from *avena*, an oat, the bulb being formed by a number of small oat-shaped bulbs. It is stated in Elwes'

out-of-doors it had to be kept in check by means of Tobacco powder, and as soon as the pods were formed they were attacked by thrips—a perfect pest at blooming time. It gets into the pods before they show colour, and quite spoils the flowers. The only way to get clear of it is to keep dusting the pods with Tobacco powder, and as soon as they open and the colour of the flowers can be seen, they may be taken into the house and fumigated with Tobacco smoke. Some may say, "Why all this fuss about such a hardy flower as the Carnation, that can be grown so well out-of-doors?" That is true; hundreds, nay thousands of amateurs grow Carnations both out-of-doors and in pots, but

white cards are best. It was no doubt an improvement to show plants in pots with the flowers in their natural state, and it has been suggested that an addition be made to the schedule in the form of a vase or epergne for the drawing-room, decorated with Carnations and Picotee blooms as cut from the plants. This would certainly show the value of the Carnation for room decoration, and may in that respect be useful. There are but few

NEW VARIETIES in the front rank this year, and with the exception of Rob Roy none of them were shown in good form. This is the fault of the season; certainly not that of the growers and raisers of them. Some of Mr. Dodwell's seedlings are very promising, but all of them that have been grown under my care have been so infested with thrips that their true character has not been brought out. This insect, diminutive as it is, takes all the rich colour out of the petals, and richly coloured bizzars suffer more from it than light edged and more delicate-looking Picotees. We have not seen a really good purple flake Carnation raised since Mr. Simonite sent out James Douglas seven or eight years ago. Now, Mr. Dodwell has a new one of great promise which gained a first prize in its class at the exhibition on the 24th of July. It is rich purple; the white flakes regular and pure in colour; petals of good substance and well formed. It was named Squire Whitbourn. A scarlet flake, also raised by Mr. Dodwell, and exhibited by him and Mr. Douglas, named Henry Cannell, also received a first-class certificate and a first prize in its class. It is a distinct and good flower, with better formed petals than any other scarlet flake with which I am acquainted. Thomas Mocre Junior is a richly coloured crimson bizarre, and may yet hold a high position, but as shown it was not good enough for a first-class certificate. Messrs. Veitch, of Chelsea, received a first-class certificate for a good purple self named Royal Purple; it is the richest coloured of all the purple selfs. Another distinct and good border flower sent by the same firm, named Admiral Seymour, also received a similar award. Its flowers are very freely produced; they are orange-red with scarlet flakes.

SELF-COLOURED CARNATIONS are now much more in request than they used to be, pure white and yellow varieties being very attractive. A large proportion of the self-coloured forms exhibited lately are merely sports from the flakes and bizzars. They may flower with all self blooms one year, and next season may revert to the striped character, or they may produce self flowers through two or three seasons, and then part of the layers may become flakes and another portion selfs. Picotees are not nearly so liable to sport as Carnations; about one in ten of the Carnations will come out of character, while of the Picotees there will not be more than one in a thousand. In the Picotee the white changes to pink, and in some cases the result is a very beautiful flower. A remarkable instance of a Picotee sporting from pure white to pink was recorded by Mr. Simonite; his whole stock of purple-edged Picotee Mary sported in this way, and then reverted to the original white ground. Some sports are very difficult to fix, that is, to induce to retain their new character; others, again, are quite the contrary. The variety called Sportsman (S. F.), obtained from Admiral Curzon (S. B.) more than twenty-five years ago, seldom reverts to its original form. Indeed, I have grown Sportsman in quantity for many years, and never had a single plant go back to its original shade of colour. On the other hand, when flakes revert to bizzars, it is extremely difficult to get them to retain their new character. The rose flake James Merryweather, one of the very best in its class, has frequently assumed the character of a crimson bizarre. I have it in that form now. Out of a dozen plants perhaps but one or two will retain their new character at flowering time. They do not go back to the rose flake; the white disappears, leaving the rose and purple colours behind, forming what the growers term a run flower. Another fact deserving notice is this, that in some



A new Japanese Lily (*Lilium avenaceum*); colour orange-red, spotted. Drawn from a plant flowered by Mr. G. F. Wilson in June last.

"Monograph of Lilies," part vi., to be common in Kamtschatka, and is also found in the Kurile Islands, South Sachalien, South Yesso, North and Central Nippon, growing in mountain meadows and grassy hills in good black soil. Mr. Elwes speaks of the Lily as being difficult to cultivate. It gives no trouble in our moist light loam on a hillside at Oakwood. The bulb is similar to that of *L. medeoloides*. GEORGE F. WILSON.

Heatherbank, Weybridge.

CARNATIONS AND PICOTEES.

WE are now in the middle of the flowering season of these choice old favourites, and therefore a few general remarks respecting them may be both interesting and useful. We have had a great wealth of insect pests to contend with. Early in the year, when the cold cutting winds of March were making havoc with fruit blossoms, our plants were being persistently attacked with green fly; but as they were under the shelter of glass frames we could easily fumigate them, and thus stop its ravages for a time. When the plants were placed

it is well known that the same perfection of form and purity of colour cannot be obtained from out-of-door flowers as from those under cover. In the neighbourhood of Newcastle-on-Tyne, where Carnation fanciers plant out nearly their whole stock, they are obliged to cover their blooms with bell-glasses, and other arrangements have to be made to protect them and to infuse colour into them, as well as to bring out the purity of the white. After such a heavy rainfall as we had here the other day every open Carnation bloom out of doors was spoiled, while those under glass looked more charming than ever. We must fill our greenhouses with something when the Pelargonium bloom is over and hard-wooded plants have been placed out of doors and Azaleas into a warm house to make their wood. Of course scarlet Pelargoniums are plentiful, but who prefers them to Carnations? even those who might do so would be pleased to have both. Little need be said about

CARNATION EXHIBITIONS; the principal attractions there were the cut flowers, and in the National Society's schedule every class of Carnation and Picotee is admitted. We still find that it is best to show the blooms on cards, and after trying various colours and tints, we still think

seasons sports are much more numerous than in others, a wet, ungenial season being most productive in that way. These statements, which all growers of Carnations can verify, are well worth consideration. At one time all run Carnations were relegated to the border or thrown on the rubbish heap. They are now shown as fancy Carnations, and are eagerly bought by the public. Many prefer them to correctly marked flowers.

Great Gearies, Ilford.

J. DOUGLAS.

EXHIBITING ALPINE FLOWERS.

I HAVE pleasure in replying shortly to Mr. Jenkins' queries. By referring to my article at p. 568 he will find that I did not say that the rule against using stakes for supporting the trusses of show Auriculas "should also hold good in the case of hardy plants." What I said was this: "To prevent forcing, the rules are enforced that there shall be no artificial support; it should be practically the same in exhibiting alpine and hardy plants"—the meaning being that as a rule had been laid down which effectually prevented the unhealthy forcing of Auriculas, some such rule should be adopted to prevent the exhibiting of alpine out of their true, natural form—"huge lanky specimens out of all character," such as were shown at Manchester. Staking is needful in many of the instances named by Mr. Jenkins, and I should adopt it myself for the proper display of any flower. I therefore agree with Mr. Jenkins' first paragraph. Then as to forcing, I may almost say that I agree with Mr. Jenkins on this subject. The amateur has no excuse for undue forcing in his small exhibit of thirty-six plants, but I admit there is a difficulty with the nurseryman who has to show eighty. But at Manchester the Newry plants numbered over 100, and they had no appearance of having been unduly forced. They were all in proper natural form, admirably grown and with abundant bloom; whereas the other exhibits, both amateur's and nurserymen's were forced until many of the plants could scarcely be recognised, and they presented a most melancholy appearance after the show had been opened a few hours. This was the result of following the bad example set in 1882. Exhibitors thereafter saw they could only win by plants taken throughout the season, and the later bloomers forced so as to make the floral display, and nothing else, as laid down by Mr. Moore in his letter to the *Manchester Guardian*. There is, therefore, very little between Mr. Jenkins and myself on this part of the question.

The last paragraph of Mr. Jenkins' note contains some excellent hints for exhibitors, and if plants are thus gently forced into bloom so that they can be exhibited in proper character not a word can be said against it. My whole contention is against showing hardy plants, and especially alpine out of true form, or as Mr. Jenkins puts it, "staged in a colourless and almost unrecognisable condition." The case would be met by a clause in the regulations which would serve as an instruction to the judges as well as a caution to exhibitors, such as the following: "In the classes for alpine and hardy plants undue forcing is to be avoided. The plants are to be shown, as nearly as practicable, in natural form, and unduly forced specimens will be considered adversely in judging the exhibits." WM. BROCKBANK.

Brockhurst, Didsbury.

Calochortus venustus.—This beautiful bulbous plant sent from California by Douglas about fifty years ago, was much sought after, and was well grown in various gardens at that time. I have grown it in pots for many years, and it has flowered well, the plant reaching a height of about a foot or 15 inches. The mode of treatment described in Edwards' "Botanical Register" for 1834, seems to have produced a strong plant 2 ft. high. It flowered in the open borders. "The bulbs were taken up as soon as the leaves withered, and were kept in a dry place until they began to start, which is about Christmas; they were then potted and placed in the greenhouse whence, they

were again transferred to the open border as soon as all danger from spring frosts was over." Has anyone succeeded in establishing it in the open border? or can it be grown vigorously year after year in pots? Hitherto I have not been satisfied with the way in which it has grown with us.—J. D.

Astrocerias.—Kindly allow me to correct a mistake of my own making contained in notes on these flowers (p. 50). A friend having called in question the correctness of my names and descriptions, I referred flowers to our best authorities and found myself wrong. Those described as varieties of *A. aurea* are varieties of *hamantha*, more commonly called *pulchella*. Of those described as two varieties of *aurantiaca*, the lighter coloured, a strong orange with pale foliage, is typical *aurea*, the deeper coloured what is known in gardens as *aurantiaca*.—G. J.

5025.—**Narcissi.**—I do not think "G. K.'s" trouble about *Narcissi* arises from either "wire-worm or damp," but from spring frosts, which catch the blooms just before they emerge. That is my experience, and I have found it to be particularly so with the common double white *Narcissus*. It may interest some to know that I have now in bloom the delicate little *Narcissus elegans*, perhaps of sufficient rarity (in flower) to make it worth while to record.—A. RAWSON, *Windermere*.

Single Dahlias.—During these last few years I have grown a large quantity of these both from seed and cuttings, but I have always been so much disappointed with the result that last year I determined not to grow them again. Still, I saved many of last year's roots, and this year planted them in two isolated beds, and the blooms are simply perfection, every flower being nearly three times larger from the old roots than from cuttings or seeds. I am now taking cuttings from the best of them for pot roots for planting out next season. It seems to me to be a most unnatural way of growing Dahlias to peg them down; such treatment ought to be stopped at once.—RICHARD NISBET, *Aswarby Park*.

Sidalceas (C. W. D.)—If the two pink-flowered plants sent are varieties of one species, they must be the extreme forms. According to the "Botany of California," vol. i., *S. malvæiflora* (Gray) is a very variable plant; *S. oregana* is a stout and branching northern form, and probably there exist intermediate forms between the latter and the congested spiked *malvæiflora* of gardens. *S. candida* (Gray) is a true species, but not Californian, and is probably the white-flowered plant you send. The two pink-flowered plants may be of the same species in a strictly botanical sense, but until we have in cultivation the intermediate connecting links it will be wise, we think, to keep them as distinct species, viz., *S. malvæiflora* (not *malvæifolia*, as sometimes written), the close spiked plant, *S. oregana*, the straggler, and *S. candida*, the plant with white flowers.—G.

The best of the mossy Saxifrages.—I have many of these, and though several are mentioned (p. 47) for carpeting and edging, there are two at least I would like to add to those named. One that of this class, as regards height, might be called *minima*.—*S. atro-purpurea*, never more than an inch or so high; and the other *maxima*, probably the tallest of the mossy Saxifrages.—*S. Wallacei*. Mr. Brockbank, if I remember correctly, said he considered the latter the most effective of the whole family, and he exhibited it in his winning stand at the spring show at Manchester. The flowers are large, white, and produced in great profusion, but with me very liable to get cut across at the ground line by a burrowing black slug. The former is a real beauty, kindly sent me by a lady in Dublin last year. The flower is small but bright pink; its great merit is the little permanently bright cushion of mossy, I might say velvety, green the year round.—W. J. M., *Clonmel*.

Mutisia decurrens.—I have this beautifully in bloom here; also *Tropeolum speciosum* on south-west and north-west aspects. The *Mutisia* has always done well with me. My plant is 12 feet in height, and has seven fully expanded blooms now out.—B. HOOKE, *Hillingdon*

The laced Polyanthus.—In the discussion on hardy florists' flowers, and in particular as regards the laced Polyanthus, "Peregrine" (p. 410 and subsequently) mentioned several well-known names who were to be "our florists of the future," and amongst others Mr. Cannell. Now, Mr. Cannell is one of the most active members of the national societies established for promoting the growth of florists' flowers, and I would further refer "Peregrine" to THE GARDEN of last week (p. 49), where it is stated that Mr. Cannell and Mr. Barlow insist on the evenness of the lacing of a Polyanthus to the one-hundredth part of an inch. Query, if Mr. Cannell is to be one of the "florists of the future," who are the "rigid" men? Is there any good reason why florists should not aim at a certain standard to which their flowers are to attain? It is the laudable ambition of florists to excel in the culture of certain flowers, and to be the raisers of at least one good variety, that may, peradventure, hand down their names to posterity. The work in which the florist is engaged brings him real pleasure; for my own part I have travelled all the way from London to Kirkby Malzeard and back to have an hour's chat with Mr. Horner when his Auriculas have been in bloom. I hope before "Peregrine" again takes up this subject he will endeavour to obtain correct information in reference to both florists and their flowers.—J. DOUGLAS.

Sowing Ranunculus seeds.—Mr. Joseph Tyso, the great raiser of *Ranunculi*, used to sow his seeds in boxes in October or early in January. They came up in a month, and the young seedlings were protected by a frame in frosty weather. About the second week in May the boxes were plunged up to the edge in the open ground, where the young plants got the morning sun only. About the middle of July the small tubers were ready to be taken up; they were gradually dried, and then stored in a box in dry sand until planting out time in February. The young plants will flower profusely the following June. Auriculas, Pinks, Carnations, Pansies, and other choice flowers are frequently raised from seeds, while but little attention in that way is paid to the *Ranunculus*. Few flowers are easier to cultivate than *Ranunculuses* if a light, rich soil is provided for them, and a bed of double kinds is extremely beautiful. In the *Floricultural Cabinet* for 1834 Mr Tyso says: "A bed of choice *Ranunculuses* presents one of the most attractive objects Nature in her gayest mood can exhibit. There you behold black, purple, and violet of every shade, mingled with others as white as snow. There you see crimson, red, and rose of various tints; orange, yellow, and straw of every dye. Many are striped as distinctly as the Carnation; some are red and white, and others scarlet and gold. Numbers are edged like the *Picotée*, having white, buff, or yellow grounds; others are shaded, spotted, or mottled in endless variety." Choice double *Ranunculuses* can be obtained from the trade at from 5s. to 10s. per 100 roots. They increase three and fourfold the first season.—J. DOUGLAS, *Great Gearies, Ilford*.

A contrast.—In one of the suburbs of Ipswich, on the roadside, may be noticed about a dozen cottage gardens, each being say 3 yards square, and just at this season gay with such plants as Snapdragons, Evening Primroses, Poppies, Canterbury Bells, Pansies, Marigolds, Sweet Williams, Lilies, Everlasting Peas, Rosemary, and Roses. The old Crimson Clove is planted alongside a wire netting division fence, to which its blooms are tied at various heights; they can thus be spread out and each bud can open well, which is almost an impossibility where they are tied together in clumps. The air is heavy with the scent of Mignonette, and an odour which can come from nothing else than the Honeysuckle. Having just come from the north, I was surprised to find in bloom so early Dahlias, Hollyhocks, Gladioli, and a perfect hedge of *Tropeolum aduncum*, overshadowed by masses of Gloire de Dijon Rose. This completes one side of the picture. Further on we come to the residences of the wealthier townspeople, whose garden space is from ten to twenty times as extensive as the foregoing, and

this is mostly devoted to trim gravelled carriage drives—ways probably long enough to hold three or four carriages—closely shaven turf centres; the sides to these gardens contain, in some cases, clipped Yew trees 15 feet or 20 feet high, with here and there that ugliest of all trees, if there be an ugly one, the *Araucaria imbricata*. The Yew trees are of the true Noah's-ark-toybox pattern, and give to the houses a necropolis or private asylum kind of appearance, very different from the cheerful flower gardens just described. I wish the occupiers of such dismal ornamental efforts could be persuaded to do a little actual gardening themselves, or if they dislike the labour, have perennials planted which will take care of themselves year after year; they would not then be long in doubt as to what would render their homes externally beautiful and admired by everybody.—R. A. H. G., *Horsforth, near Leeds*.

THE DUDDON VALLEY.

THE plant beauty on our hills in the north now is of a high order. Happy are those who can get a chance of seeing it. The cool hill gardens are interesting, and the wild Roses on the mountains delightful. The following is an extract from a letter from a friend who is staying among the hills in the north: "I have just got back here from a few days exploring up the Duddon Valley. There is much in the flower way that you would enjoy here. A very pretty semi-double pink Rose grows most luxuriantly, and there are perfect hedges of it near some of the cottages. I saw a fine bush of old red Damask the other day in a cottage garden. Higher up the valley a very beautiful wild Rose grows amongst the rocks. I think it is *Rosa villosa*; the leaves are downy and the flower quite a bright pink. The Honeysuckle on the lower slopes of the mountains is a mass of blossom; it often grows out of the rock, not climbing over anything else, but making a sturdy little bush on its own account. The boggy places are lovely with the delicate little pink Pimpernel and the Asphodel. I noticed a bush white with blossom on the other side of the stream last Saturday (July 14), and, clambering across, found that it was a little Hawthorn in full flower; all the other bushes near it had quite large haws on them already showing signs of turning red. Curious, was it not? There are three Club Mosses quite common on the mountain sides; one is an upright growing one, not particularly interesting, another is small and blue green in colour, and the finest sends out straggling sprays sometimes a foot long, with silvery green tips; it is now covered with fruit standing up on stems 2 inches high and is quite a striking looking plant."

RECENT PLANT PORTRAITS.

THE July number of *Revue de l'Horticulture Belge* gives a portrait of a fine new hybrid Carnation,

MADAME E. PYNAERT.—A variety of great size and substance, and of a beautiful shade of deep rosy blush, intermediate between that of the well-known variety *Souvenir de la Malmaison* and *Elise de Bleichröder*, a variety sent out in 1881 by Messrs. Linden, of Ghent.

The first number of the *Revue Horticole* for July figures

BILLBERGIA THYRSOIDEA FASTUOSA.—A fine Bromeliad with a brilliant spike of orange-scarlet flowers, with purple tips and conspicuous involucres of shaded crimson enveloping the spathe.

ECHINOSPERMUM MARGINATUM MACRANTHUM (Regel's *Gartenflora*, plate 1119).—A tall stemmed herbaceous plant bearing spikes of small blue flowers with pale yellow centres, almost identical with those of *Myosotis dissitiflora*.

PELLIONIA DAVEAUANA (Regel's *Gartenflora*, plate 1120).—An ornamental variegated foliage trailer well adapted for growing in a pot or basket suspended from the roof of a cool stove or warm greenhouse; also known and figured under the name of *Begonia Daveauana*.

LIATRIS PYCNOSTACHYA (*Revue Horticole* for July 16).—A tall growing species bearing spikes of

rosy purple flowers on stems of from 6 feet to 7 feet high, which, however, require more sun-heat than we are often favoured with in this country in autumn to allow of their full development, and without which they do not open at all. Appended to this plate is a list of no fewer than thirty varieties of this family, nearly all of them indigenous to the prairies of North America, but few of them as yet to be found in European gardens. This notice is from the pen of M. E. André, the well-known botanical traveller, and one of the editors of the *Revue*. W. E. G.

BARE EARTH IN GARDENS.

"W. W. H." (p. 595, Vol. XXIII.) gives some valuable hints as to how bare earth may be covered in the flower garden, and I would like to supplement them by remarking that the same idea may be equally well carried out in the indoor garden. We shall only be taking a lesson from Nature if we proceed to carpet the soil around large plants with smaller ones, for does not Nature clothe even the boles of trees with Moss and Lichens? In flower gardening it is quite possible to plant so thickly that weeds have no chance to make headway. But a selection of plants suitable for carpeting is the point on which amateurs often fail, and here "W. W. H." comes to the rescue, for he tells them from actual experience what plants will produce the desired dense carpet, and yet not rob the roots of those of more stately growth. In the indoor garden what have we better for carpeting than *Selaginella denticulata*, a host in itself, the very ideal of a carpeting plant, for it is light and elegant in growth, flourishes in any position, and produces that verdant beauty that we admire on well-kept lawns? Moreover, it does not rob the soil to any appreciable extent, and it minimises evaporation. Arranging conservatories in the natural style by planting out the permanent plants or specimens, and covering the soil with *Selaginella*, leaving spaces for plunging flowering plants, according to the season of the year, is not a new idea, nor is it new to carpet pot plants with this lovely Club Moss, for market growers frequently show beautiful examples of bulbs carpeted in this way. It is only by means of combinations of this kind that we can obtain the highest effects. Let stove and greenhouse plants that are at all liable to become tall and lanky, and show the objectionable bare earth and pot, be carpeted with *Selaginella*, and if the experience of other growers is the same as mine they will soon extend the practice. JAMES GROOM.

Gosport.

NOTES FROM BADEN-BADEN.

DURING June the weather here was very dry and hot, and some herbaceous plants, especially Himalayan plants, suffered from want of rain; taking all in all, however, vegetation made fair progress, and Californian and Cape plants enjoyed the warmth very much. *Sandersonia aurantiaca*, with its dark green leaves and orange bells, is very showy. When this bulb is planted in the open the bells assume a much finer colour than when kept in pots in the greenhouse. *Littonia Keiti*, thus provisionally named by me, is one of my introductions, and, horticulturally at least, very distinct from *L. modesta*. It is a stronger grower than the latter, and the shoots are not single, but branched, and whilst *L. modesta* in strong specimens has only three or four flowers, *L. Keiti* shows as many as fifty on a branched shoot. It is as easily managed as *Gladiolus*. *Knautia magnifica*, which resembles a rose-flowered *Scabious*, is a fine and desirable plant. So also is *Grindelia robusta*, an interesting, richly flowered, yellow composite; its buds are covered with a thick milk-white varnish, which entirely disappears when the rays unfold. *Ruta patavina* cannot be too much praised; it has been for weeks in flower, and will remain so until frost sets in. It only grows a few inches in height, and becomes covered all over with its rich, cheerful-looking yellow blossoms. *Phlomis cashmeriana* is quite striking; its big heads or whorls of large

rosy purple flowers are unusually bright. *Delphinium cardinale* is finer than I have ever seen it; it appears to improve in habit and colour, the scarlet in my strain being fully equal to that of *D. nudicaule*. A fine plant of *Pelargonium Endlicherianum* has produced about sixty flower-heads, and is a conspicuous plant on my small rockwork. *Milla biflora* is now beginning to open its starry flowers, which are chastely white and deliciously fragrant. *Eremurus aurantiacus*, now over, is perhaps the most elegant and most striking of its family; the colour of the flowers, which are thickly set on a graceful spike, is a deep citron-yellow; and there is now out another species from Bokhara which has the same graceful habit, and the flowers of which are tinged with Peach blossom. The spikes of flowers of this species are more than 2 feet long, and the whole flower-stem is not more than 4 feet; both these *Eremurus* are so very showy that they must become standard plants in every good collection. MAX LEICHTLIN.

Baden-Baden.

NOTES ON ANNUALS.

NOTWITHSTANDING the long lists of annuals to be found in seedsmen's catalogues, one seldom finds well-grown masses of them in gardens, and it is only when one sees them grown for seed on a large scale that a correct estimate of their beauty can be formed. What can be more enlivening in spring than the splendid colours of *Nemophilas*, *Silenes*, and similar annuals, or what more gorgeous than *Tropaeolums* or *Lupines* in the summer tide, or, again, *Asters*, *Zinnias*, and a host of other beautiful things which follow later, and so carry on the season of annual bloom till the very verge of winter? It cannot be said that the culture of annuals is not understood; rather must it be said that the space and attention accorded to bedding plants has elbowed them out of our flower gardens. If, however, a judicious selection of the best and brightest were made and well grown, they would not only look well, but a great reduction in the shape of labour and expense would be the result, especially in small gardens, where glass accommodation is limited. So much has been written upon annuals in THE GARDEN, that it is needless to reiterate any directions as to culture here. Our wish is now to point out a few of the best noted on a recent visit to Messrs. Carter's seed farms at St. Osyth and Dedham, in Essex, where annuals of all descriptions are grown very extensively for seed, and where one can see the finest effects produced by broad masses of them. The following remarks only apply to some of the kinds in flower at the time of our visit.

EARLY SUMMER ANNUALS were for the most part past flowering, but the enormous stretches of such lovely things as *Nemophila insignis* were sufficient to show how fine the colour effects must have been a few weeks ago. Among others that were past their best were the Candytufts, but the new *Carmine*, one of the best and brightest of all, was still gay enough to show what a beautiful variety it is. There were many, however, that were not in bloom, and would not be for a few weeks, such as the China *Asters*, *Helichrysms*, *Salpiglossis*, and other later flowering kinds.

LUPINES (*Lupinus*).—Throughout the whole of hardy annuals none perhaps are so generally grown as *Lupines*, and they certainly are a very beautiful class, particularly the Mexican and Californian species with the hybrids and varieties that have sprung from them. These annual *Lupines* are a very puzzling class as regards their names and distinctive characters. There are upwards of a dozen sorts grown for seed here, all of which are beautiful, but as many do not differ materially from others, we singled out of the best a few that would answer all purposes. These include *L. nanus*, *subcarneus*, *luteus*, and *hybridus* and its varieties. The two first are real gems among annuals, both being very dwarf and spreading, and bearing a profusion of the richest blue flowers. The acres of them here were glorious sheets of bloom, as fine a sight as it is possible to see among flowers. They are certainly

two of the finest annuals grown, and the smallest selection should not omit them. *L. nanus* is under 1 foot high, and is from California; and *L. subcarnosus* is from 1 foot to 2 feet high, and comes from Texas, so that both are only half hardy, and require to be sown in heat in March in order to grow them as they should be. The Texan species is apt to die off in heavy soils, but thrives perfectly on light warm ones. *L. hybridus* is one the best of all the taller growing kinds. It reaches 3 feet in height, and bears its flowers in long dense spikes, and varies considerably in colour. There are three named varieties of it, viz., *atro-coccineus*, rosy red in the lower part of the spike, white in the upper; *insignis*, dark reddish purple, later than the other sorts; and *nigrescens*, purple and white. These hybrid varieties are harder than the preceding, and may be sown out of doors. Another pretty species just now in perfection is the old yellow Lupine (*L. luteus*), the only annual species with yellow flowers; hence a valuable one. It grows from 1 foot to 1½ feet high, and its dense spikes of bloom are bright yellow and deliciously scented—an additional charm. It is a South European plant and quite as hardy as the last. There were several other Lupines in bloom, but these were the best.

TOM THUMB NASTURTIUMS are the glory of the farms, for everywhere they light them up with their fiery colours; indeed it would be a difficult matter to convey by the pen an idea of the gorgeous effects produced by acres of these splendid annuals. They are grown to an enormous extent, and every year they seem to become more and more in demand; it is not going too far to predict that in course of time this dwarf race of *Tropaeolum* will quite supplant the scarlet *Pelargonium* in the garden for bedding purposes, seeing that they are quite as effective and quite as continuous flowerers, and do not give half the trouble and no expense in preserving them under glass throughout the winter, as they come perfectly true from seeds. There are upwards of a dozen varieties grown here, and some of the newest are simply perfection in every respect; of these the finest are Ruby King, of a bright carmine crimson; Golden King, a fine clear yellow; King of Tom Thumbs, vivid scarlet; Spotted King of Tom Thumbs, yellow blotched with crimson; King Theodore, one of the darkest, being a blackish crimson; and Empress of India, which is the latest novelty, and a splendid sort it is. It is the embodiment of a first-rate dwarf Nasturtium, being dwarf and compact in growth, very floriferous, and of an intense, yet brilliant, crimson, which creates a magnificent effect when seen *en masse*, as here. It seems to be later to flower than the rest, for while the stretches of the other sorts were in full bloom, The Empress had only commenced to bloom; hence its great value for bedding purposes in gardens which require to be at their gayest during August and September. These six sorts comprise the cream of the collection of the dwarf race, though of course such old-established favourites as Crystal Palace Gem, the old Scarlet Beauty, and *cœruleum roseum* cannot be ignored, though the novelties surpass them in many respects. In the newer sorts there is a conspicuous dark-tinted foliage running through all, which seems to point to the supposition that there is a good deal of the Lobbianum blood among them, which is probably the case. There is one other that deserves mention, not so much for its value as a garden plant as for its scarcity. It is the old *T. minus*, which was introduced about the same time as *T. majus*, but has not been favoured by that attention as regards improvement as its larger relative. It is a dwarf plant, with flowers about half the size of those of an ordinary *T. majus*, and easily distinguished by the veins of the leaf terminating in bristle-like points, and by the petals being also tipped with bristles. The colour is orange and scarlet.

ROCKET LARKSPURS (*Delphinium Ajacis*).—It is really surprising that such beauty as these plants possess should be so seldom met with in gardens; but if anyone could see the waving acres of tall spikes as here, there would be few who would not be captivated by them and feel a desire to grow them. They were certainly among the finest things of all the annuals, and so distinct from the rest in growth, their dense, erect spikes being more like gigantic Hyacinths than anything else. These annual Larkspurs fall into two distinct classes—first, the varieties of *D. Ajacis*, or the Rocket Larkspur, and the Branching Larkspur, or the varieties of *D. Consolida*. Of both of these classes there are numerous sorts, differing either in colour, stature, or habit. Of the Rocket Larkspurs there is the Stock-flowered strain, which grows only about 1 foot high, and produces dense, Hyacinth-like spikes of pure white

flowers in colours varying from white through pink and reds to intense crimsons. A packet of mixed seeds would produce all these colours. What is called the Danebrog Poppy here grows from 2 feet to 3 feet high, and has large cup-shaped flowers of a brilliant red, with large blotches of white taking up almost half of each petal. It seems to be a variety of the Opium Poppy.

ABRONIA UMBELLATA.—There was an interest and prettiness about this charming Californian plant beyond all the others, for it is only in botanic gardens that it is seen, and then only in tiny patches; but here it was by the square rod. It is a trailing plant of a rather succulent nature, and its flowers may be best compared with those of the common Verbena, being produced in dense umbels of a pleasing rosy purple with light centres. A large space was completely carpeted with this pretty plant, which seems to thrive admirably here, though the soil is not of a very light nature. Though treated as an annual, it is really a perennial, and may be treated as such if afforded frame protection. It is best to treat it as a half-hardy annual; it is a capital plant for the rock garden, and also for hanging baskets in greenhouses.

PETUNIAS are a great speciality, and the long, broad stretches of them have a singularly pretty effect, on account of the diversity of their colours. It is remarkable that the two species *P. nyctaginiflora* and *P. violacea* should be so variable. It is almost useless to single out particular colours, as it would be a difficult task to describe them. They are classed here as different strains, such as the striped, blotched, crimson, green-edged, fringed, and so on. Of course, to perpetuate particular colours the plants must be propagated by cuttings. The plants here are raised from seed and planted out in May, and this is far better than taking the trouble to propagate by cuttings. A few masses of these fine strains of Petunias are very desirable in a garden, for not only are their colours bright, but they yield a sweet perfume akin to that of Tobacco plants, but sweeter.

SWEET PEAS.—These popular favourites necessarily claim a deal of attention, but there was nothing new beyond the varieties that were exhibited at South Kensington a short time since, to which allusion was made at page 15. Only those who have seen Sweet Peas by the acre can form an idea of the splendid masses of colour they produce and the delicious fragrance they exhale, which is carried by the breeze to a long distance. Of greater interest was the Tangier Pea (*Lathyrus tingitanus*), which has large bright crimson and rose-tinted flowers, but scentless. It is a pretty plant, and well worth cultivating.

GILIA TRICOLOR is decidedly the best of all the half-dozen in flower, and it really is a pretty plant, being neat in habit and a profuse bloomer. The flowers, like little bells nearly an inch across, are purplish white, but are much deeper and richer in the variety *rubro-violacea*, and white in the variety *alba*. It grows about a foot high, and has a pretty effect in masses, but it does not last long in flower; therefore it is advisable to sow it in succession, so as to have it in bloom from June to September. Some of the other Gilias, such as *achilleæfolia* and *capitata*, have an extremely fine effect when seen, as here, by the acre, but a small patch in a garden is not sufficient to show the plants well.

LAVATERA TRIMESTRIS.—This and *Malope trifida* are two of the brightest annuals we know in the Mallow family. The first grows from 2 feet to 3 feet high, and bears large Mallow-like blossoms of a pale rosy purple pencilled with a deeper colour. The *Malope* is similar, but dwarfer and the best variety of it is *grandiflora*, which has much larger flowers than the type, the colour being rich rosy crimson with darker veins, while in the variety *alba* the flowers are white. Both



Eschscholtzia Mandarin.

and pink. Then there is a taller strain called The Emperor, which is certainly the finest of all. This strain grows from 1½ feet to 2 feet high, bears dense spikes of various colours, including deep blue and purple. The branching varieties are more straggly in growth, but also very beautiful, and are of various colours. The Candelabrum strain is symmetrically branched, the spikes being much the same as those of the Rocket strain and of divers colours. Good-sized masses of these beautiful Larkspurs produce a fine effect in a garden, and are really no more trouble in cultivating than the tender bedding-out plants.

POPPIES do not occupy a great area, probably because each plant and pod yields such a prodigious quantity of seeds. The chief sorts grown for seed are *Papaver umbrosum*, the species with deep scarlet flowers like the common cornfield Poppy, but with a large black centre; the varieties of the Opium Poppy, *P. somniferum*, and the double French Poppies. These last are very beautiful, the flowers being so diverse in colour and possessing such a lovely satin-like lustre. They are no doubt only variations from our indigenous red Poppy (*P. Rhæas*), but, singularly enough, they do not revert to the original, but almost invariably produce double or semi-double



Schizanthus pinnatus nanus.



Leptosiphon androsaceus



Double Marigold Meteor (Calendula officinalis var.).



Linaria reticulata.



Purple Sand Verbena (Abronia umbellata).



Nycteria selaginoides.



Double Clarkia elegans.



Lavatera trimestris.



Mesembryanthemum tricolor,

are hardy annuals, and repay good culture, as they last so long in bloom and are so showy.

LEPTOSIPHONS.—These are sweetly pretty plants, all of dwarf growth, and mostly form dense tufts profusely furnished with bloom. The gem of the half a dozen or more kinds is *L. roseus*, one of the prettiest of all annuals. The flowers, about the size of a sixpenny-piece, are produced in dense clusters, and are of a soft rose-pink colour—so pleasing when seen in a mass. *L. densiflorus* is a pretty plant, particularly the white variety of it; and there are some pretty varieties of *L. androsaceus*, which, however, do not last long enough in bloom to be of much service, except for pot culture. There is a race of hybrid varieties, said to be pretty, but they were not in bloom at St. Osyth.

CLARKIAS are so well known, and such universal favourites, that it is only needful to mention the newest varieties. Of *C. elegans* there is a pure white sort, very chaste and beautiful; also a double variety, which possesses the advantage of remaining longer in bloom than the singles. Of the integripetala type the finest of all is *Mrs. Langtry*, a great beauty, the colour being a pure white, with a well-defined centre of the richest carmine-crimson. It is of dwarf and compact habit, too, very desirable in *Clarkias*, which are apt to become straggly. A selection of the other sorts should include *limbata*, one of the best of the white-margined petalled class, the white integripetala, and the double. There are two or three striking novelties in embryo among the *Clarkias*.

GODETIAS.—A great improvement has been effected of late years among these beautiful plants, and now they must be included in the list of first-rate annuals. There are upwards of a dozen kinds grown for seed here but attention is concentrated on a few of the very best, such, for instance, as the lovely *Whitneyi* race, which is the queen of the genus. The crimson and mauve *Lady Albemarle* is beautiful enough, but this has been surpassed by new kinds, such as *Satin Rose*, which so fascinated everyone last year when shown at South Kensington, where it was awarded a first-class certificate. *G. Dunnetti*, *insignis*, *Whitneyi*, *concolor*, and *flammea* are lovely varieties, too, and so is the new pure white *Duchess of Albany*, which is unquestionably the finest white there is. It is largely grown here, with the view of making a selection of the best habited plants, which must be dwarf, vigorous, and floriferous. The plants vary greatly in this respect, and it would be desirable to get a uniform dwarf strain.

NYCTERINIA SELAGINOIDES.—The two cultivated annual species belonging to this genus of the *Linaria* family are both charming little plants possessing a beauty peculiar to themselves. They are dwarf and form dense rounded tufts which at this season are thickly studded with blossom. In *N. selaginoides* they are pure white with an orange eye, and the bifid petals give the flowers a fringed appearance. The blossoms give off a pleasant fragrance by night, but it is scarcely perceptible by day. *N. capensis* is the other species, and, like the former, is a native of the Cape of Good Hope; therefore they are only half-hardy and require to be grown on a sunny border in light sandy loam.

LINARIA RETICULATA is a sweetly pretty plant, neat in growth and extremely profuse in bloom. The variety named *aureo-purpurea* is the best of all, and a good sized bed of it here captivated everyone. The flowers are small in themselves, but are borne numerously in dense clusters, their colour being a reddish brown and a bright orange, copiously spotted. It is, moreover, one of the most distinct of all annuals, for there is none that possesses such a beautiful combination of colours.

MARIGOLDS.—A most effective and pretty plant is what is called the Meteor Marigold, a variety of *Calendula officinalis*, the flowers of which are very large, symmetrically shaped, and perfectly double, the lemon-coloured florets being distinctly edged with bright orange. It is not so straggly in growth as the common pot Marigold, but forms a compact tuft which just now is a complete mass of bloom. Some good sized beds of it on Mr.

Dunnett's lawn, at Dedham, were exceedingly pretty, and showed well how suitable this hardy annual is for massing. The African and French Marigolds (*Tagetes*) were scarcely forward enough to judge of their effect, but they will be very showy presently, and will continue to bloom till cut down by frost, hence their great value. The new compact Gold Striped is a beautiful variety among the dwarf French sorts, and of the popular little *Tagetes pumila* is one called *Golden Ring*, a great improvement on the ordinary form. The Great Cape Marigold (*Dimorphotheca pluvialis*) was one of the most uncommon and prettiest plants on the farms, and, moreover, one that ought certainly to be more commonly found in gardens, as it is such an old introduction. The flowers resemble in size and form those of the pot Marigold (*Calendula*), but the florets are pure white within and stained with purple on their exterior surfaces. They open in full sunshine, but close at night and in dull weather, and in both phases have a pretty appearance.

MESEMBRYANTHEMUM TRICOLOR.—On sunny days there is nothing in the way of annuals to surpass in brilliancy this little plant, which, from its dwarf, compact, tufted habit, is so peculiarly adapted for rockwork, edgings, and such like places, always remembering that it must be placed perfectly exposed, and where it can get as much sun as possible, for it is a great sun lover, and refuses to thrive if shaded from it. Here it is grown on a large scale, but the crop was not so uniform as the other annuals on account of its being a little capricious when in a small state. It requires a light loamy soil to do well, and a well-drained border. Besides the ordinary type, there is a pure white form (*album*), which is lovely.

ESCHSCHOLTZIAS.—One of the latest and most beautiful additions to these favourite Californian annuals is one called *Rose Cardinal*, a sport from the lovely *Mandarin*, which has flowers as large as the ordinary *E. californica*, but yellow within, and of a rich reddish orange on the exterior. *Rose Cardinal* has flowers somewhat smaller, but of a soft, clear, rosy tint, as delicate in tone as any flower in gardens, and, like *Mandarin*, the petals are overlaid with a satiny lustre that adds so much to the beauty of the flower. These two *Eschscholtzias* are among the loveliest of all flowers, and the sight of large breadths of them may be better imagined than described. Besides these, there is the double-flowered *E. crocea*, of a bright orange colour; also a white variety of it. The old original *E. californica* is still a beautiful plant, but all must pale before the *Rose Cardinal* and *Mandarin*, which ought to be seen in all good gardens.

CORN FLOWERS (*Centaurea*).—The large area taken up by these suffices to show what universal favourites they are, and their popularity has largely increased since gardeners have taken to grow them largely in pots for greenhouse decoration and for cutting in autumn and winter. The common *Corn Cockle* (*C. Cyanus*) is most largely grown, and here it may be seen in every variation of colour, from the rich turquoise blue of the type through pinks and purples to pure white. It is justly a favourite plant for cutting from, but for all that the plant is so straggly and weedy looking, particularly for pot culture. There is another species grown largely here which ought certainly to supersede the common *Corn Cockle*, particularly for pot culture, this is *C. depressa*, which, as its name implies, is of dwarf growth, being only about a foot in height, and altogether a neater growing plant than *C. Cyanus*, and the flowers are quite as large and of precisely the same stamp, and of a rich deep blue. The leaves are broader and of a silvery hue, and may be easily recognised from the common sort. Being a dwarfer and neater plant, it is specially suited for small gardens as well as for pot culture. There is a rose coloured variety of it, but the typical blue is the best.

Frog and grubs.—A friend of mine who loves flowers, gardening, and nature generally, and has done good service to natural history, fed a

medium-sized frog a few days ago with six good fat larvæ of the daddy-longlegs (of which we have a pest in these parts), and this after an earthworm, which he was literally tucking in when found. He "pouched" the sixth grub as smartly as he did the first, "and still he sighed for more." For gardeners the moral of this little story is obvious. A robin in my own garden feeds himself and family largely on these "varmint." Do animals feeding on "such small deer" derive pleasure from internal wriggles?—*Field*.

INDOOR GARDEN.

GESNERAS.

THE species of *Gesnera* generally cultivated are mostly tuberous-rooted plants, but others are also grown. The greater portion of them are indigenous to Brazil and the South American continent, consequently they require a considerable amount of warmth in order to grow them successfully. Some, like *G. Cooperi*, bear a profusion of intensely vivid scarlet flowers, which remain long in perfection; others, of which *G. zebrina* may be taken as the type, in addition to handsome red and yellow flowers, possess exquisitely beautiful leaves, the upper surface of which is clothed with reddish hairs, thus giving it a soft velvet-like appearance. The moderate size which *Gesneras* attain, and their naturally free growth, render them well worth a place amongst the most easily managed of stove plants.

TUBEROUS SPECIES.—These may be propagated at different times of the year, according to the early or late period at which they are started into growth. The most satisfactory method of propagation is by means of cuttings made from the young shoots, which spring freely from the crown, as in the case of *Gloxinias*. Supposing the plants, after blooming in summer, to have been gradually dried off, they should, at the beginning of the year, be placed in a moist stove, with a temperature of from 60° to 65° in the night, and a rise of 10° by day, giving just as much water as will slightly moisten the soil; thus treated, they will soon commence to grow. When the shoots have attained a length of about 2 inches they may be taken off immediately under the first joint, removing the leaves therefrom; put them in a well-drained pan in which is placed a little fine sandy soil, filling up with silver sand. Insert the cuttings sufficiently far apart to prevent crowding; give a little water, and cover with a bell-glass. If bottom heat can be supplied they will root quicker, but if the night temperature can be kept up to 70° they will do without it. As they strike readily, in the course of a few weeks they will have rooted sufficiently to bear moving into small pots, which must be well drained and filled with a mixture of sifted loam, to which has been added one-fourth of sifted leaf-mould, and as much sand as will give porosity to the whole; water slightly, and again partially cover for a few days with glasses, or put them in a propagating frame, to which admit air gradually, and, as soon as they give evidence of making growth, by degrees inure them to the full air of the house. In the course of six or eight weeks they will have made considerable progress, and will require removal into pots 4 inches or 5 inches in diameter, using soil of a character similar to that employed for the first potting, only in a rougher and more lumpy condition. Through the summer subject them to an ordinary stove temperature, with sufficient air during the day. Keep them near the glass where they will receive plenty of light, but they should have a little shade in the middle of the day during bright weather. A neat stick to each will be necessary to support the shoot. Stopping should be avoided, as the object this first season is to encourage all the leafgrowth possible, upon which will depend the size and strength which the tubers will attain. From their natural free habit of flowering, the strongest plants will very likely form flower-spikes towards the end of summer; but as the object is, as has just been stated, to get as much strength as possible into the tubers, I

should recommend the bloom being pinched out, as, if allowed to go on, it will considerably restrict the growth of the plants. All through the season they must be attentively watered at the roots and syringed overhead in the afternoons when the house is closed. Keep the soil sufficiently moist so long as they evince a disposition to grow, after which cease syringing, give less shade, but do not allow the soil to become dry so long as the leaves retain full vitality. When they begin to show signs of

GOING TO REST, gradually, not all at once, withhold water until the tops are dead, when the soil should be allowed to become almost quite dry. The pots should now be placed on a shelf or in some position at the coolest end of the stove, where they will be secure from drip from the roof or water running from other plants. I mention this, for it is a common occurrence to see tubers of these and other plants when at rest put under stages or on damp floors from which they either absorb moisture, or receive that which drips from above, by which means the soil, instead of being all but dry, is so wet that it either causes decay or prematurely starts them into growth. They must not, moreover, be subjected to too low a temperature when at rest or the tubers will rot. From 50° to 55° at night is as low as they can safely be kept. Early in the ensuing year the old soil should be shaken from them, and they should be shifted into pots proportionate in size to that which the tubers have attained. Those that have done well will bear moving at once into pots 6 inches or 7 inches in diameter; a size less will do for the smaller roots. Drain and fill the pots with soil such as that recommended for the preceding year; the more fibrous material it contains the freer will the growth of the plants be. Always place the potting material before use where it will get a little warm; let it be in rather a dry than in a moist state. It often happens with these and tubers of a similar character, that they are suddenly transferred from the dry soil in which they have been at rest to new soil that contains too much moisture, from which they absorb so much as to cause their destruction. In

POTTING allow the tops of the tubers to be just above the surface of the soil, pressing the latter moderately firm; place them on a shelf in a house or pit where the temperature will be from 60° to 65° during the night, with a proportionate rise in the day time. Give water enough to fairly moisten the soil directly the tubers begin to push. It is important that they have sufficient light as soon as shoot growth commences, as if their first efforts in this direction are made in a dark situation the shoots quickly become drawn up weak, a condition that no subsequent treatment during the season can rectify. As solar heat increases give more warmth both day and night. The time of their blooming will vary with the more or less heat to which they are subjected, but they may be expected to show flower in April or May. When the bloom spikes appear see that they do not receive too much wet through syringing in the after-part of the day, as wet often causes the individual unexpanded flowers to drop. When the flowers begin to open the plants may be placed in a somewhat cooler situation, such as an intermediate house or a warm conservatory away from draughts, keeping the soil, whilst in a position of this kind a little drier than hitherto, but on no account must they be placed where too cold, or they will receive a check that will endanger their health and cause the blooms to fall off prematurely. If used for decorative purposes in this way, as soon as the flowering is over they should at once be moved back to the stove and regularly supplied with water until they exhibit signs of going to rest. If, on the other hand, they are not removed during the time of flowering from the stove, plants that are started early in the year, as these were, will generally push up a successional crop of young shoots, much in the way that Gloxinias do, which will bloom later in the season. During this second growth weak applications of manure water will materially assist them. Through the autumn give more air and subject them to a

drier atmosphere until the tops have died down; winter as before. By retarding growth until late in the spring, they may be had in bloom through the autumn if required. The flowers can be used for cutting, but they are better adapted for decorative purposes on the plants. If carefully managed through the winter the tubers go on increasing in size, and will last for many years. This class of Gesneras may also be increased by division of the tubers.

THE ORNAMENTAL-LEAVED kinds, which also produce beautiful flowers, are mostly herbaceous, and have scaly roots not unlike those of the nearly allied genus *Achimenes*. They will strike from cuttings made of the young shoots, either consisting of the top and two or three joints, or a couple or even a single joint from the lower portion of the shoots, when not too hard or woody, inserted in silver sand, and covered with a propagating glass, for the most part; they are, however, usually increased by division of their scale-like roots, which they form in considerable numbers. These may be either used whole or cut into pieces, according to the scarcity of the kinds or the quantity required; but, although a small piece, with care, will grow, still, as might be naturally supposed, the larger the pieces the stronger the plants will be. For ordinary purposes, the roots used whole are best. As this very beautiful section of Gesneras is the most useful when in flower through the late and earliest months of the year, it is not wise to start them too soon; if started in April it will be time enough. The most convenient practice with them is to procure some good sized propagating pans, drain, and two-thirds fill them with sifted soil made sufficiently light by the addition of a little leaf-mould and sand. Gently press the surface smooth; on this lay the roots 2 inches apart and cover with half an inch of similar material. At once place them in a night temperature of 60° or 65°, keeping the soil only slightly moist until they have begun to grow. As soon as the young shoots have pushed up an inch above the surface move them singly into from 3-inch to 5-inch pots, according to the strength of the roots, potting in soil a little coarser than that in which they were started. With this section it is even more important than with the first mentioned to keep them near the light, as the general appearance of the plant is quite as much a matter of consideration as the flowers they ultimately bear; unless all their leaves are retained in a fresh, healthy condition until the blooming is finished half their beauty is lost, and this is not possible if the leaf development takes place under insufficient light. They require shade when the sun is bright, otherwise the leaves do not attain their wonted lustre. Increase the temperature as the days lengthen, apply water to the roots regularly, and syringe overhead in the afternoons. By July the strongest plants may be moved into 7-inch or 8-inch pots, the weaker ones receiving proportionately less room; or two or three of these may be put in a pot of the larger size, but when sufficiently strong they look best grown singly. They will need a thin stick to each shoot to keep them in an erect position. As autumn advances cease shading and the use of the syringe, gradually decreasing the heat, but this should not be reduced lower than that in which they were first started. Their time of blooming will be regulated in a great measure by the heat in which they are kept through the winter; in an ordinary stove they will be in flower during December, January, and February; where wanted later it is well to start a few bulbs after the time advised the preceding spring. When flowering is over, dry them off and store them where they will, neither be too cold nor so warm as to cause them to push before they are required. If room is an object, the roots may be shaken out of the soil and placed in paper bags in a little dry sand.

VARIETIES.—Amongst a number of fine kinds, the following are especially deserving of cultivation: Cooperi, a large tuberous Brazilian species which, when in strong condition, produces a number of flower-stems that bear stout spikes of rich

scarlet bloom; Donckelaari, also an erect habited Columbian sort, with deep crimson flowers; gloxiniaeflora, so named on account of its beautiful Gloxinia-shaped flowers: it is a handsome, but by no means common plant; cinnabarina, a red-flowered, stout-growing Mexican kind that blooms freely; Barlowi, a medium habited sort, with stout leaves and large spikes of flowers; ignea, a garden hybrid, with vivid crimson blooms that are very handsome; Leopoldi lilacina, a very distinct kind, the flowers of which have a lilac shade; a desirable sort; tubiflora, a South American species, with long tube-shaped scarlet flowers; magnifica, one of the finest, flowers deep scarlet; zebrina, this Brazilian species belongs to the scaly-rooted kinds that have such conspicuously handsome leaves, which, independently of the flowers, add much to the beauty of the plants: the flowers are produced in long erect panicles, and are scarlet and yellow; exoniensis, a remarkably handsome sort, the leaves of which are beautifully coloured, and in texture as lustrous as velvet; albo-lutescens grandiflora, another handsome and distinct kind, with delicate creamy white flowers that contrast well with the higher shaded sorts; fulgida bicolor, flowers vermilion, spotted with white beneath; Infanta, tube light rose, yellow within, tinged with blush; dauw, a handsome variety, flowers white, rose, and yellow.

INSECTS.—The continuous syringing needed when the plants are in active growth is generally sufficient to keep down red spider, thrips, and aphides, but, should the latter appear, fumigate. They must be carefully guarded from the attacks of mealy bug, for, if this gain a footing on the fine-leaved kinds, the sponging and brushing necessary for its removal almost always destroys the beauty of the plants. T. BAINES.

EUCHARISES AND THEIR CULTURE.

OF all plants requiring stove treatment that have been introduced into Europe during the present century, there are few, if any, that have become more general favourites than *Eucharis amazonica*, or that better deserve to be grown by all who have the convenience of a house wherein can be maintained an amount of temperature sufficient to grow it. When this plant first made its appearance in this country the extreme purity of its lovely white flowers, combined with their exquisite fragrance at once produced an impression in its favour, even though imperfectly grown—imperfectly so far, that the small-pot culture, to which it was then thought best to confine the plant, was not such as to admit of that full development which it has since exemplified under more liberal treatment. The restriction of its roots to promote flowering has been found to be altogether unnecessary and to seriously prevent the bulbs from increasing as they would have done if accommodated with plenty of space. In this it differs from most bulbous plants, the generality of which do not succeed well under pot culture unless their roots are somewhat confined. It has no particular season of flowering; with suitable treatment the same plants will bloom two or three times in the course of the year by subjecting them to alternate short seasons of growth and rest. To do it full justice it should not be moved when in bloom to a conservatory or other house cooler than that in which it has been brought into flower. Growth should immediately follow the production of bloom, and it naturally receives a check if taken from a warm to a cold temperature. It is a remarkably effective plant in the stove, its ample deep green leaves setting off to the best advantage the numerous umbels of wax-like flowers that rise well above them. It is, however, especially for the production of cut flowers for filling vases and for bouquets that it is most valuable, almost rivalling in these respects the *Camellia* itself. In addition to the individual flowers standing well when cut (which their peculiar texture and substance insure) each umbel opens its blooms consecutively, so that when desired almost every flower can be used as required, a circumstance that has made the plant a general

favourite with those who grow flowers for market, or who have to provide for private establishments where a continuous supply is needed.

PROPAGATION is effected by separating the bulbs, which increase moderately fast when well grown, but, like most other evergreen bulbous plants, it does not like to have its roots much disturbed. Interfering with them, to the extent necessary when separating them, has the effect of retarding growth for a time; therefore plants of this *Eucharis* should only be broken up when they have either got larger than is requisite, or when it is desirable to increase their number. The time for carrying out the operation should also be chosen when growth is complete; it should not be attempted when the leaves are in course of formation, or when they are not fully matured. Let us suppose that early in the spring a large plant exists which it is deemed advisable to break up, turn it out of the pot, and, if the roots are very much matted and the soil of an adhesive character, it will be difficult to separate them without breaking; to avoid this place the plant in a tub large enough to admit the ball, half fill it with tepid water, and work out all the soil with the fingers, which will leave the roots so that they can be separated with little breakage. The bulbs may be divided with a knife at the point where they adhere to each other, or they may be parted by hand, putting them singly, or two or three together, in pots from 5 inches to 7 inches in diameter. When growing, a copious supply of water is required; consequently the pots must be well drained. This *Eucharis* will thrive in good turfy loam, to which add as much sand as will keep it porous. Pot firmly without injuring the roots, and cover the bulbs to about half their depth. Do not give much water until growth has commenced. Place them at once in a temperature of 70°; if they can be plunged in a bottom heat 10° higher, they will progress all the quicker. In this temperature they will grow fast. Shade slightly during the hottest part of the day in very bright weather, but in doing so do not darken the plants too much, or they will grow up weakly. Let them have a moderate amount of air early in the day, shutting it off in good time in the afternoon, and syringing overhead at the same time. They will bear during summer as much heat as the generality of stove plants. It will not be advisable the first summer to rest the smaller bulbs for flowering, as it will be better to get as much growth as possible. Early in August shift them into pots 2 inches larger than those they are in; continue to give them a liberal amount of heat and moisture, both at the roots and in the atmosphere, until autumn, by which time they will have made considerable progress.

DRYING THEM OFF.—At this time, when the leaves are fully matured, cease shading, and gradually withhold water till the soil gets so dry as to cause the leaves to flag slightly, but not so as to injure them, giving a little before this occurs, just to freshen them up, and again alternating the treatment by drying and then slightly watering them. Continue this treatment for a month, during which time they can be kept in a night temperature of 55°, with a few degrees more warmth during the day, when they may be well watered and placed in 10° more heat; if they can be plunged in 10° higher than this it will be still better. So managed they will quickly push up their flower-stems, and they should be encouraged by supplying them with plenty of water at the roots and as much heat as is consistent with the diminished light of the season. Thus treated, when their blooming is over they will grow on slowly through the winter, and after their full development they may be again submitted to the drying and resting process, after which increase the temperature, give water, and treat them in every way as before. This alternate growing, resting, and flowering can be practised two or three times in the year with the best results without injuring the plants in the least. Do not at any time pinch them as regards pot room. When the soil is well filled with roots they will be much benefited by a good soaking with manure water once or twice a week. For

general purposes moderate-sized plants in 12-inch or 13-inch pots will be found the most convenient, but where it is desired they may be grown on into specimens 6 feet across by simply using pots or tubs proportionate in size. When large they make fine exhibition plants, their general appearance being such as to contrast well with their associates.

E. candida differs little from *E. amazonica*, except that the flowers are much smaller and more elegant; the foliage is also distinct. It is a native of the United States of Colombia, and a most desirable kind.

E. Sanderi has pure white flowers in the way of those of *E. amazonica*, 2½ inches to 3½ inches in diameter; it will be an acceptable addition to stove bulbous plants. It comes from New Grenada.

INSECTS.—Most of the pests that infest stove plants will live upon *Eucharises*, but from the nature of the leaves, they are much easier to destroy than on many plants. If thrips or green fly make their appearance, fumigation will generally be found to be the best remedy, but from the regular use of the syringe these and red spider are not often troublesome. Should scale or mealy bug gain a footing they must be diligently sought for and removed by means of sponging, using a soft brush for the bases of the leaf stalks where the bugs will be found to lodge, for, if not destroyed, they will increase to an extent that will both disfigure the plants and do them serious injury by the constant cleaning process which their presence makes necessary. T. BAINES.

A few good *Fuchsias*.—Few summer flowering plants can compare with *Fuchsias* either for elegance of habit and flower or for long continuance of the period during which they may be had in bloom. I find it best to have a good quantity of old plants for early flowering; young plants struck from cuttings late in the autumn, and kept gently growing during winter in a temperature of about 50°, make fine flowering specimens by midsummer, and by the time these get exhausted the spring-struck cuttings will be good plants. But *Fuchsias* may be had in beautiful bloom two or three times during the summer by giving the plants a rest. Pinch off all seed-pods and flowers, and set them out of doors in a partially shaded situation, giving them a top-dressing of rich manure, and they will quickly start into growth, and flower as freely as they did when first repotted. As to sorts, there are few that can excel Mrs. Marshall among old varieties; *Avalanche*, *Sunray*, *Venus de Medici*, and *Madame Cornelisson* are also very pretty. But for size of individual blossoms some of the newer kinds are certainly a great improvement on these. There are many ways of training *Fuchsias*, but, as a rule, the less of artificial training they get the better. Provide just stakes enough to support the strongest shoots, and let all the side sprays grow and flower, drooping naturally.—J. G.

Trichinium Manglesi.—This is generally regarded in the light of a difficult plant with which to deal, and to some extent it is—that is to say, rather more care must be taken with it than with such things as *Fuchsias*, *Pelargoniums*, and *Begonias*; but, without one half of the care and trouble bestowed on some of the *Orchids*, this *Trichinium* will flower freely, and remain in full beauty for months. Its large cotton-like heads, with bright pink blossoms protruding therefrom, are so unlike the blooms of the general run of decorative plants as at once to attract attention when associated with them, but so situated it is seldom seen. Regarding its culture, it must not be treated in the way that is too often the case with plants that flower during summer, viz., placed almost anywhere in winter and early spring, as at that time it is in full growth, and the future flowers are formed. Different soils have been recommended for it, but the best results in my case have been obtained by using a good friable loam, full of vegetable fibre, with a fair proportion of silver sand. It should be potted in autumn when flowering is over, and very little of the old compost should be allowed to remain attached to the

roots. After potting, the plants should be kept in a cool greenhouse with but little water, till growth becomes active in spring, when more water may be given, but at no time should they be over-watered. If it is desired to increase the stock, there is only one course available, and that is by means of root cuttings; but in this way large numbers can be obtained in the following manner. When potting, remove any of the larger roots that can be spared; cut them up into bits about an inch long, and dibble them thickly into well-drained pans, filled with a soil consisting of a mixture of loam and sand, about three-parts of the former to one of the latter. This done, place the cuttings in the warmest part of the greenhouse, or the coolest end of an intermediate house, and give no more water than is absolutely needful to prevent drying up, till the young leaves make their appearance, when they must be potted off, using small well-drained pots for the purpose. Do not throw away the pans when the first are potted off, as the young plants are generally very irregular in making their appearance, and will continue to come up for a long time if not over-watered. In putting in the cuttings, keep the upper portion just below the level of the soil.—H. P.

GARDEN FLORA.

PLATE CCCXCIX.

PAVONIA WIOTII.*

THIS species, or *P. multiflora*, as it is otherwise called, and *P. Makoyana* are about the only two plants belonging to this genus, though a large and varied one, that possess anything like sufficient attractiveness for horticultural purposes. Most of the *Pavonias* closely resemble *Malvas* and *Abutilons*; and, indeed, the two species just mentioned stand out so distinctly from the rest, that it is just possible they are members of the genus *Gœthea*, in which, indeed, some have placed them. It may be well, however, for the present at least, to keep to the name *Pavonia*, by which these plants are known in gardens. *P. Wiotii* is a Brazilian plant introduced about six years ago by M. Linden, and again shortly afterwards by Messrs. Makoy, of Liège, after whose manager, M. Wiot, it was named. It is distinguished by its double whorl of bright red, linear, erect bracteoles formed by the outer calyx or involucre being split up into about two dozen segments. Inside these are the true calyx and corolla, which are of a dull purple colour, and covered with short silky hairs. The stamens are united in a column surrounding the pistil, and standing about an inch above the corolla, as in many of the *Hibiscuses* and *Malvas*. It is a free bloomer, flowers being produced all through the summer, and they remain in good condition for several days. Grown in a stove and treated liberally as regards soil and water, plants only a foot in height may be had with a dozen or more blooms open or opening at one time. The character of the foliage is well shown in the accompanying plate, though it sometimes grows to a length of 10 inches. This character, along with the distinctly toothed edges of the leaves, clearly distinguishes this *Pavonia* from

P. MAKOYANA, a species also of recent introduction, and named in honour of M. Makoy, of Liège, from whose nursery it was first distributed. It is an erect-growing plant generally, with but one stem, which is clothed with leaves of a leathery texture, dark green, ovate, and slightly toothed along the edges. The flowers, which are somewhat similar to those of *P. multiflora*, but much darker, especially in the colour of the inner calyx and co-

* Our plate was prepared from a plant in Mr. Maller's nursery, Burnt Ash Lane, Lewisham, in January last.



ANEMONE VIOLEA.

rolla, which are almost black, are borne in the axils of the upper leaves during the summer months. The attractiveness and peculiarity of the outer whorl of floral organs should render these plants worthy of general cultivation.

GÆTHERA STRICTIFLORA, already mentioned as a near ally of the *Pavonias* just named, is a stiff-growing Hibiscus-like plant, with thick, leathery, dark green leaves much like those of *P. multiflora*. Its flowers, which are almost sessile in the axils of the leaves, are blood-red, tipped with white, and veined with deep purple. In form they differ from those of the *Pavonias* in having the outer whorl or calyx of five segments only, instead of being split up into a number of long narrow ones. Beyond this there appears to be but little difference between the two genera. We noticed the other day plants of both the *Gæthera* and *Pavonia* in flower in the Palm house at Kew. B.

SEASONABLE WORK.

FLOWER GARDEN.

SEDUMS.—All the hardy varieties of *Sedums* are usually classed as rockwork plants, a purpose for which they are admirably adapted, and perhaps so treated they are more at home than when used in any other way, but a few of them are so well suited for the parterre, and their use saves so much time and space that would otherwise be required in the propagation and wintering of tender plants, that we have come to regard certain varieties as indispensable in summer bedding arrangements. The dwarf section are invaluable as edging and carpeting plants; the best kinds are *S. acre*, green; *acre elegans*, cream coloured; *corsicum* and *glaucom*, bluish grey; and *Lydium*, deep green. The best of the tall and trailing growers are *altissimum*, *spectabile*, *Sieboldi variegatum*, and *telephoides*; these varieties look well planted in lines or clumps, and continue in flower a long time, rain or wind doing but little injury to the flowers. All the kinds are readily propagated by division, early spring being the best time for splitting up the plants.

HARDY FLOWERS.—*Achilleas*, *Columbines*, *Delphiniums*, *Potentillas*, *Spireas*, and *Phloxes* are a few of the most conspicuous of those now in bloom. They need an occasional tie to support them, and require to have the bad flowers removed. Annuals in the same borders also need support, and to be thinned out. Sweet Peas will continue flowering the whole season if not allowed to seed, and a good way of securing a succession of flowers is to pinch out the tops, a plan which conduces to lateral growth, on which flowers equal to those of the main stem are produced. Two sowings of Sweet Peas—January and March—are all that we ever make, and yet by this plan we always have an abundance of flowers till sharp frost cuts them down. Scarlet Runners and the Canary Creepers are amenable to exactly the same treatment, and the results are similar.

SUB-TROPICAL AND OTHER BEDDING PLANTS.—Quick growing kinds of sub-tropical plants should be looked over every week, to see that they are properly staked and tied. Peg down the undergrowth and keep the beds free from weeds; should the weather be dry, they will require abundance of water to keep them in vigorous growth. The regular removal of decayed and seeding flowers will also greatly tend to retention of vigour. The common kinds of bedding plants also require frequent looking over with the view of removing bad flowers and foliage, and regulating their growth by pegging down and pinching. *Verbenas*, *Petunias*, *Calceolarias*, and *Pelargoniums* can only be kept in presentable condition, especially during showery weather, by oft-repeated picking over. Keep the lines and edgings of foliage beds in trim condition and well defined. *Sedums* and *Saxifrages* only need a little manipulation with the fingers; other plants may need

clipping. *Echeverias* may require to have the flowers removed, and the same remark applies to tricolor *Pelargoniums*. *Alternantheras* have done badly with us, and to fill out the space *Herniaria glabra* and several kinds of *Sedums* are now being dibbled in between the plants, labour that will be well repaid both as regards summer and winter effect.

GENERAL WORK.—Weeds on walks and roads have this season been very troublesome. In the case of some gravels—those that do not bind down hard—hoeing may be had recourse to; in that of hard gravel hand-weeding only should be practised. For Moss-grown spots under trees, &c., a winter dressing of salt is desirable; it kills the Moss, and adds brightness to the gravel. Now that they have completed their growth shrubs and branches of trees overhanging walks should be trimmed up. Portugal and common Laurels, Yews, and *Rhododendrons* are some of the kinds that now need cutting back. Shrubbery weeding and hoeing constitute another important item of labour at this season, and if, as is frequently the case, time cannot be spared to go through them thoroughly, an effort should at all events be made to prevent the weeds seeding by going through them with a rip-hook.

INDOOR PLANTS.

EUPHARIS AMAZONICA.—Where there is any considerable demand for cut flowers this plant ought to be grown in quantity. By growing and resting some at different periods, where there is sufficient stock, it may be had in bloom all the year. Examples that flowered early, and since then have made sufficient growth, ought to be put to rest, and should have no water until the leaves flag slightly, when a little may be applied, but not so much as to induce the plants to begin growing again. Place them in a lower temperature for five or six weeks and give no more water than is just sufficient to prevent the leaves from being injured. They will soon bloom again when placed in heat.

ANTHURIUM SCHERZERIANUM.—Any large specimens of this brilliant flowered Aroid in want of more root space cannot receive it at a better time than now. Its best growth is made in the winter; consequently if potted at this season the full benefit of the new soil will be reaped. There is no necessity to give it a great depth of material, as it is a surface rooter, but plenty of drainage is of the first importance. It is not advisable to allow young examples that it is desirable to grow on without delay into large specimens to seed, their growth being much retarded thereby. Immediately the flowers commence to fade they ought to be removed, unless the intention is to raise young stock from seeds. Though the different forms of this *Anthurium* do not reproduce themselves true from seed, still it is not well to raise seedlings from any but the best flowered sorts. The seeds are not fully matured for eight or nine months from the time when the flowers first open; wash them out of the pulpy mass that encloses them before sowing. They succeed best in very open porous material; fine chopped Sphagnum, to which has been added sand in the proportion of one-fourth its bulk, will be found to answer well. Take a good sized ordinary seed-pan, half fill it with drainage, over which lay as much of the Sphagnum and sand mixture as will come up to the level of the rim; press this firmly down and give a good watering to settle the surface, again pressing it quite smooth to keep the seeds from getting washed down by subsequent waterings for any that get below the surface do not come up freely. Scatter them on the material and put the pan in a house that is kept about 60° by night; shade from direct sunshine, and keep them damp. The young seedlings will begin to show themselves in a few weeks, and should then have more light, but they should not be exposed to the full sun. They ought to be pricked off, when large enough to handle, into pans drained similarly to those in which the seeds were sown, adding to the Sphagnum and sand one-half chopped fibrous peat. Let

them be kept on growing, and as soon as large enough put them singly in little pots, using the same sort of soil as that last described. Particular care ought to be taken of the strongest plants, for it will be found that those which take the lead will continue to be the best growers, and will also bear the finest flowers.

HARD-WOODED GREENHOUSE PLANTS.—No time should now be lost in putting outside such plants as require a few weeks' exposure, including those that fail to set bloom freely if kept indoors all the year round, and those that are liable to be attacked by mildew. *Eriostemons*, *Hedearomas*, *Correas*, *Acacias*, *Aphelexis*, *Boronias*, *Pimeleas*, *Pleromas*, *Adenandras*, *Leschenaultias*, *Mirbelias*, *Tremandras*, *Pultenæas*, &c., should all be treated in this way. It is a good plan to put them for a few days where they will not be under the full influence of the sun, particularly in the middle of the day; in a week's time they may be placed in the full sun, taking care that the pots on the side nearest it are shaded from its direct rays. If this is not done injury will result to the roots that are in contact with the inner surface. The ground on which the plants are placed ought to have a layer of ashes spread over it, not less than 4 inches thick, to keep out worms. If we have very bright weather it will be a great assistance if the ashes are damped every evening and the plants well syringed in the afternoons, being careful that the water gets to the undersides of the leaves as well as the upper. So far the season has not been favourable to red spider; still before putting the plants out each ought to be examined to see if this troublesome insect exists on them, as it spreads very fast out-of-doors when the weather is bright and soon does a great deal of damage. Any that are found to be effected ought to be laid on their sides and syringed with weak Gishurst Compound (two ounces to the gallon of water is quite strong enough for this purpose, but the dressing to be effectual must be thorough); let it remain on for about an hour and then wash with clean water. All plants which the insect has attacked should, so long as there is enough warmth for it to live, be examined regularly, as a fresh lot may come to life, and before they are noticed do a deal of injury to the foliage. Whilst the plants are out it will be necessary to be very careful in the matter of watering, examining each at least once a day, as the drying influences of sun and wind are greater outdoors than under glass. It is neither necessary nor advisable to submit *Dracophyllum gracile*, *Acrophyllum venosum*, *Phenocoma prolifera*, *Staticeas*, *Witsenia corymbosa*, *Roella ciliata*, and *Gompholobiums* to this open-air treatment, more particularly the *Acrophyllum*, as its leaves are not able to bear being fully exposed to the sun. Indeed, it succeeds best in a house that does not admit so much light in the summer time as most things want. The roots of the *Gompholobium* and *Dracophyllum* are so delicate, that they are better not trusted outside.

HEATHS.—The varieties that bloom in the autumn, such as *Turnbulli*, *Jacksoni*, *retorta major*, *Austiniana*, *Marnockiana*, and *Irbyana*, are extremely useful. If there is a desire to retard them either for decorative purposes or for exhibition, this may be done by placing them in a north house. They must, however, have plenty of light. Where there is no house of this description some lights can be temporarily fixed at the north side of a wall in an open situation. Retarding can be better done now than when the flowers are further advanced, and there is also less danger of injuring the plants. Spring-blooming varieties that after flowering have made their growth may, if wanted to come in early next year, say in March or April, be set out-of-doors immediately, but if not required until May, it will be well to delay their full exposure a little while, as the sooner they are turned out the sooner they will flower.

ROCHEA FALCATA.—This is a serviceable plant in autumn; it is most useful when grown in 6-inch or 8-inch pots. Examples wanted to be in flower next year will be benefited by being exposed in the open air to the full sun for a few

weeks; the growth by this means gets better matured and solidified than if kept altogether indoors. Those now pushing up their flower-stems will require plenty of air and light to prevent their being drawn up weakly. If there is not sufficient stock, leaf cuttings may now be taken off and put in sandy soil round the side of pots. They will form roots and push out shoots, but must only have as much water as will keep the soil from getting dust dry, or they will rot; the same mishap will also occur if they are kept too close. As soon as they have begun to grow fairly move them singly into small pots, using sandy porous soil, and giving them more water.

ARDISIA CRENULATA.—Plants of this that are swelling their berries should have a light position and sufficient warmth to enable them to grow freely; they will also need syringing to keep them clean. If the pots in which they are grown are small compared with the size of the plants, it will be requisite to give them weak liquid manure every ten days or fortnight; by so doing their leaves will possess that bright dark green colour that is so desirable. However well berried they may be, if deficient in this respect they lose half their interest.

ÆSCHYNANTHUSES.—Few plants are more effective than these when grown in baskets; where autumn-blooming kinds, of which *Æ. grandiflorus* may be named, are so managed, they must be well attended to in the matter of water; if this is not done their flowers will fall off without opening. From the position they occupy basket plants are more likely to suffer in this way occasionally than those which are in the body of the house.

CLERODENDRON KÆMPFERI AND C. FALLAX.—These are of more use for decorative purposes in a small state than when large. There is no better way of propagating them than by means of seed. Examples that bloomed early and were allowed to mature seeds will have ripened them by this time, which can be readily seen, as they turn quite black, and fall from the capsules on the slightest touch. Sow immediately in small pots, using sandy loam, put them in heat, and keep a little moist. Treated in this way they will not be long before they vegetate; directly that takes place let them have a position close to the glass to keep them from becoming drawn. During autumn they will need shifting into 5-inch pots; keep them growing slowly through the winter, and they will form good blooming plants for next summer, *i.e.*, if they receive a shift into 9-inch or 10-inch pots about February.

FRUIT.

PINES.—In ordinary seasons Pines in all stages about this time commence making rapid growth without the aid of much fire heat, but the months of June and July having been unusually cold and sunless, the potting of the different sections has been delayed, and as a natural consequence Queens intended for early starting are not so well advanced as one could wish, but much may still be done by keeping them well plunged in a bottom heat of 90°, by feeding with gentle stimulants at every watering, and by closing in time for the house or pit to run up to 90°, with solar heat and moisture. If nights continue cold, turn on fire heat to catch the minimum at 70°, damp down the floors and fill the evaporating pans with liquid, and give a little air very early on bright mornings to favour the escape of condensed moisture before the sun catches the points of the leaves. If the second batch of plants which generally make a growth before they start in the spring are in a separate compartment, the air temperature may range a few degrees lower, as they may be kept growing later in the autumn, but the bottom heat must be kept up until the pots are filled with roots, and the general system of feeding and early closing may be precisely the same as that recommended for the first set of plants. Give plenty of air to Pines that are ripening, and remove the plants bodily to a cooler and drier house if the fruit is wanted to keep for any length of time after it is fit for use. Rothschilds,

Cayennes, and Jamaicas now throwing up or going out of flower will require a sharp bottom heat to help them on, and plenty of stimulating liquid and guano water alternately to swell the fruit. Avoid wetting the pips when they are in flower, but when this stage is over, syringe lightly overhead and well into the axils of the leaves at closing time, and economise fuel by running up to 90° or 95° for a short time with solar heat alone. Avoid the too common practice of crowding the plants in succession pits. Keep them near the glass to insure a firm, stocky growth. Give diluted liquid or weak guano water at every watering, and close about four p.m. with sun heat and plenty of atmospheric moisture. Pot up suckers as they are taken off fruiting plants, plunge in a sharp bottom heat from fermenting materials in a pit or frame, and water sparingly until they begin to make roots.

HARDY FRUITS.—Stop all strong growths on Peaches and Nectarines, and keep the shoots neatly trained to let in sun and air. The heavy rains which we had last month having thoroughly soaked the borders, the trees are healthy, vigorous, and free from insects, and promise to ripen up a crop of fine fruit; but, owing to the lateness of the season, Walburton Late Admirable, Barrington, and other late kinds will need timely attention to every point in the detailed management to get the fruit forward and the wood perfectly ripened before bad weather sets in. To this end early afternoon syringing with water at a temperature of 80° will do good service, and an occasional surface watering with tepid water will tell upon the size and quality of the fruit. Complete the thinning of Pears and stop all lateral growths, as every ray of sun and light will be needed by the fruit, and even then many of the choice kinds will be found deficient in flavour. Cut away the old canes as soon as Raspberries have done bearing, and thin out all the weakest shoots of the current year to let in light and air. Tie up those left to prevent them from being injured by the wind, and keep the beds free from weeds. Trim off all damaged leaves, also the runners when the Strawberry crop is over. Mulch with rotten manure or good rich loam, and give the beds a thorough soaking with the hose. See former directions with regard to the formation of new beds, and get the plants in without delay. If ground intended for new plantations is still occupied by other crops, turn the newly rooted runners out of the pots into nursery beds where they can be regularly watered, and defer planting until spring. At the present time we are gathering very good Eltons from plants treated in this way, and although growing on a north border the fruit is superior to that produced by older plants which have made too much foliage.

VINES.—Early houses in which the wood is getting ripe may now have free ventilation by night and by day, and more mulching may be spread over the inside borders to keep the roots moist and actively working in the surface dressing. Syringe well every evening to preserve the foliage as long as possible, and while gradually shortening back all strong laterals to strengthen and plump up the fruit-bearing buds, allow weaker growths to have full play until the main leaves begin to ripen. If any of the Grapes have not finished well, the roots should be lifted and relaid in fresh soil, or a portion of the old compost may be taken away and replaced with rich loam before this month is out. The mode of procedure having so often been described in these columns, it is only necessary to advise dispatch in the performance of the operation.

MID-SEASON HOUSES.—With every prospect of a change to brighter and better weather, it may be well to remark that black Grapes now ripe will keep best where the foliage is dense, but, lacking this, some light shading may be thrown over the roof until the fruit is out. On the other hand, white varieties colour and keep well, and Muscats lay on the finest amber where sun heat and light can play freely through the foliage on and around the bunches. Should our hopes of brighter days be realised, fire heat will only be needed to prevent moisture from condensing on

the berries, and to admit of a free circulation of dry, warm air through the night. Keep the foliage clean by putting in a syringe of clean, soft water whenever it can be applied without damaging the Grapes. Damp the floors well on fine days and see that the inside roots are kept in a moist, healthy state by the application of warm water whenever needful. Muscats and late Grapes now colouring will stand a high day temperature with plenty of air and sufficient moisture to keep the foliage fresh and healthy. If the main foliage in the Muscat house is clean and good, the laterals may be well shortened back to let sun heat and light into the wood and fruit; but Lady Downes and other black kinds will colour best under a thick canopy of foliage, provided the primary leaves are not crowded or injured by an unreasonable quantity of lateral growth. When colouring becomes general another heavy watering with warm liquid will greatly benefit the Vines by producing conditions unfavourable to spider, while its stimulating effects will produce a depth of colour and bloom which the fruit on half-starved Vines never attains.

POT VINES intended for forcing, and now getting hard and brown, may receive the treatment recommended for early houses from which the fruit has been cut. Remove the laterals from the base of the Vine upwards to the pruning bud; carefully preserve all the old leaves by daily syringing and the application of as much pure water as will keep the roots fresh, and avoid the too common practice of turning the Vines out-of-doors to be battered by rough winds and prematurely ripened by checks and chills. Spring-struck Vines intended for cutting back or planting may be placed out-of-doors to ripen in preference to keeping them too much crowned under glass. The best situation is a south or west wall, as they can then be secured with shreds and nails, and some kind of non-conducting material placed about the pots will economise watering and keep the roots in a healthy state.

CHERRIES.—Let early forced trees have full exposure to the elements by the removal of the roof-lights to the paint room, where they can be properly overhauled and painted, if needful, before they are again wanted to ward off heavy autumnal rains. See that spider is kept off the foliage by occasional washings with the engine, and dip the points of the shoots in Tobacco water to free them from black fly. Look well to internal borders, and, while guarding against forcing a second growth by giving too much water, see that the roots do not suffer from drought. If the lights cannot be taken off, ventilate to the fullest extent, mulch inside borders to keep the surface roots cool, and give a moderate watering occasionally. Attend to pot trees now in the open air, and syringe well after bright days. Mulch the tops of the pots with rotten manure; cover up the sides with Fern or litter, and give just enough water to keep the roots progressing in the new compost.

PLUMS.—Remove early kinds to the open air as the fruit is gathered, and treat as Cherries always bearing in mind that cleanliness from this time until the leaves fall must be insisted upon if the trees are to start fresh and free from insects in the spring. Give later kinds more room in the house, and continue the syringing with pure soft water until the fruit begins to change for ripening. It is hardly necessary for me to say an excited tree like the Plum cannot have too much air at this season, and that pots now full of hungry roots cannot have too much water. Late kinds may be set out-of-doors for a time, but under good management this is not necessary.

KITCHEN GARDEN.

Now is a good time to sow spring Cabbages, winter Lettuces—that is, Lettuces for cutting through the winter—and Tripoli Onions, and as soon as you see the young seedlings appear protect with netting, or the wind will ruin the crop. To make Cabbage crops pay the plants should have plenty of room, and when planted after Onions without any digging they should be strong and of

one size. General work will consist in hoeing, cultivating, and cleaning among all growing crops. Have a good breadth of Parsley for the winter supply. Cut all herbs that are in flower, spreading them out to dry, but not bunching them green, which spoils their flavour. Plant out the latest batch of Celery, and earth up the early rows now growing vigorously. Begin now to get the manure together for the October Mushrooms, water it with manure water, and sprinkle with it a little salt.

ROSE GARDEN.

PEGGED-DOWN ROSES.

"T. B." did not say (p. 41) a word too much in favour of pegged-down Roses. I feel satisfied that if it were more generally known how well Roses succeed under this treatment, they would be much more frequently met with pegged down than they now are. If it had nothing else to recommend it the fact that when so grown Roses are nearly frost-proof is sufficient evidence of its value. This fact was abundantly established last spring in the gardens here, our pegged-down Roses being the only ones which withstood the severity of the weather in March unharmed; not a twig of them was hurt and they have flowered with their usual freedom. That this should be so will not surprise anyone conversant with the way in which they are managed, because, instead of the branches being high up and exposed to the frost, they are pegged down if not actually on the soil to within a few inches of it; therefore, to a great extent they are sheltered from the severest cold. It may be difficult to explain the action of frost at different heights from the ground, but the fact remains that all our Roses grown as dwarfs and in the hedges suffered more than those pegged down in beds. "T. B." says nothing respecting the culture of Roses so grown. Let me, therefore, supply the omission. The plants should be on their own roots; this, I may say, is absolutely necessary in order to secure success, for Roses budded on the Manetti or seedling Brier are so liable to push up suckers, that in my opinion any other but plants upon their own roots are valueless for pegging down.

STRIKING CUTTINGS.—No better time can be selected for striking Roses that have made their growth in the open than the present; if the cuttings can have the advantage of a hotbed made up for the purpose they will root quicker than without it, but a specially prepared bed is not an absolute necessity. I have struck a good many in my time in a frame from which an early crop of Cucumbers or Melons has been taken, and I hope to grow a good many in the same way this season. I will have some 5-inch pots well drained and filled with fine sandy soil; about half a dozen cuttings of each variety will be put into each pot. They will be inserted firmly in the soil and then well watered, I will make the cuttings of medium sized shoots, *i.e.*, if I can get sufficient of them that have not flowered. I prefer them, as they always make the best cuttings, but flowering shoots may also be used with safety. The soft tops and hard bottoms of very strong shoots should be rejected. The base of the cutting should be made at a joint with two joints above and at least one leaf. When once the shoot is taken from the plant it should be prepared and inserted without delay; for, if allowed to lie about and get half withered, the chances are that many of the cuttings will die. The pots should be plunged in the frame to their rims, and when all is finished the leaves should be damped with water from a fine-rosed pot. They should then be shut up close, and given no air for the first week, during which partial darkness is also desirable. To secure the latter the frame should be shaded with a thick mat from 8 a.m. to 6 p.m., and during very bright sunny days two mats are desirable. The leaves and all the inside of the frame must be damped every evening. At the end of a week give a very little air at the back of the frame at night, and gradually reduce the time during which the shading is applied. In six or eight weeks they will have made sufficient roots to bear full expo-

sure to light; more air may then be admitted, and as soon as they have made new growth an inch or two in length they may be potted singly into 4-inch pots, in which they may remain until the month of May, when they may be planted out where they are intended to remain. From

FIFTEEN YEARS' EXPERIENCE of growing Roses pegged down, I am satisfied there is no other plan in which they can be grown so long in vigorous condition with so few losses. Our beds are as vigorous in growth now as they have been at any previous time; this is no doubt attributable to two causes—the plants are on their own roots, and the beds were well prepared before they were planted, for without suitable soil they can hardly be expected to thrive for many years. In all cases where it is contemplated to make beds for pegged-down Roses a thoroughly substantial soil should be secured. Our soil is not altogether unfavourable for the growth of Roses, but when making the beds I took off the surface to a depth of 9 inches and laid it on one side. I then wheeled away about the same depth of the bottom soil and replaced it with fresh material consisting of three parts good mellow loam and one part well rotted manure. As this was wheeled in the surface soil was mixed with it, which gave 18 inches deep of good substantial material. A less depth than this, in my opinion, is not desirable. Beds intended to be planted next spring should be prepared in dry weather in the autumn in order to give the soil time to settle down. Early in May is undoubtedly the best time to plant young stock raised in the way just described, and care should be taken that the plants are well hardened before they are planted. According to my experience, plants eight or nine months old are better for planting out than larger ones; young stock of this size will soon take hold of the soil and make good growth the same season, whereas plants a year or two old will make no better progress, and ultimately the young ones will outstrip them in growth. We

PRUNE in December and cut out as much of the old wood as can be spared, leaving the young shoots to take its place. Our plants stand from 2 feet to 3 feet apart, and since the second summer's growth we have always had sufficient young shoots to take the place of the old wood. As soon as the pruning is done the beds are cleared of all weeds and rubbish, and every other year we give them a good dressing of old hotbed manure. It is spread over the surface 2 inches or 3 inches thick, and as much of it as is possible without injuring the roots is forked in. What is not covered by the forking in is covered over with a little fresh soil. We peg down the growth at any convenient time afterwards, provided it is done before new growth commences, but after the experience of the weather last March, which injured so many of our dwarf-grown plants, I shall for the future peg them down as soon as the beds are pruned and cleaned in December. Fortunately for us, our plants were pegged down before the severe weather set in last March, and so they escaped. As to pegs, we find wooden ones best. They are cut out of Pea sticks that have been used once for supporting Peas. Iron pegs are all very well for the smallest shoots, but they do not get sufficient hold of the soil to keep down the strongest. I may add that, as in the case of Roses grown in any other way, those pegged down do not all grow as vigorously as we might wish them to do; some varieties grow better than others. As a rule, those with light-coloured flowers grow best. Amongst those which grow well I may mention Centifolia rosea, John Hopper, Anna Alexieff, Madame Nachury, Madame Lacharme, Jules Margottin, and Exposition de Brie. Our best dark Roses for pegging down are Charles Lefebvre, General Washington, Dupuy Jamain, Annie Wood, General Jacqueminot, and Alfred Colomb. J. C. C.

Rose William A. Richardson.—This Rose has been over-praised. The peculiar and distinct colour occurs only in certain blooms. The flower is neither large nor well formed. Fifteen out of twenty flowers are miserable, but the colour is new and peculiar. It is not, however, so beautiful as that of Fortune's Yellow.—W.

Celestial Rose.—I have had six good plants of this Rose for years past. The late proprietor of the lovely and beautifully kept gardens of Dalvey, in Morayshire, Mr. Norman McLeod, told me he got it from France about forty years ago, and paid £3 3s. for a small rooted plant of it. It had died out with him, and I gave him one of mine. In bud it is perfect, and when fully open resembles a pale pink Camellia. I have most of the old Roses, York and Lancaster, and the old white Provence, or Cabbage, and the pink Cabbage. My Roses are still beautiful. — C. A. CLARKE, *Achindin, Nairn.*

Roses on Arbor-vitæ.—One of the prettiest, certainly one of the most striking, combinations seen for some time we (*Irish Farmers' Gazette*) saw this last week at a villa residence near town. Immediately in front of the house and just outside the carriage ring stand two fine old specimens (companion plants) of the American Arbor-vitæ (*Thuja occidentalis*). Near one of the two at some time a plant of the old cluster Rose, *Rosa multiflora*, was growing, which, inclining to fraternise with its American cousin, extended a feeler shoot, which was favourably welcomed by the friendly conifer, the result being a picture of shrub and floral beauty in combination. When at this season the somewhat sombre, irregular, and picturesquely broken surface of the *Thuja* is garlanded with the snowy Rose wreaths which burst out here and there, and in striking contrast of colour, hang from or drape the dark spray of the friendly tree, it forms one of the prettiest and most striking combinations imaginable—a combination, too, like many another happy one, the result of accident rather than design.

Rose Paquerette.—This Rose has only been brought into prominence within the past year or two, yet it is rapidly making its way into popular favour. It is a charming little bush, resembling a dwarf miniature form of *Aimée Vibert*, and, like it, bears comparatively large clusters of small white flowers, but unfortunately almost, if not quite, scentless. A very useful purpose to which this Rose can be put is to grow it in 5-inch or 6-inch pots, and employ it for greenhouse decoration during the spring and early summer months. It is much better fitted for pots than for the open ground, as, being dwarf, the flowers get disfigured by heavy rains. It can be readily struck from cuttings taken off at any time when the young shoots are in a half-ripened condition; insert them in pots of sandy soil, and keep them close till rooted; then pot them off, and, when requisite, shift them into 5-inch pots. If cuttings are taken now and placed in a gentle heat, they will root very quickly, and can be potted off and established in small pots before winter, when the protection of a frame must be accorded them. When growth commences in spring the strongest may be potted on, and will form little flowering plants the same summer; but the first season, free growth rather than flowers should be encouraged, so as to obtain good plants for the following year. Some of the most likely may then be introduced into a little heat as early as the end of February, and, by starting them in successive batches, a display of flowers may be kept up for a long time. Good loamy soil, with, if too heavy, a little leaf-mould and sand added to it, suits this Rose well. —H. P.

Itinerant plant vendors.—I am glad to see this subject taken up by some of your correspondents, and I would recommend a certain dishonest dealer in Carnation refuse to give the county of Rutland a wide berth when he makes his next autumnal tour if he has any care for his personal safety, and would avoid retributive castigation. My belief is that the plants he bought, and which were each of them labelled with a high-sounding name, were the rejected seedlings of one or more of the great Carnation raisers. When they come to learn what dishonest tricks they have unwittingly encouraged, it is hoped that, instead of allowing these men to trade with the cast-off plants, they will have them destroyed, as in general they are worthless, and not even to

be compared with the poorest specimens to be met with in the cottager's garden.—ONE OF THE VICTIMS.

TREES AND SHRUBS.

FORESTRY FOR AUGUST.

NURSERY DEPARTMENT.—Finish budding ornamental trees and shrubs as early as possible. When the buds have "taken," loosen the bandages a little, and by the end of the month, they may be removed altogether. In the course of a week or two prepare and insert cuttings of Laurel, common, upright, and variegated Yews, Roses, Box, Privet, Podocarpus, Prunopitys, Retinosporas, Cephalotaxus, Chamæcyparis, Arthotaxus, &c., choosing for the purpose a piece of sharp, sandy soil, shaded from the sun and with a northern exposure. Clean and weed seedlings of all descriptions, and remove branches and other material used for shading the seed beds. Keep weeds everywhere from ripening seeds.

SHRUBBERIES.—Evergreens may be safely transplanted by the end of the month; the natural warmth of the soil at that season induces the formation of new roots. Should the weather be dry a good watering at the time of planting will be beneficial. Prune and cut back all straggling branches in order to keep the plants in proper shape and within due bounds. In planting town villas use a good mixture of Rhododendrons, as they are not easily destroyed by smoke, and afford great variety both as regards flower and foliage. In trenching and preparing ground for Rhododendrons in the vicinity of new buildings be careful that no lime rubbish gets mixed up with the soil, as they never thrive if their roots come into contact with lime or chalk. The following is a list of trees and shrubs well adapted for town planting, viz., Hodgins' Holly, Aucuba japonica, Ghent Azaleas of different sorts, Berberises, Cotoneasters, Elder, Dogwood, Guelder Rose, Ivies, Laurustinuses, Lilacs, flowering Currants, Roses, Robinia hispida complexa (which makes a fine centre plant for a group), Birch, Alder, Laburnum, Mountain Ash, Laurels, Periwinkle, Privet, Service Tree, Planes, Skimmias, &c.; these are a few of the best for planting in smoky districts. The common Thorn and its varieties also are not only hardy, but highly ornamental, and deserve a place in every collection.

FOREST DEPARTMENT.—Continue to prune forest trees as recommended last month; in well-managed plantations it is seldom necessary to amputate large branches, but as that must sometimes be done now is the best time for doing so, especially as regards Planes and Sycamores. Drain and fence in ground for new plantations, and in the formation of groups for shelter in deer forests lay off the boundary line with a bold curve against the blast on the most exposed point. Dig pits for hard wood, and leave the soil excavated on the surface exposed to the weather till planting time. Where notch planting is intended, and in places where the subsoil consists of hard moor "pan," the places where the trees are to be planted should be broken up with a pick, which will give the young trees a good start, and amply repay the trouble and expense incurred. Collect seeds of the weeping Birch as they ripen, and sow immediately, or store them away in a dry place till spring. The finest trees of this description are to be found along the chain of the Grampian Hills in Scotland, and along the valley of the Dee from Aberdeen to Braemar. They are remarkably hardy, and quite at home on damp, boggy soil at the bottom of glens, as well as on the rocky summits of mountains, where they are generally associated with the Aspen Poplar (*P. tremula*). Both of these trees reproduce themselves naturally from seed, and are not surpassed for scenic effect by any others with which I am acquainted. Collect seeds of the new and rare *Conifera* as they ripen, and store them up till spring. Clean and cut hedges, and take advantage of dry weather to scour and clean canals and water ditches. Examine fences of every description, in order to see that

they are in proper repair. Clean road walks and shooting drives, in order that everything may be ready for the "twelfth." J. B. WEBSTER.

THE YELLOW WOOD.

THIS handsome little tree, perfectly hardy in this country, is not so frequently grown as its merits certainly deserve. It has smooth bark, smooth pinnate leaves, in young vigorous specimens, measuring from 1 foot to 1½ feet in length, but in old ones about half that size, with from five to eleven roundish or oval shortly stalked leaflets of a bright green colour. The leaf-stalks are hollow at the base, and enclose the leaf-buds of the succeeding year, just as is the case in the Plane (*Platanus*) and some other trees. The large pendulous panicle racemes of showy white fragrant flowers, somewhat larger than those of the Locust Tree (*Robinia Pseudacacia*), droop from the ends of the branches. Old trees at Kew flower frequently, and pods, which Loudon states in "Encyclopædia of Trees and Shrubs" are never produced in England,

ing information respecting the Yellow Wood: It is found from Central Kentucky, on the banks of the Kentucky River south, to Middle and Eastern Tennessee. The wood is of a clear yellow colour, is said to split with difficulty, and to make valuable fuel. It is a small or medium-sized tree; found principally along streams or on rich hillsides; rare, and in danger of extermination for fuel.

Statistics from Loudon's "Arboretum."—In the neighbourhood of London the highest plants are at the Duke of Devonshire's villa at Chiswick; but, as they are crowded among other shrubs, they are not handsome; in the Chelsea Botanic Garden there is a tree 20 feet high, which flowers annually; in the London Horticultural Society's Garden there is one, ten years planted, which in 1834 was 13 feet high. In Surrey, at Claremont, there is one 20 feet high. In Sussex, at West Dean, one, nine years planted, is 18 feet high. In Berkshire, at White Knights, one, twenty-five years planted, is 23 feet high; the diameter of the trunk is 5 inches and of the head 20 feet. In Essex, at



Flowers and foliage of the Yellow Wood (*Cladrastis tinctoria*).

are now and then ripened. Two of the largest specimens in the Kew arboretum measure respectively as follows: Circumference of trunks near ground, 3 feet 10 inches and 4 feet; diameter of heads, 27 feet and 29 feet; height of each, 28 feet.

On account of its graceful habit, the beauty of its bright green foliage in spring and summer, the showy flowers and the brightness of the rich yellow autumnal tint assumed by the decaying leaves, the Yellow Wood is eminently a fit subject to be generally planted for effect in parks and pleasure grounds. In its native country it flowers in May and June, but in Britain a month or more later.

The name *Cladrastis*, according to its author, Rafinesque, means "brittle branches." For a long time after its separation from the genus to which it was first referred (*Virgilia*), *C. tinctoria* was the only known species; but some years ago, long after the publication of Loudon's "Arboretum," the Russian botanists discovered a second, *C. amurensis*, in Amurland.

C. tinctoria seems but little subject to variation; no varieties are mentioned in any of the numerous tree catalogues and books I have looked through, with the single exception of M. Lavallée's "Arboretum Segrezianum," where the name "*gracilis*" is given to a form I have not seen.

In his "Catalogue of the Forest Trees of North America," Professor C. S. Sargent gives the follow-

Hylands, ten years planted and 17 feet high. In Ireland, near Dublin, in the Cullenswood Nursery, seventeen years planted and 25 feet high.

CLADRASTIS TINCTORIA, Raf. "Flora of Kentucky," 1824; "New Sylva," 3, 83. Torrey & Gray, "Flora of North America," 1, 390. Gray, "Manual of Botany," 143. *Cladrastis lutea*, Koch, "Dendrologie," theil. i., p. 6. Hemsley, "Handbook of Hardy Trees, Shrubs, &c.," p. 135. *Virgilia lutea*, Michx. f., "Arbres Forestiers de l'Amérique Septentrionale," 3, 266, t. 3. Loudon, "Arboretum et Fruticetum Britannicum," 2, 565, t. 78.

C. AMURENSIS differs from the above in its larger buds, olive-green bark—in old trees peeling off in flakes like that of our common Birch—duller green, more leathery leaves, and in its erect panicle racemes of more densely packed, much smaller, more shortly-stalked flowers. Although not so handsome or graceful a tree as the Yellow Wood, it is well worth a place in any garden; it is perfectly hardy, and flowers freely in a younger state than *C. tinctoria*. In spring the peculiar grey-green of the silky pubescence which clothes the young leaves gives this an appearance totally unlike that of most other hardy trees. When seeds are not procurable, perhaps the most ready means of propagation is by grafting, using *Sophora japonica* as a stock.

In its native countries—Manchuria, where it ranges in the basin of the Amur River from lat. 50° 15' to 52° 20' north, and the Japanese island

of Jesso—it makes a small tree of 40 feet in height, with a trunk 6 inches in diameter, and drooping, densely leafy branches.

Sir Joseph Hooker, in the *Botanical Magazine*, thus speaks of this tree: "It is not to be wondered at that, when the subject of the present plate was described, it was supposed to be a new genus, for at that time the close affinity of the floras of North-eastern Asia and the Eastern United States was not generally recognised, and the affinity of *Maackia* with the hitherto monotypic genus *Cladrastis* could not have been anticipated. Nevertheless, these two geographically widely severed plants are unquestionably congeneric, and not to be separated by even a sectional character. It thus adds another to the remarkable assemblage of genera

The leaves, which are pinnate, are somewhat rose-like, while the flowers bear a great general resemblance to those of some of the *Hypericums*. They are from 2½ inches to 3 inches in diameter, with four pure white petals, and a crowd of stamens, the lower part greenish and the upper white. Quite a feature of the flower is the bright-coloured anthers with which the stamens are tipped; when the blossoms first expand they are red, thus contrasting strongly with their surroundings, but after a day or two, as the pollen develops, they become bright yellow. Notwithstanding its merits this shrub will doubtless be some time before it becomes common, as its propagation is by no means easy. The only way in which I have managed to strike cuttings of it was by taking some



Tree of the Yellow Wood (*Cladrastis tinctoria*), 17 feet high.

found in the two countries indicated, but not in the intervening territories of Western America, and of which Professor Asa Gray has made such good use in tracing the origin and migrations of the North American flora."

CLADRASTIS AMURENSIS, Benth. in Gen. Plant., vol. i., p. 554; Koch, "Dendrologie," theil. i., p. 7; Hemsley, "Handbook of Trees, Shrubs, &c.," p. 135; Hooker, *Botanical Magazine*, t. 6551. *Maackia amurensis*, Rupr. in Bull. Acad. St. Petersb., vol. xv., p. 143, t. 1, f. 2; Morren, *Belgique Horticole*, 1870, p. 301, t. 18

Royal Gardens, Kew.

G. NICHOLSON.

Eucryphia pinnatifolia.—To lovers of choice flowering deciduous shrubs, this Chilean plant will commend itself, not only for its beauty, but also on account of its flowering after the generality of such subjects are over. I have one now in full flower that has withstood uninjured the last two winters. It is said by Messrs. Veitch, who introduced it, that it grows from 8 feet to 10 feet high in its native country—a height which it has already almost reached at Coombe Wood.

of the young shoots and putting them in a sandy soil under a bell-glass in the greenhouse; but, even then, out of eight cuttings I only struck two. Cuttings of the older wood refused to root. Such being the case, and with no stock on which to graft it, it is necessary to resort to layers, and when only small plants are available, this latter method is difficult to carry out.—ALPHA.

The foliage of trees and shrubs.—It is a general remark this season that the foliage of trees and shrubs, and, in fact, of plants of all kinds, is unusually fine and healthy—all the more noticeable by contrast with what it was in 1882, when the destructive gale of April 29 injured trees in this locality, the effects of which many still show in the shape of dead or maimed branches. This season has, however, been altogether different. A cold, backward spring kept the buds dormant until quite late, when, warm weather setting in, vegetation suddenly pushed onwards with rapid strides. June was especially a brilliant month, dry at first, but showery towards the end, consequently a truly leafy month, the foliage being not

only exceptionally fine and vigorous; but clean and healthy. Roses flowered well, and all kinds of deciduous trees and shrubs never were more lovely.—J. G., *Hants*.

KITCHEN GARDEN.

DIGGING AND STORING POTATOES.

ALTHOUGH we have had heavy thunderstorms, accompanied by much rain, Potatoes so far appear to have escaped disease, which generally attacks them about the middle of July. How long they may remain free is another matter, and as the dread spot spreads so quickly when it does come, all who have to do with Potatoes should be on the out-look, in order that they may take them up at once if the tops become affected, thus saving the tubers for food or seed. Where quantities are grown, and time will not admit of their being lifted quickly, it is a good plan to go along the rows and pull up the haulm, which may easily be done without disturbing the Potatoes if the feet of the operator are placed close to the crown on the ridges. As yet it is full soon to interfere with late sorts, but all early kinds are not only as large as they will be, but quite ripe enough, provided they are carefully dug and handled, to be got in and stored without hurting or bruising the skin. To insure the skin setting firmly on the tubers it is advisable to let the latter be on the ground a few hours before picking them up, especially if the soil is at all wet, as it is important to have Potatoes dry when housed; if not, they keep badly. Although, however, a certain amount of exposure benefits both seed and tubers for eating, neither should be left long, as any greening of the latter spoils both their appearance and flavour, and the hot sun bakes and hardens the small ones to such an extent as to render them of less value for planting. The best place in which to store those for eating is a cool, dry, airy cellar, which should be dark, but if not it will be necessary to cover them over with straw, which, while excluding the light, will let air through. Seed Potatoes, on the other hand, are improved by exposure to light, which strengthens their shoots, but the sets ought to be laid thinly—especially the kidney kinds, which should be in single layers where they get a free current of air amongst them; this is best secured by having them on shelving made of narrow strips placed half an inch or so apart, or in boxes with bottoms made in a similar way. S. D.

PARSLEY CULTURE.

A SOWING of Parsley should always be made early in August; it comes into use in May and June, just as the old plants are running to seed and that sown in spring not forward enough for use. By sowing in August a continuous supply of fine Parsley is maintained. There is another quality in late-sown Parsley that should not be lost sight of, and that is the majority of the plants will stand two winters before they run to seed. Seed sown now will not, as a rule, run to seed before the spring of 1885. Although Parsley is as much in request as any plant we grow, it is not always cultivated in the most satisfactory manner. It is frequently sown in odd corners where the soil is poor and the position cold, and it is generally left so crowded that the plants have no room to develop into their proper character. I find that I secure the best Parsley by sowing in August, and at the end of February transplanting into another piece of ground. There is no crop which gives a better return for generous treatment than Parsley, and the very character of the plant shows that it requires it. Its strong, fleshy roots plainly indicate that a deep rich soil is essential for its well doing, and no plant is more grateful than Parsley is for a change of soil. Bearing these facts in mind, the careful cultivator will select a spot for it where the soil has been deeply stirred and well manured, and then no one need apprehend a scarcity of fine Parsley. When transplanting time comes put the plants in rows. A single row near a walk is the best posi-

tion, but if in beds in any other position the rows should be 18 inches apart and the plants 12 inches asunder in the rows. To secure a supply of Parsley in winter that is to be in some way protected, the seed should be sown in March and the plants transplanted now to where they are to stand. To make sure of a supply during very severe weather we always plant a double line in the borders of an unheated Peach house, which never fails. After being planted it only requires an occasional watering to keep it growing. We also make a plantation of it about this time at the foot of a south wall where it can be protected with spare lights, or a few strong stakes and mats may be made to afford it sufficient protection. In gardens where the demand for Parsley is not great, a supply may be obtained by putting a sufficient number of plants in pots. If potted at once and three or four plants are put into 7-inch pots and grown on and treated in the same way as pot Strawberries until the end of the year, and then taken into a greenhouse temperature, a fair supply may be obtained through the months of February and March, when outdoor Parsley is generally scarce. J. C. C.

Pea White Marvel.—This is a very tender and well flavoured Pea sent to us by Mr. Gilbert, of Burghley. However, we have no doubt that when it comes into the market garden, it will be grown regularly as large as a marble, and then we can have it shelled in Covent Garden by dirty women, and eat it with about as much pleasure as boiled cardboard. A market gardener told us that nothing would make him eat Peas shelled in Covent Garden. For seventeen years he was in Covent Garden at 4 o'clock in the morning, and ought to know.

Jack's Pea, a seedling from Battle, Sussex, introduced by John Sims Gilbert, is one sent to us by Mr. Gilbert, of Burghley, and though large is very good in flavour. If Jack would find some Pea that would compel the gardener to gather it at the right moment, he would confer a great benefit on all lovers of good vegetables. The way people take the trouble to grow Peas and Beans, and then allow them to "harden," is surprising. Poor or rich, all make the same mistake in letting the Peas ripen on the haulm almost before they are gathered. A good rule would be that Peas should always be gathered when tender and young whether wanted or not. It would be much better to give the Peas away to poor people or others who want them than allow them to ripen on the stems and thus prevent young pods from following with fresh supplies.

New Potato disease.—We learn from *Nature* that a hitherto unknown form of the Potato disease, which had been making slow, but steady, progress near Stavanger during the last ten or twelve years has recently begun to show increased energy. The stalk of the plant is the part affected, and here Herr Anda has discovered small white fungoid growths, which after a time assume a greenish, and finally a black, colour, after attaining the size of a small bean. While the fungus is rapidly increasing at the expense of the plant, the interior of the stem is first reduced to a pulpy condition, and next shrivelled and hollowed out, until nothing remains but a mere outer shell, which breaks down on being touched. When the ripe black germs of the fungus have remained in the earth through the winter, they are found after the return of the next year's warmth to have developed small stalked fruits filled with minute spores, which penetrate into the young plants before they appear above the ground. The end of July or beginning of August is the time when the ravages of the fungus are most conspicuous, and at those periods whole fields of Potato plants are often rapidly reduced to the condition of withered straw.

Uxbridge kidney Potato.—This is Mr. Richard Gilbert's favourite Potato, and a very good one it is; we would, however, like to hear from him why it is so. We are inclined to think too much is made of the kidney Potatoes.

Easton Hero Pea, introduced by Mr. Fowler, of Easton, Stamford, is a very tender and delicious Pea brought to our notice by Mr. Gilbert, of Burghley. Cooked in a wholly natural condition, *i.e.*, without salt, butter, or mint, the flavour was excellent, and that is the true way to test flavour. Mr. Gilbert recognises the difference between a tender Pea and a bullet with some chlorophyll in it. This Pea grows 6 feet high. We should like to know something more as to its nature and qualities from Mr. Gilbert.

Improved Asparagus culture.—Referring to the erroneous and ill-natured remarks lately published on this matter, Mr. Speed writes to us from Penrhyn Castle gardens, Bangor, as follows: "I must say I have been surprised and annoyed at the comments made in the *Chronicle* about Asparagus, for I can assure you my employer, who is in his eighty-fourth year, has never complained to me that the Asparagus was too big, too much blanched, or like rope-ends. Quite the contrary; our French cook assures me it is by far the best he has ever met with in this country or in France. So much for your valuable advice as to its culture."

Turnip fly.—A correspondent in *THE GARDEN* for July 14 rather ridicules the idea of using liquid or other artificial manures for Turnips; but if he has not yet discovered their value, his lot must have been cast in pleasant places. Though in some people's estimation one Turnip is as good as another, and, provided it be big enough, there is no need to make it succulent by inducing rapid growth, yet it is a fact that there are a goodly number of badly grown, badly nourished Turnips used daily, which a little superphosphate or a sprinkling of guano and salt in the drills would convert into succulent vegetables. Stable manure is excellent, but very few of us get enough of it, and in many places the soil is so constituted that if stable manure was dug into it during spring it would not consolidate sufficiently to grow a Turnip fit for use. But if instead of digging in the stable manure the land was deeply scarified and the drills well soaked with liquid manure, or if the weather was wet, artificial manures were used instead, I will guarantee a good crop of nice sized crisp Turnips fit for table use. Then, again, when the fly is troublesome, what so good as a little stimulant at the roots of the plants to hasten their progress and get them out of harm's way? Some, like your correspondent, may think all this a lot of trouble to take over a Turnip, but there is but little time taken up in the application of the manures where they are handy, and a sense of security which a knowledge that we have done our best gives is worth a little extra care.—E. HOBDAY.

NOTES FROM POTTER'S BAR.

I HAVE often wondered why you have not illustrated Sir Maryon Wilson's garden at Charlton amongst your series of gardens near London. It looks very effective from the road. When I saw it last the Lime trees were in their first full leafage, their masses of pale green contrasting beautifully with the orange-red trunks and deep green foliage of some fine old Scotch Firs. It was late in the afternoon, with the light almost exactly behind, so that things told by their local colour, the old Elizabethan house and offices being a sunny background to the trees and shrubs. I have only seen the garden from the road, but it seems effectively disposed. There is a quaint summer-house, and many of the shrubs and trees are old. There are some large clumps of Rhododendrons and very large bushes of *Aucuba japonica*. The only visible blunder is the banking of the ground on each side of the entrance walk. The soil is sand and gravel on chalk, the same as Blackheath, yet these banks, 4 feet high, were stocked with Narcissi, Pansies, Glove Carnations, and other plants requiring good rich soil.

As regards Roses, I wanted to bring you a good collection of old-fashioned Roses, but the dry weather, while the buds were forming, made most

of them come deformed, and I kept hoping for better blooms until my Damasks and Albas were nearly over. The white Provence I do not seem to be able to manage yet. The blooms either come semi-double with about three rows of petals of the shape and curve of those of the Dog Rose, and a bunch of yellow anthers, or solid balls which refuse to open in wet weather. I shall try it again in a better soil and climate; possibly this irregularity as regards the flowering may be owing to the soil not having been sufficiently mixed before planting.

JAMES DUNDAS.

NOTES.

THE WHITE-FLOWERED AGAPANTHUS.—The old blue Agapanthus is one of the very best of summer and autumn-blooming conservatory plants, but the white variety is even more beautiful and quite as easily grown. Its flowers and buds, too, are very useful for cutting, and combine gracefully with other blossoms in bouquets and button-hole decorations. The blue variety, although quite hardy on dry, sandy soils near to the sea, never becomes so floriferous as when grown in pots or tubs, and sheltered in a cool house during the winter season. Outside it becomes a herbaceous plant, although naturally an evergreen, and this annual loss of foliage so weakens the roots that a sparse supply of flower-spikes is the result of ordinary border culture. There are three or four forms of the blue-flowered type, such as *A. umbellatus* Moorei, *A. umbellatus* maximus, and *A. umbellatus* albus, all beautiful and well deserving of good culture. When growing in pots or tubs, a little weak manure water is of advantage to them.

LILIAM AURATUM is now opening its great golden rayed flowers in a sheltered corner where a little three-light frame or pit was especially built for it two or three years ago. The lights protect its bulbs from too much wet in winter and shelter its young growths in the spring, after which the lights are removed to allow room for the stout growths. One stout stem, near on 6 feet in height, bears twelve or fourteen flowers. Bulbs of the common scarlet *Gladiolus brechenleyensis* are planted amongst the Lilies, and these make an effective display later on in the season, but our reason for planting them is that their foliage may shade the lower portions of the Lily stems from direct sunshine. Every season's experience convinces me that it is wet during winter, and not cold, which destroys the bulbs of *Lilium auratum*. This next planting season we hope to plant some roots on the sunny side of a Privet hedge where the roots of the Privet keep the earth dry. Some bulbs planted in amongst the roots of dwarf Roses in a sunny corner have done well for the past two years.

FLOWER BUDS BEST FOR CUTTING.—Wherever hardy flowers are utilised for the breakfast table, or for drawing-room vases, it cannot be too generally known that they open far more clean and beautiful indoors if cut in the fully developed bud stage—that is, immediately before the buds naturally expand. This fact is pretty well known by those who send cut flowers to market, but it should also be fully understood by every gardener, and especially by all ladies whose especial province it is to ornament their rooms with beautiful blossoms. All Narcissi, all Gladioli, all Lilies open fresh and fair when cut in the full-grown bud stage and placed in water indoors; indeed, one may go further, and say that all endogenous flowers are best so treated. Even Roses and Pæonies and Water Lilies, both native and tropical, are rarely seen in perfection indoors unless so treated. So convinced are we of this, that the majority of flowers sent to friends or used for decorative purposes are cut in the bud stage, and the result is that little or no damage results from packing or transit, and the flowers endure fresh and fair for a much longer period than they do if cut in the fully expanded or full-blown stage, as is too commonly the case.

To all who wish to make the most of all flowers, tender or hardy, our advice is, cut them in the bud stage.

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THE CELESTIAL ROSE.—I am very much obliged to the Rev. Mr. Ellacombe for his courteous reply (p. 41) *re* this fragrant old Rose, which is so deliciously sweet and beautiful when cut in the bud stage. Mr. Smith sends a boxful of its buds and flowers, with the information that there are bushes of it at Newry 6 feet to 8 feet in height, and as much in diameter. No doubt it lingers in many old-fashioned gardens, even although it is by no means a Rose of the kind modern Rose growers admire. It does not resemble a Cow Cabbage in size or form, but in colour and in aroma it is simply exquisite—just the Rose for a poet or a painter to admire, although neither one nor both could hope to tell us of all its beauty. Its foliage is especially distinct, being of a soft, glaucous green tint, and not rich sap green, as is the colour of most Rose leaves. Although not uncommon, it is worth the notice of those who grow and propagate Roses for sale. If a boxful of its pure rosy buds amid their own soft pale leaves was exhibited at South Kensington, I do not think any one fond of lovely old-fashioned flowers could resist its sweetness and beauty. It must have been the Rose Lady Corisande gave to Lothair—at least, no other could have been more suitable.

*
REPLANTING SNOWDROPS AND CROCUS.—We have just taken up some lines of Snowdrops and Crocus (which are the glory of our old garden during the early spring days), and shall replant them after trenching and manuring the soil, which had become poor because thickly laced with the far-reaching roots of trees. The mice also had made some ugly gaps in the Crocus lines, and so replanting will repair their ravages also for a time. June would be a still better time to replant Snowdrops, as they have already begun to root afresh after shedding their leaves, but the Crocus roots are still quite rootless, and so in right condition for lifting. It is best not to lift all one's stock of any one species every year—a rotatory system of replanting is better in the case of those kinds which flower better in old-established masses. Even when not replanted all our bulbs are mulched with leaf-mould, peat dust (or turf mould), or well rotted manure at least once during the year, an attention which is rewarded by a harvest of fine bold flowers.

*
A GOOD LAWN SHRUB.—At this season or a little later there are few shrubs more ornamental than the too rarely seen *Pavia macrostachya*, which is alike beautiful in leafage as in inflorescence. Its being leafless during the winter months is a disadvantage, but then from the time its young leaves appear in April until late in autumn no deciduous shrub can well be prettier. The ends of its shoots are terminated by a tuft of Aralia-like leaves, and the contrast between its erect spires of white blossoms and its red-stalked foliage is singularly attractive. Other distinct and effective shrubs for sheltered parts of the lawn are *Garrya elliptica* and *Ficus Carica* (the common Fig), and even the Mulberry tree, deserves a place, as it flourishes well even within the smoky precincts of the very smallest of town gardens. We have but few hardy deciduous-leaved shrubs of nobler port than is the common Fig tree at this season. VERONICA.

Campsey Ash.—One of the best estates in the eastern counties has been sold to the Hon. William Lowther, M.P., for £105,000. It is within a drive of Wickham Market, in the best part of Suffolk. The house, a capital one, was built about twenty years ago on the site of an old manor house. The speciality of the place is the beautiful old garden, which contains some of the finest Cedars in England, and a range of magnificent Yew hedges. The park, although not large, is noted for its fine timber. Altogether, Mr. Lowther may be congratulated on his purchase.

FRUIT CROPS.

SUPPLEMENTARY ENGLISH REPORTS.

Preston Hall, Aylesford, Kent.—Some of the fruit crops around here are not proving to be so good as was anticipated early in the season, owing, doubtless, to the severe frosts experienced when they were in bloom. Referring to my register of the temperature during April, I find that there were frosts on thirteen nights. On the 1st we had 9°, on the 10th 11°, and on the 29th 8°; on the 3rd of May we had 7°, and the 4th 8°, but these were of short duration, and did not do much harm. On the whole fruit crops are better than they have been for some years. Apples are a good full crop, some sorts being better than others. I find Blenheim Orange, Wellington, Small's Admirable, Lord Suffield, Yorkshire Greening, Tower of Glamis, Keswick Codlin, Hawthornden (Old and New), Keswick Codlin, Kerry Pippin, King of Pippins, American Pippin, Cox's Orange, Oslin, Hereford Pearmain, Red Astrachan, Waltham Abbey, Reinette du Canada, and Stone's or Lodington Seedling to be bearing heavy crops. Pears are a thin crop hereabouts, especially on standards. The sorts that are bearing best are Winter Nelis, Triomphe de Jodoigne, Chaumontel, Bezi d'Esperen, Williams' Bon Chrétien, Pitmaston Duchess, Ne Plus Meuris, Jersey Gratioli, Passe Colmar, Easter Beurré, Louise Bonne of Jersey, Duchesse d'Angoulême, and Beurré de Capiaumont. Plums are a failure. Cherries are mostly good, especially the Bigarreau and Black Heart. Gooseberries, Currants (Black and Red), and Raspberries are very good. Cob Nuts are not half a crop, owing, I think, to the scarcity of male bloom. Strawberries were a very heavy crop and very fine. Peaches and Nectarines are full crops, but Apricots outdoors are quite a failure.—A. WATERMAN.

Idsworth, Horndean, Hants.—The fruit crop in this neighbourhood is anything but a satisfactory one. Apples vary; here we have scarcely any, but in various places there is a fair crop, but not an average one. Pears are more satisfactory; Glou Moreceau and Beurré d'Aremberg are carrying good crops. Josephine de Malines, Duchesse d'Angoulême, Marie Louise, Ne Plus Meuris, and Beurré d'Amanlis are fair crops. Other kinds have a sprinkling; such as Louise Bonne of Jersey, Comte de Lamy, Beurré Sterckmans, Beurré Diel, Jargonelle, Williams' Bon Chrétien, Knight's Monarch, Maréchal de la Cour, Easter Beurré, &c., have failed, or nearly so. Plums and Damsons are quite a failure. Cherries, with the exception of Morellos, have also failed. There was a very good show of bloom, and in some instances a good set, but all dropped off. Peaches, Nectarines, and Apricots are not grown outside here. Strawberries have been a grand crop, but the later varieties have been rather spoilt by rain. We have had an excellent show of fruit; some turned the scale at 2 oz. Burghley, President, Vicomtesse H. de Thury, Kimberley, and Souvenir de Kieff have been amongst the best. Later kinds, Oxonian and Hélène Gloede, have been and still are very useful. The latter is a very fine late variety and not generally known; it is large in size and very sweet, but very light coloured this season, a fault which I attribute to so much wet. It is worth a trial by anyone who wishes to prolong the Strawberry season, and it is very prolific. Black, Red, and White Currants are plentiful. Gooseberries are an average crop, and the trees have been very free from the caterpillar this season. Raspberries are an immense crop, and the fruit very fine. Medlars not up to the average. Quinces none. Walnuts thin; Filberts the same, but there are quantities of Wood Nuts in places. We do not give any protection to fruit trees, but they are well sheltered by surrounding plantations. We lie 300 feet above the level of the sea, which is distant some six miles. We feel south-west and north-east winds very much, and last March was a most trying month for all kinds of vegetation. Our soil, heavy clay and flints, rests on chalk—a most difficult soil to work, and very late. It is not a fruit soil by any

means. Trees soon get covered with Moss and canker very much; even the common Thorn will not live in some parts. Taking the season altogether, I consider it to be the worst fruit season we have had for years. With the exception of small fruits, we shall again have to rely on foreign produce in the way of Apples, &c., and they are not so good as formerly, and a better method of packing is sadly needed; quantities are very much bruised by being pressed into the barrels. I often think a layer of Moss and a layer of Apples would cause them to travel better, and give more satisfaction to the consumer, as well as enhanced prices to the producer.—N. F. FULLER.

Lythe Hill, Haslemere.—The fruit crop in this district may be said to be an average one with the exception of Pears and Plums. Of Apricots there is a light crop. Peaches and Nectarines a good average one, and the trees are looking better than usual. Cherries are plentiful. Pears were a sheet of bloom, but a large percentage of it was malformed. Last autumn the wood never got sufficiently hard to stand the winter and form good plump flower-buds. The disastrous gale in April last year nearly battered all our trees to pieces, and consequently we had to depend on the midsummer shoots for fruit buds. The failure of Pears and Plums is also traceable to the puny, immature buds more than to the cold winds and frost which occurred this spring. The varieties which are carrying the best crops on walls under glass coping are Glou Moreceau, Thompson's, Seckel, Beurré Bosc, Beurré Clairgeau, Jargonelle, Marie Louise, Easter Beurré, Beurré Superfin, Pitmaston Duchess, and Passe Colmar. Of Apples we have heavy crops on cordons, pyramids, and espaliers; in places there are heavy crops on standards in orchards, but heavy crops are partial just round here; the undermentioned varieties are cropping the best, viz., Duchess of Oldenburgh, Stirling Castle, Lord Suffield, Cox's Orange Pippin, Hawthornden, Dumelow's Seedling, King of Pippins, Sam Young, Cornish Gilliflower, Ribston, Lord Burghley (never fails here), Syke House Russet, Court of Wick. Small fruits are above the average, being plentiful, large, and of good quality. Gooseberries I have had thinned by the bushel. Strawberries have been most abundant and fine, but the late stormy weather much deteriorated their flavour, and made their season somewhat short. Raspberries are a heavy crop and much finer than usual. Currants are plentiful and good. Nuts are under the average.

POTATOES have never looked better than they have done this season. We have been lifting very good early ones, both in quantity and quality, but during the last forty-eight hours the disease has made its appearance in the haulm, and if the present stormy weather continues our returns will be small compared with our anticipations. The following varieties I grow most of, viz., Veitch's Improved Ashleaf, Myatt's Ashleaf, Wormleighton Seedling, Woodstock Kidney, St. Patrick, Gramplan, Smith's Early, Beauty of Hebron, Potter's Excelsior, Vicar of Saleham, Beauty of Kent, and Rector of Woodstock. The Scotch Champion does well in fields.—A. EVANS.

Mentmore, Leighton Buzzard.—Apples here are the best crops we have had for some years. The trees, too, are all healthy and making fine growths. Amongst old trees the following are bearing heavy crops, viz.: Blenheim Orange, Cox's Orange Pippin, Lane's Prince Albert, and Codlins of different kinds. Trees on the Paradise stock, planted two years, are also bearing freely. Out of a large collection the following are the best croppers this season, viz.: Summer Golden Pippin, Hoary Morning, Lord Burghley, Besspool, Stamford Pippin, Mr. Gladstone, Emperor Alexander, Ringer, Ribston Pippin, Rymer, Kerry Pippin, Early Nonpareil, Court of Wick, Oslin, Worcester Pearmain, Early Red Margaret, Red Quarrenden, Jefferson's, and Irish Peach. Peaches and Nectarines on open walls are a failure. Pears are a good average crop. Of Plums we have none. Prunes and Damsons, of which we have many acres, are also a failure. Cherries are a good average crop. Small fruits of all kinds abundant.

Strawberries, very heavy crops. We have on trial some forty varieties, and our best have been Crown Prince, President, Mr. Radclyffe, and Vicomtesse Héricart de Thury. For latest crops, Elton Pine, Hélène Gloede, and Duke of Edinburgh have been good.

POTATOES are good crops and free from disease at present. Our best varieties are Veitch's and Myatt's Ashleaf, Early Bird, and Ruby; for later crops, Schoolmaster, Victoria, Magnum Bonum, Vicar of Laleham, Reading Hero, and Scotch Champion.—J. SMITH.

Colle Orton Hall, Ashby-de-la-Zouch.—Apples are a very good crop hereabouts; the trees were at one time much infested with grubs, but the heavy rains seem to have washed them off. Pears and Plums are very scarce. Apricots are a failure. Peaches and Nectarines are good crops, and the trees very healthy. Strawberries are a very heavy crop and the fruit fine in quality. Currants, Raspberries, and Gooseberries are very good crops.—G. C. MAYNARD.

Hatfield House, Herts.—Apricots here are a failure; Plums under the average, indeed very few; Cherries, a good average; Peaches and Nectarines, average; Apples, over the average; Pears, average; small fruits a good average; Strawberries have been excellent; Damsons, under the average; Walnuts, over the average.—G. NORMAN.

Frognaal, Foot's Cray, Kent.—Fruit crops in this district are very good, with the exception of Apricots, Plums, and Pears, which bloomed well, but set badly, owing to late frosts and cold winds. The following are a few of the sorts that have succeeded best here this year, and that are carrying full crops: Peaches—Barrington, Bellegarde, Dr. Hogg, Princess of Wales, Dymond, Late Admirable; Nectarines—Pitmaston Orange and Violette Hâtive; Figs—Brown Turkey and White Marseilles; Plums—Jefferson, Coe's Golden Drop, Blue Gage, the last on a south-east wall, bearing a very fine crop; Cherries—both dessert and Morellos very good; Apples—both dessert and kitchen heavy crops; bush fruit very plentiful; Walnuts good; Filberts very poor. Our wall trees were protected with common garden netting during spring. Soil, a good dark loam.—T. H. CRASP.

Cossey Park, Norwich.—Apples with us are an average crop. Except in the case of trees that bore crops last year, the only exception to this is Kentish Pippin, which never fails to carry a crop. Pears are under the average. Brown Beurré on an east wall, Beurré de Capiaumont on a south wall, and Marie Louise also on a south wall, are carrying heavy crops. Plums, Apricots, and Cherries are very scarce. Peaches and Nectarines are average crops. Strawberries, Raspberries, and Black and White Currants are abundant and very fine. Red Currants are under the average. Gooseberries average. Walnuts and Filberts under the average. Medlars and Mulberries average.

THE POTATO DISEASE, I regret to say, made its appearance here a week ago, and is spreading rapidly. Fine weather is very much wanted. Our gardens are well sheltered from the north, north-east, and north-west winds.—EDWIN BARBERY.

Guntun Park, Norwich.—Apricots here are almost a failure, in some places very few. Apples are a very heavy crop, and since the rains the trees are healthy and the fruit clean. Pears on walls are a good crop, and required severe thinning, especially Glou Morceau, Marie Louise, Huyshe's Prince Consort, Beurré Clairgeau, Marie Louise d'Uccle, Passe Colmar, Beurré Rance, Josephine de Malines, Bergamot d'Esperen, and Doyenné du Comice; on bush trees or pyramids they are not too plentiful with the exception of the following sorts which have been thinned, viz., Comte de Lamy, Williams' Bon Chrétien, Beurré d'Amanlis, Soldat Esperen, and one or two other kinds. Still I think generally speaking there is enough of most sorts and they will make up in size what they lack in quality. Morello Cherries are a fair crop; dessert sorts, with the exception of Bigarreau Napoleon and Black Tartarian, are thin. Figs on walls promise to be a heavy crop; the

mild winter was all in their favour, and our practice is to take down the trees in the autumn and thatch them with wheat straw, which was fortunately not removed until after the severe weather in March had left us. A good crop of Figs outdoors is most useful and acceptable at the end of the summer. Plums are very scarce; Kirke's, Pond's, Coe's Golden Drop, Victoria, and Goliath are bearing a few; other well-known, free bearing kinds, such as Rivers' Early Favourite, Prince Englebert, Jefferson, Reine Claude de Bavay are absolutely barren. Raspberries are a very heavy crop, and the fruit unusually fine. Strawberries, now nearly over, have been abundant and very fine; we are still gathering Dr. Hogg and Crimson Queen. Vicomtesse Héricart de Thury, President, Sir J. Paxton, British Queen, Amateur, and Sir C. Napier are our standard kinds on which we rely for our principal crops. Peaches in sheltered places are an abundant crop, and the trees unusually healthy and free from aphids. Violette Hâtive Peach is one of the hardiest and best for this part of the country, and Early Alexander, I hear from various sources, is proving itself to be a most useful outdoor Peach. Red Currants are below the average, but Black Currants are a very heavy crop. Gooseberries are thin generally.—WM. ALLAN.

Alnwick Castle.—Apples in this locality are an abundant crop; the following varieties are in full bearing, viz., Keswick Codlin, Manks Codlin, Tower of Glamis, Cellini, Red Calville, Cockpit, King of the Pippins, Hawthornden, Fulwood, Gloria Mundi, Lord Suffield, and Pott's Seedling. Apricots are scarce. Of Pears trained on walls we have full crops on the following, viz., Marie Louise, Winter Nelis, Louise Bonne of Jersey, Jargonelle, Williams' Bon Chrétien, Flemish Bon Chrétien, Josephine de Malines, Knight's Monarch, Van Mons Leon Leclerc, Beurré Duhaume, Easter Beurré, Beurré Rance, Beurré Langelier, Beurré Clairgeau, and Beurré Diel. Peaches and Nectarines, protected with Frigi-domo and on a flued wall used in the autumn and during cold nights in spring, are bearing good crops and the trees are in grand condition, viz., Prince of Wales Nectarine, Pine-apple, and Hardwick Seedling. There is a marked difference in flavour of the flued wall and Frigi-domo covering compared with double fishing net covering on a cold wall for Peaches and Nectarines. Plums are scarce. Of Cherries May Duke and Morellos are bearing crops. Bush fruits are bearing heavy crops. Strawberries are full crop, but they want flavour, and are suffering from excessive damp. Our soil is light, and the subsoil gravel. Our wall trees are mostly protected with double fishing nets.—GEORGE HARRIS.

Shawdon.—Notwithstanding the coldness of the spring, the fruit crop here in Northumberland is most satisfactory. I have only once during the last ten years been able to record an abundant Apple crop. This season will be remembered in the district as the year of Apple blossoms; few of the blossoms, too, failed to set, and the result is that we are now looking forward to gather the best crop of Apples seen in this quarter for several years back. The Strawberry crop is good both in quantity and quality. President, Dr. Hogg, and Garibaldi are amongst the varieties grown generally in quantities; the last-named is the best we possess for preserving. Bush fruits were never seen here in greater perfection than this season, owing doubtless to the healthy state of the bushes. Gooseberries are perhaps the only crop that is in some places thin. Raspberries promise to be exceptionally good. Amongst wall fruit we have ceased to take note of Peaches. Where not killed the crops promise fairly well, that is, if they can be ripened in autumn. We are, however, in many places substituting Early Cherries for Peaches on walls. The Apricot crop is, if not abundant, good where the trees are thriving; the cold seasons through which we have passed have seriously injured the trees in the north, and many fine old Apricot trees in this district are decaying. The Pear crop on walls is generally good; one of our greatest acquisitions is Williams' Bon Chrétien. Last year I gathered fruits from it 14 ozs. in

weight—good for this district. Gansel's Bergamot, Louise Bonne of Jersey, Beurré Superfin, Marie Louise, and Early Bergamot ripen to perfection in this district. Cherry trees have been affected with aphides in some places, otherwise they would have borne an extensive crop of fruit. In this district Plums are not much grown out of doors; two never failing sorts seem to have displaced all other kinds from this district, namely, Victoria and Rivers' Early Prolific.

POTATO CROP.—If this can be saved we will have reason to be well satisfied with 1883. At one time the most sanguine and hopeful amongst us could not have anticipated this result. The spring was cold with an endless succession of frosty nights, which checked vegetation until an unusually late season. This in a great measure saved our fruit crops from the effects of the severe spring.—JAMES THOMSON.

Canon Hill Gardens, Maidenhead.—Wall fruit in this locality is a scarcity. We do not remember to have ever seen the trees looking more promising than they were this spring, nearly all being one mass of bloom, but the severe weather we experienced on the 23rd and 24th, and I may say to the end of April, settled the greater part of the bloom. The best wall fruits here are Morello Cherries, which are a good crop and fine in quality. Apricots are scarce, but what we have are good. Peaches and Nectarines are a light crop. Plums are almost a failure; the only kinds bearing here are Victoria and Jefferson's. Pears are also scarce, the best here being Marie Louise, Chaumontel, Glou Morceau, Jeanne de Witte, Williams' Bon Chrétien, and Doyenné d'Ete. Apples are very plentiful. Those which are bearing heavy crops here are Small's Admirable, Lord Suffield, Cockle Pippin, Cox's Orange Pippin, Cellini, Quarrenden, Blenheim Orange, Peasgood's Nonsuch, Wellington, Dumelow's Seedling, Bedfordshire Foundling, and Scarlet Pearmain. Strawberries have been plentiful and fine, but did not last long in season with us, owing to the dry weather and our soil being very light and shallow, with a gravelly subsoil. Raspberries and Currants are very plentiful and fine, but Gooseberries are scarce, and the same may be said of Filberts, of which we have scarcely any. Taking fruit trees throughout, I have not seen them looking in better health or less affected with blight or insects than they are this season.

POTATOES up to the present have turned out well. The early sorts are not large, but a good crop and of first-class quality. The late crops, both in gardens and fields, are looking extremely well, and so far there are no symptoms of disease; nor have I heard of its making an appearance in this locality.—H. E. GRIBBLE.

Grimston Park, Tadcaster.—Apricots are but a thin crop hereabouts this season. Moorpark is our best variety, though we are much pleased with youngish trees of a variety called St. Ambrose. It bears fine fruit and does not lose its branches so much as Moorpark and Kaisha. Apples, as a whole, are about a good half crop; Lewis' Incomparable (a splendid late Apple), Cockpit, Crimson Queen, Alfriston, Stirling Castle, and Tower of Glamis are carrying good crops. Plums are very thin, more so than I have known them to be for years past; even Victoria, which is almost a sure cropper, is fruitless this year. Pears are partial; Marie Louise, Autumn Bergamot, Hessle, Doyenné d'Ete, Williams' Bon Chrétien, Passe Colmar, and Beurré d'Aremberg are bearing fair crops. Peaches are a fairly good crop; Goshawk, Walburton Admirable, and red Nectarine Peach are the best this year. Of Nectarines, Pine-apple and Violette Hâtive have a good sprinkling on them. Small fruits are, as a rule, abundant and good. Strawberries have not been quite such heavy crops as during the past three or four years, but what is lost in quantity is fully made up in quality, as I scarcely even remember them to have been finer in size. Héricart de Thury, Keen's Seedling, President, James Veitch, Frogmore Late Pine, and a local variety called Newton Seedling are the sorts we grow; the latter is a really good useful late variety on limestone soils; judging by its appear-

ance in foliage and fruit, it is a cross between Keen's Seedling and Black Prince. Raspberries are abundant and fine, especially Fillbasket and Prince of Wales. The old Ashton Red Gooseberry is bearing very heavy crops. There was an abundant blossom on both Apples and Pears last spring, but even then I had doubts as to their producing good crops, never yet having seen a heavy crop of hardy fruits generally following a wet, sunless autumn such as last autumn was in this part. I am very pleased to say that fruit trees of all kinds are healthy and free from insects this year, and should we get a continuance of the fine, warm weather that we have had as a whole so far this season, I have no doubt that we shall next year have the best crop of hardy fruits generally than has been for several years. Our soil is a stiffish loamy one, resting on magnesian limestone.—H. F. CLAYTON.

Cleveland, Yorkshire.—Fruit crops in this district are very uneven; the severe frosts which we had in March greatly injured fruit trees. Of Plums and Pears, with the exception of the Hesse Pear, the failure is general. Plum trees were much blighted in May of last year, and the young wood made late in the season gave no promise of fruit for this year, even had the spring been favourable. Gooseberries are a light crop, in many places nearly a failure. Red Currants are a fair crop, and Black Currants quite a full crop. This fruit is finely grown about the village of Ingleby, the Black Naples being the variety chiefly grown. I find Ogden's Grape Currant to be the most equal in ripening, and the easiest managed bush to keep in a fruitful state. Raspberries are a good crop. Strawberries a full crop and well grown in Cleveland. The best varieties seen in market are Dr. Hogg, President, and Vicomtesse Héricart de Thury; when the Duke of Edinburgh (Moffit's), becomes better known, it will take a leading place amongst market fruits. Apples are a thin crop; the Cockpit is, however, an exception. This proves to be the most valuable Apple grown north of York for market use. The new Cockpit is equally hardy, and brings the highest price of any home-grown Apple. Lord Suffield still holds the first position among the Codlins class. Cherries are very little grown here, and this season they are a thin crop. Apricots, that five years ago were such a striking sight over Cleveland on cottage and mansion, are now only represented by a few odd trees in favourable sites, and on these there is fruit this season. The young growth of fruit trees is now most promising; even half dead trees are putting out firm shoots such as I never expected to see.—CHAS. McDONALD.

WALES.

Chirk Castle, North Wales.—Apples on old trees are good crops with us, second rate on young ones. The following are the kinds I find to fruit the earliest, viz., Adams' Pearmain, Boston Russet, Court of Wick, Cox's Pomona, Devonshire Quarrenden, Early Nonpareil, Norfolk Beaufin, Reinette du Canada, Manks Codlin. Of Pears we have very few on old trees and none on young pyramids. Sweet Cherries are a good crop; Morellos poor, the trees being very much affected with disease. Red Currants not so heavy as usual; Black very good. Strawberries excellent, and also Raspberries. Soil, gravel resting on marl.—ABRAHAM HUTTY.

Brynkinalt, Chirk.—Apricots here are very thin indeed, and also in the neighbourhood. The following kinds only are carrying average crops or moderate crops, viz., Moorpark, Golden Drop, and Royal Apricot. The following Peaches are producing average crops, viz., the Salway, Royal George, and Noblesse; and amongst Nectarines the Elruge. Our Peaches, Nectarines, and Apricots are on south aspects, and protected by canvas in spring. Their scarcity is attributable to the severe weather which we experienced while they were in bloom, 24° of frost being then registered. The following Apples and Pears are bearing average crops, but many of the Pears are on south walls and the Apples on espaliers: Apples—Ribston Pippin, Keswick Codlin, Orange Pippin,

Russet Pippin, Golden Pippin, Blenheim Orange, Kerry Pippin, Alexander, Hawthornden, Orange Pearmain, Rymer, Stirling Castle, Echlinville, Lady Derby, Lemon Pippin, Devonshire Quarrenden, Duke of Devonshire, Reinette du Canada, Melon, Cellini, Court of Wick, Claygate Pearmain, Orange Pippin, Beddow Pippin. Pears—Marie Louise, Beurré Bosc, White Doyenné, Althorpe Crassane, Winter Nelis, Louise Bonne of Jersey, Easter Beurré, Beurré d'Amanlis (a grand crop), Beurré Diel, Napoleon, Beurré Rance, Brockworth Park, Fondante d'Automne, Passe Colmar, Josephine de Malines, Beurré de Capiaumont, and Forelle or Trout. Plums and Cherries are an entire failure, with the exception of Morellos, which are abundant and the trees clean and healthy. Gooseberries and Currants are above the average. Raspberries are very fine indeed. Strawberries are also a heavy and good crop. The following succeed well here, viz., Sir Joseph Paxton (first-class), Sir Charles Napier (very good), Keen's Seedling (good). Elton Pine proves to be a very good and useful late variety. Black Prince on this soil does not do well. Our soil is of a very strong retentive character; subsoil gravel.—J. CLARKE.

Cardiff Castle.—Early in the season Apple and Pear trees in this district were completely covered with strong healthy blossom. The Pears to all appearance set well, and many of them grew to be as large as pigeon's eggs, when drought set in and most of them dropped off the trees in the open quarters. Trees on walls are, in most cases, bearing a heavy crop, while pyramids and standards are, with a few exceptions, almost fruitless. Apples generally are a good crop. The varieties that do best here, and that can almost always be relied on for a crop in any season, are Lord Suffield, Hawthornden, Echlinville Seedling, Cellini Pippin, and Stirling Castle. But in seasons like the present we have a good crop on some of the best varieties. Peaches, Nectarines, Apricots, Plums, and Cherries are a complete failure. Figs are a good crop. Gooseberries in some places are a failure, while in others a short distance off they are an abundant crop. Currants, Red, White, and Black, are plentiful. Strawberries are a most abundant crop everywhere, and good in quality.—A. PETTIGREW.

Dynevor Castle, Llandilo.—Peaches and Plums with us on walls are almost a failure—the worst crop of Peaches I have seen for over twenty years. Pears are very good and Apples everywhere abundant. Strawberries, Red Currants, and Raspberries are good average crops. Black Currants are over the average. Gooseberries very thin in places. Foliage on fruit trees as well as on forest trees very clean and healthy.

POTATOES healthy; the disease has only just made its appearance.—J. TICEHURST.

Margam Park, Central Glamorgan.—Here and hereabouts 1883 will rank as a fair average fruit year. Cherries bloomed profusely, set thickly, and fell off prematurely to an unusual extent. Apples and Pears are good. Plums were never scarcer. Strawberries, Currants, Gooseberries, and Raspberries have been abundant.—J. MUIR.

IRELAND.

Carton Park, Kildare.—Apples and Pears are an extraordinarily heavy crop here. Morello Cherries also very heavy; other Cherries do badly here. Gooseberries, Currants, Strawberries, and Raspberries are very abundant. Apricots and Plums are a failure this season.

POTATOES.—Kidneys are very fine, and all late Potatoes in this locality, chiefly Champions, look uncommonly well.—E. KNOWLDIN.

Woodstock Park, Inistioge.—The fruit crop here on the whole is the best we have had for a number of years, with the exception of Apricots and Peaches, which are complete failures on open walls; in cool houses without fire-heat the latter are a fair crop. Apples are an average crop, Lord Suffield, Stirling Castle, Blenheim Pippin, Irish Peach, London Pippin, Adam's Pearmain, and Court of Wick being the most fruitful. Pears are a fair

crop on walls, but standards are almost a failure. Cherries are partial, some bearing abundantly while others are very thin. Amongst Plums, Denyer's Victoria is bearing abundantly; other sorts very scarce. Strawberries, Gooseberries, Currants, and all small fruits are abundant and good crops.

POTATOES are very promising in this district; no appearance of disease as yet.—WILLIAM GRAY.

Castle Upton, Templepatrick.—Fruit crops in this district are pretty good. The sorts of Apples carrying an average or heavy crop with us are on walls—King of the Pippins (this variety rarely fails), Cellini, Mannington Pearmain, Golden Pippin, Cox's Orange Pippin, Allen's Everlasting, Ribston Pippin, Irish Peach, and Melon Apple; bush or standards not so good, but the following may be stated to be carrying a good or medium crop, viz., Lord Suffield, King of the Pippins, Keswick Codlin, Emperor Alexander, Manks Codlin, Kerry Pippin, and Northern Greening. On the old Hawthornden, of which we have a good number of trees, there is a good crop once in three, four, or five years. This season our trees are bearing a sprinkling of fruit. Pears with us are poor; Williams' Bon Chrétien and Hesse—bush trained—are carrying good crops, particularly the latter; on walls Doyenné d'Ete, Passe Colmar, and Easter Beurré are carrying the best crops. Sweet Cherries excellent; Morellos set a full crop, but were reduced at the stoning period to a small or medium one. Bush Plums are almost a failure; on walls south and west the following are showing well, viz., Jefferson's Belgian Purple, Nectarine, White Magnum Bonum, and Coe's Golden Drop. There is also a sprinkling on Early Green Gage and a few others. Black Currants and Raspberries unusually heavy crops. I find Red Antwerp to be second to none in bearing, and first rate both in flavour and colour. Strawberries very good, Garibaldi bearing enormous quantities. I have been obliged to use forked sticks to keep the fruit up, particularly so as we have now unfortunately showery weather. On President, Keen's Seedling, Duc de Malakoff, and Victoria there are also good average crops; the latter is a very useful late sort. Gooseberries a full all round crop, although perhaps scarcely as full as last year. Red Currants are a medium crop. Taking all in all, fruit crops are better than I expected, seeing we had such a wet autumn last year and such a cold, late spring this. During January we had 129° of frost, February 99°, March the unprecedented amount of 328°, and in April 157°. During the last eight years we have not had any month to approach March of this year, with the exception of two, viz., December, 1878, in which we registered 382°, and January, 1879, when we registered 446° of frost. It will thus readily be seen that the bloom buds must have had a narrow escape, and were it not that we are efficiently protected by woods at a respectable distance, our fruit report this year might have been less cheering. Our soil, too, is of a somewhat adverse character, i.e., being naturally heavy and lying low, we are subject to late frost. Spring on the whole was backward. Early crops are late. Mid-season ones are, however, up to the usual time, and, if the weather continues propitious, late crops will be early.—S. KEVAN.

SCOTLAND.

Fyvie Castle.—In this quarter fruit crops are, upon the whole, very satisfactory. Owing to spring frosts, Apples are not, however, so abundant as could have been wished. Plums also are under the average, owing, I believe, to the heavy crops which they have borne during the past two seasons. Pears are a fair crop. Cherries average; while as to all the varieties of Gooseberries, Black, Red, and White Currants, as also Strawberries and Raspberries, all are very heavy crops. The most productive Apples this season I find to be Warner's King and the Hawthornden, both of which are regular bearers. Amongst Plums the Victoria seldom fails. Amongst Pears the Jargonelle, several of the Beurré, Colmar, and Swan's Egg are pretty certain sorts. Amongst Cherries, May Duke and Morello are good. Of Strawberries I have now gathered daily for the past three weeks from the

old Black Prince, and still they come. Rivers' Eliza and Sir Joseph Paxton rank next, and Myatt's concludes the season, which from beginning to end lasts about ten weeks. As regards Raspberries, I am in hopes that Bamford's will prove good; but out of six or seven varieties, none pleases me better than Carter's Prolific. Our soil is heavy, and in a rather low, sheltered situation. As to spring protection, my time scarcely permits me to get much of that attended to, and when I used to employ it pretty extensively, I found but little benefit from it. I have some confidence in selecting hardy sorts of fruits suitable to the climate.—R. FARQUHAR.

Balcarres, Colinsburgh.—Fruit crops in this district are the best we have had since 1876. Apples of all kinds are a heavy crop. Cherries, heavy, and very large and fine. Pears, a fair crop. Plums, average. Peaches, a fair crop, but not much grown outside. Apricots, also a fair crop. Small fruits are all heavy crops. Gooseberries, very heavy and unusually large, weighing, in fact, the bushes to the ground. Currants of all kinds are good crops, and very large and fine. Strawberries, very heavy crops; the varieties grown here are Garibaldi, Keen's Seedling, Elton Pine, James Veitch, La Grosse Sucrée, and a variety named Nimrod; the last has very large berries, and is a heavy cropper. Our ground, being very strong heavy soil, resisted the long drought we had in May and June well.

POTATO crops in this district never looked better, both in gardens and fields, and what have been lifted are good both in quality and quantity. No signs of disease as yet.—E. TATE.

Drumlanrig, Thornhill.—Strawberries and all bush fruits are abundant, but eight to ten days later than they have been in any season for fifteen years. Apples and Pears are scarce, and so late that there is little chance of their coming to maturity. There has not been any summer weather here as yet.—DAVID THOMSON.

Culzean, Ayrshire.—The fruit crop hereabouts is very good, though some crops differ very much in some gardens not far off. Gooseberries, for example, are very scarce, while here we have had to stake all our bushes to keep the branches from breaking under their load of fruit. The Apple crop promises to be a very heavy one, and appears to be generally good. Pears are a fair crop. Plums and Cherries rather scarce. Strawberries are a very heavy crop. Red and Black Currants medium crops, and the same may be said of Raspberries. The following sorts bear well in this district, viz.—Apples: Lord Suffield, Stirling Castle, Lord Grosvenor, Warner's Seedling, Cox's Pomona, Echlinville Seedling, Keswick Codlin, King of the Pippins, Wormsley Pippin, and McLean's Favourite. Pears: Williams' Bon Chrétien, Marie Louise, Jersey Gratioli, Passe Colmar, and Jargonelle. Plums: Victoria, Kirk's Seedling, Jefferson, and Rivers' Prolific. Strawberries: Bothwell Bank Prolific, Garibaldi, and Duke of Edinburgh. I may add that the foliage of Apple trees, Gooseberries, &c., has been very badly attacked by red spider which gives it an unhealthy appearance.—DAVID MURRAY.

Dupplin Castle, Perth.—Blossoms on all kinds of fruit trees were this year very plentiful. Apricots are about an average crop, Moorpark being the best cropped variety. I may mention that the trees were protected while in bloom. Apple trees were loaded with blossom, and promised to be an enormous crop, but it has been rather a disappointing one; although some sorts are carrying heavy crops, many kinds never set their fruit, and quantities seemed to shrivel and drop when about the size of Beans. On some trees there is not a fruit. A neighbour of mine who called the other day said he was never so much deceived in a crop of Apples as this season, seeing that the trees were late in blooming and considered free from all danger from frosts. The varieties bearing the best crops here are Tower of Glamis, Waltham Abbey, Alfriston, Lord Burghley, Lord Suffield, Calmar, and Stirling Castle; the latter three seldom or never fail to bear fruit

more or less. Young trees of Worcester Pearmain are this year carrying good crops. This variety seems to possess a hardy constitution. Pears are but a partial crop; Beurré Diel and Moor Fowl Egg are, however, producing good crops. Cherries are about an average; Frogmore Bigarreau and May Dukes are bearing good crops, but the White Hearts dropped an immense quantity of fruit when stoning; Morellos are a very heavy crop. Plums are but a partial crop, though so fine was the bloom that a grand crop was expected. Strawberries are an abundant crop, but have been and are still being spoiled by wet. Currants, Raspberries, and Gooseberries are all heavy crops, especially the latter, the bushes being weighted to the ground, and in some cases the branches broken, so profusely are they laden with fruit. Fine weather is very much needed to bring crops to maturity.—JOHN BROWNING.

Alloa Park, Alloa.—Generally speaking, we have a very good average in the way of fruit this year. Apples are particularly good; the kinds which succeed best and are most grown hereabouts are Coe's Golden Drop, King of the Pippins, Ribston Pippin, Alexander, Cellini, Dumelow's Seedling, Echlinville Pippin, Hawthornden, Lord Suffield, Stirling Castle, and Keswick Codlin. Pears are extra good, especially such kinds as Beurré Diel, Citron des Carmes, Glou Morceau, and Marie Louise; the crop of Jargonelles is particularly heavy. Cherries, late both and early, are good. Nectarines, Apricots, and Peaches are little grown in this locality. Plums are under the average, owing doubtless to the frosts we had in spring preventing them from setting. Gooseberries, Currants, and other small fruits are plentiful. Our soil is generally of a good loamy character, and well adapted for fruit culture.—THOMAS ORMISTON.

Dunmore, Stirling.—The season here is considered to be about a fortnight late, but on the whole fruit crops, both on standards and walls, are fair average ones. Lord Suffield, the different kinds of Codlin, and Stirling Castle may be taken as types of Apples which do best as standards. Our best Plum is the Victoria. Pears on walls, unless protected during spring, cannot be depended on for a crop. Beurré Diel and Jargonelle do well treated in this way. The soil here consists generally of strong, stiff, coarse land.—MAURICE FITZGERALD.

Tynningham, Prestonkirk.—All kinds of small fruits are most abundant here. In the neighbourhood, however, Gooseberries are a poor crop. Apples blossomed well, but have not set a large crop. Pears are middling. Of Apricots and Plums there is a very scanty crop. Cherries are good generally. Peaches and Figs are not much cultivated out of doors, being very precarious. As the nature of the soil varies very considerably in this district, it is impossible to state what varieties of any particular fruit do best here. The finest Strawberries are President and Vicomtesse Héricart de Thury, and Elton Pine for a late crop. Keen's Seedling does well in some gardens, but it was found, along with a large number of other kinds tried here, to be not so profitable as those just named. Dessert Apples have been very deficient in flavour of late years. Irish Peach, Oslin Pippin, Thorle Pippin, Stone Pippin, King of the Pippins, Golden Pippin (on walls), and Ribston Pippin (on walls), are the most prolific. For kitchen use the various Codlins, Warner's King, Echlinville, Stirling Castle, Bedfordshire Foundling, Northern Greening, Requette du Canada, Cellini, and Hambleton Deux Ans are all reliable kinds. The more hardy sorts of Pears are the only kinds worth growing; Beurré Diel, Easter Beurré, &c., have been fit only to eat one season out of eight. The most prolific Plums are Bullens, Green Gage, Victoria, and Washington. Early Beatrice and Royal George have been the most satisfactory Peaches which we have tried.—R. P. BROTHERSTON.

Marchmont, Dunse.—Strawberries are plentiful, but ripening slowly, owing to want of sunshine and too much rain. Black, Red, and

White Currants are plentiful, and just beginning to colour; they are a fortnight later than usual. Gooseberries are an average crop and late. Raspberries promise to be a good crop; the canes for the ensuing year are growing strongly. Nuts (Filbert and Hazel) are scarce—not half a crop; Walnuts the same. Plums are a full average crop. Apricots are very scarce; the trees that survived the severe frosts of 1880 and 1881 have not got into a fruit-bearing state yet. Apples are plentiful, but want sunshine. Pears are scarce and late. Peaches are plentiful in houses. None are grown here out of doors.—PETER LONEY.

Dunrobin, Sutherland.—Apples promise to be a heavy crop hereabouts, but will probably be small in size. Pears are under the average, and Plums generally are the same, but good crops on some trees. Cherries are over the average. Strawberries are a good crop, but the quality will depend on the weather during the next few weeks. The kinds which suit best here are Garibaldi for early, and Elton Pine for late crops. We have tried Sir C. Napier, Sir J. Paxton, Oscar, President, Sir Harry, James Veitch, Hélène Gloede, and others, but do not find them so satisfactory here as the two sorts first named.

POTATOES are a good crop, and as yet show no signs of disease. The heavy rains during the last ten days are causing rather two much growth in the haulm. We are sheltered by woods and rising ground to the north, north-east, and north-west, and are open to the sea on the south, south-west, and east. Soil deep, light, fairly good, black friable loam, resting on sand and gravel.—D. MELVILLE.

Dalmeny Park, Edinburgh.—Apricots—Moorpark and Shipley are a fair crop. Of Plums we have very few. Cherries—May Duke and Morello are a good crop. Of Peaches and Nectarines we have very few. Apples, consisting of Echlinville, Stirling Castle, Cellini, Lord Suffield, and Irish Peach, are a good crop. Of Pears Williams' Bon Chrétien, Marie Louise, Glou Morceau, and Beurré Rance are producing fair crops. Strawberries are a good crop. Raspberries behind the south wall on a north aspect are a very heavy crop.—JOHN MOYES.

Dalkeith Park, Midlothian.—The season has been, on the whole, favourable for hardy fruit, and the crop is considerably above the average. Apples are abundant everywhere—clean, healthy, good-sized fruit. The best crops are upon Warner's King, Lord Suffield, Echlinville, Stirling Castle, Tower of Glamis, King of the Pippins, Keswick Codlin, Duchess of Oldenburgh, Manks Codlin, Northern Greening, Alfriston, Blenheim Pippin, Wellington, Dutch Mignonne, Yorkshire Greening, Lord Clyde, Red Calville, and Margaret. Pears are a somewhat partial crop; standards generally are bearing better than wall trees. The best are Marie Louise, Napoleon, Williams' Bon Chrétien, Beurré Hardy, Beurré Diel, Brown Beurré, Hessele, and Catillac. Plums and Cherries are generally a fine crop and the fruit excellent. The best Plums are Transparent Gage, Jefferson's, Kirk's, Coe's Golden Drop, Victoria, Early Prolific. The best Cherries are Governor Wood, May Duke, Elton, Black Tartarian, Bigarreau Napoleon, and Frogmore Bigarreau. Currants of all kinds are a heavy crop; and the same may be said of Raspberries and Strawberries. In some gardens Gooseberries are a heavy crop; in others they are rather thin. Apricots on walls are nearly a blank; and Peaches and Nectarines are not much better, except in the most favoured spots. The soil of this district is generally a light, free loam, not particularly well suited for the growth of most kinds of fruit, but yields freely under high cultivation in ordinary seasons.

VEGETABLES have been rather later than usual, but good in quality. Peas are a heavy crop, the best being Veitch's Selected Early, William I., Marvel, Veitch's Perfection, and Ne Plus Ultra. Among Cauliflowers, Veitch's Early Forcing, Walcheren, and Autumn Giant are the best and most useful. For an early Cabbage we have nothing equal to a local strain of Vanack. The local

strains of Brussels Sprouts, Leeks, and late Broccoli are also our best. Snow's, Veitch's Spring, Dilcock's Bride, and Model Broccoli give us a supply of fine heads from November to May. Potatoes are a fine crop, and still free from disease, both in fields and gardens. The best garden sorts are Veitch's Ashleaf Kidney, Grampian, and Magnum Bonum.—M. DUNN.

PUBLIC GARDENS.

PUBLIC IMPROVEMENTS IN EDINBURGH.

THE eighth annual report of the Edinburgh Cockburn Association has been published. In it the Council of the Association deal with various questions of city improvements. In regard to the site of the old Infirmary, the Council say they are strongly impressed with the conviction that the opportunity of acquiring an open space in one of the most densely populated quarters of the city should not be lost, but that the site should be laid out as a public garden or recreation ground. The immediate neighbourhood suffers much from overcrowding and want of ventilation, while the attractions of the University would be enhanced by there being a garden either in front of it or at no great distance from it. In regard to the proposed bridge at Bell's Mills, the Council say they would view with alarm any proposal to widen the Dean Bridge—a process which could scarcely fail to injure that beautiful structure—and they believe a new bridge to the west of the present one would be much more suitable, affording, as it would do, a direct access to the grounds of Trinity Hospital at Blinkbonny, which the Council hope may one day be made available to the public in some form or other. They are of opinion that too little has been done in the way of supplying public parks, and suggest that if Edinburgh had a public park at Blinkbonny, it could not fail from its situation to become one of the most charming spots in or around the city. The Council have ascertained with satisfaction that the feuars in Douglas Crescent and Belford Park have obtained a right of servitude over the ground in the intervening valley, which is to be laid out by the proprietor, Mr. Waddell, as a tastefully-arranged pleasure ground. While rejoicing that so much has been recently done to improve the city by planting along the streets, in the meadows, and elsewhere, they again suggest that the line of trees in Princes' Street should be continued past St. John's Chapel. As to the proposed covered rock garden in West Princes' Street Gardens, the Council requested the municipal authorities to postpone their final determination until a more decided expression of public opinion should be elicited by public exhibition of the design of the proposed structure or otherwise. The Council regret that the municipal authorities have not been able to see their way to acquire the strip of ground lying between the south boundary of the Arboretum and the Water of Leith, a result the more to be regretted, as the ultimate feuing of the ground in question will undoubtedly injure to a great extent the beautiful views of the city now to be obtained from the Arboretum.

Kiosks in the parks.—Of all the announcements that have lately been made that is the worst which states that we are about to undertake the dispensing of ginger-beer, lemonade, Abernethy biscuits, and current literature to those who daily stroll through the classic shades of Hyde Park. His Grace of Westminster is at the head of this extraordinary movement, and a meeting to arrange the details of the august enterprise is announced to take place at Grosvenor House. In view of the anticipated sale of newspapers in the projected kiosks, may I suggest, without any desire to be offensive, that the right hon. the senior member for Westminster would be a more suitable promoter of this great adventure than the Duke of Westminster? Why dukes and other exalted personages should band together in order to promote a scheme which should come under the

control of Spiers and Pond, or Bertram and Roberts, quite passes comprehension. Many scions of noble houses have ventured into the city and have developed quite a remarkable capacity for "business" on the Stock Exchange, in Lloyd's, and in the tea trade. That is all very well; but dukes dealing in ginger-beer, and belted earls disposing of copies of the evening papers, is a spectacle one cannot contemplate with one's customary equanimity. If we are to have kiosks, let the matter be taken up not by amateurs, but by ordinary contractors.—ST. STEPHENS.

Churchyards as recreation grounds.—The Paddington Vestry at its last meeting agreed, on the motion of Mr. Churchwarden Young, to convert the disused churchyard of St. Mary, Paddington Green, which is upwards of three acres in extent and well timbered, into a pleasant place for sober recreative purposes. Flower beds are to be formed, railings neat in appearance substituted for unsightly walls, falling and neglected head-stones laid flat, and where necessary defective vaults and graves amended. The improvement, which is much needed, will cost about £1400. Other graveyards in London are, we understand, also to be put to a similar use.

A park for North-west London.—A meeting convened by the North-west London Park League was held the other evening at the Cobden Club, Notting Hill. The chairman in his opening remarks urged the desirability of having several small parks scattered over a wide area in preference to one large park, which would be far removed from the homes of many of those for whose benefit it might be designed. Mr. Firth, M.P., moved a resolution affirming that a park for the use of the inhabitants of North-west London was absolutely necessary, and that the site occupied by the Agricultural Society's Show in 1879 was admirably adapted for that purpose. He said he concurred with those who held that the relative advantages between the site now proposed and that which was known as Paddington Park were greatly in favour of the former. It would be necessary first to convince the authorities that a park was really required; and, secondly, to have some well-defined plan for providing the means to obtain it. As the Metropolitan Board of Works were going to borrow £10,000,000 for public improvements, the comparatively small sum required for this park might well come out of that. Sir Algernon Borthwick agreed with the chairman in preferring several small parks, so that they might be brought nearer to the homes of the people, to one large one at a distance, and, therefore, he thought all open spaces, however small, should be preserved. God's acre could not be put to better use than in giving health and recreation to children and even to adults pent up in close quarters. The resolution was carried unanimously, as was also a second resolution authorising the chairman to sign memorials in favour of the park to the Corporation and the Metropolitan Board of Works.

BOOKS RECEIVED.

Fpping Forest and its Management, by Alexander McKenzie, Superintendent.
Bulletin of the Torrey Botanical Club. New York.
The Moselle, from the Battlefields to the Rhine.
Holidays in Holland.
A Trip to the Ardennes. London: 125, Fleet Street.
Topographical Botany, being Local and Personal Records towards showing the Distribution of British Plants throughout England, Wales, and Scotland, by Hewett Cottrell Watson. Bernard Quaritch, 15, Piccadilly.]

CATALOGUES RECEIVED.

J. Dickson & Son's (Edinburgh) Dutch Flower Roots.
J. Backhouse & Son's (York) Flower Roots, &c.
The Lawson Seed and Nursery Co.'s (Edinburgh) Dutch Flower Roots.
Dammann & Co.'s (Naples) Vegetable Seeds.
Strike & Hawkins' (Middlesborough) Bulbs, &c.
J. Laing & Co.'s (Forest Hill, S.E.) Dutch Bulbs and Flower Roots.
Waite, Nash, Huggins, & Co.'s (Southwark Street, S.E. Wholesale List of Flower Roots.
Osman & Co.'s (Bishopsgate) Horticultural Sundries.

QUESTIONS.

5031.—**Moss on Vines.**—I am anxious to know how I can destroy green Moss on Vines. Will any of your readers kindly tell me?—R. T.

5032.—**Peat.**—Which is the better sort of peat for stove Ferns and flowering plants—black or brown fibrous? Perhaps Mr. Baines will kindly answer this question.—E. L.

5033.—**Grapes cracking.**—What is the best means to prevent Golden Hamburgs from cracking? Perhaps some of your correspondents will kindly answer this question.—W. F.

5034.—**Lilies.**—Can any of your correspondents inform me how a Lily may be known; that is, the distinction between a Lily and any other bulb—say, for instance, between a Lily and a Fritillaria?—W.

5035.—**Weed extractors.**—Will some one who has tried it kindly tell me how if Hurry's Plantain and Daisy Extractor is a good one? Does it do better or quicker work than a plain three-pronged kitchen fork, which I have hitherto found the most useful weed extractor on my lawn?—J. H. W. T.

5036.—**Specked Tomatoes.**—Would someone kindly tell me why my Tomatoes go specked? I have a fair crop, but some, both ripe and unripe, are rendered entirely useless by a speck which appears in the centre, and extends throughout the Tomato.—PERPLEXED.

5037.—**Fernery creepers.**—I have a stove fernery ornamented with virgin cork, and creeping about the cork *Tradescantia aurea variegata*, multicolor, and zebрина. These I find do remarkably well. Can anyone recommend any other creeper that would do equally well in the same situation?—M. OR N.

5038.—**Cracked Nectarines.**—I have a Prince of Wales Nectarine under glass; this year and last, just before the fruits began to ripen, they nearly all cracked to the stone. I have tried both dry and wet treatment; the fruits are very fine and I should be sorry to sacrifice the tree if I could prevent them from cracking. Any suggestion by way of remedy would be considered a favour.—H. H.

5039.—**Brussels Sprouts clubbing.**—Will any of your readers inform me the cause of my Brussels Sprouts clubbing? The plants have been treated liberally, and were getting on well, being nearly 3 feet high. They have not been dry, for they were watered in dry weather three and four times a week. The ground was thoroughly trenched and heavily manured in the winter, and again slightly before the plants were put out. Strange to say, Cauliflowers of various sorts close by have quite escaped. The soil here is very light. To what can I attribute the clubbing?—W. A. COOK.

5040.—**Filmy Ferns on walls.**—Will any of your readers kindly give some hints as to the best way of attaching peat or other material to a wall for the growth of Filmy Ferns? In my case the wall is at the end of a greenhouse, faces the north, and is shut off by a glass division from the rest of the house. Is galvanised wire suitable for attaching or packing the material to the wall? or is it likely to be injurious to the Ferns? What is the best material for such a position in which to grow Killarney and other Filmy Ferns? and, lastly, what is the best way to keep the wall free from slugs and woodlice, which usually infest quarters so well adapted to them?—FILIX.

5041.—**Spot on Camellia leaves.**—Can any of the readers of THE GARDEN oblige me with some information as to the cause of spot on Camellia leaves? The plants affected were imported some few years ago, and were grown for some time in pots, but not having thriven under this treatment were planted out in a border well prepared, with good drainage, in a compost of equal parts peat and loam and plenty of coarse sand. As soon as growth is finished every year this spot appears on the young leaves; but I may add that the plants set plenty of flower buds, many of which, however, drop. The plants are well attended to as to watering, always using rain water except during long periods of drought; then we have to use town water. They have been affected in this way for several years, and are gradually getting worse. Any information upon the subject will be appreciated.—J. E., Bath.

** Our readers will greatly oblige by replying so far as their knowledge and observation permit to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

August 4 and 6.—Southampton Summer Show and Gala.
Liverpool Show in Sefton Park.
6.—Northampton Annual Show.

GREEN GRASS IN LONDON.—It is pleasant to see how fresh and green the turf now is near the Houses of Parliament and the Abbey, also at the end of Downing Street, where there is a delicious bit of Grass. We could do a good deal with London gardens if the wasteful rain of soot could be stopped. Much could be done now if each man would not enclose his patch of ground with a high wall, so as to exclude sun and air and all possibility of good gardening.

TREES IN ST. JAMES' PARK.—There was once a very full and interesting collection of trees in this park—all named by Donn. Some fine trees are there yet, and we hope the authorities will see that they are looked after and added to. Trees we can scarcely have too many of, and the rarer trees should be correctly named. In such a central position Evergreens are out of the question at present, but summer-leaving trees are quite happy there.

CARNATION SHOW AT SLOUGH.—On Tuesday last a supplementary show of Carnations and Picotees was held in Mr. Charles Turner's nursery at Slough by the members of the southern section of the Carnation Society. There was a fine exhibition of both Carnations and Picotees, the chief prize-winners being Mr. Turner, Mr. Dodwell, and Mr. Douglas, who, as may be supposed, showed remarkably fine specimens of all the leading varieties. The following new sorts were certificated, viz.: Carnations—Dorothy, rose flake; Mrs. Anstiss, pink and purple bizarre; Samuel Barlow, crimson bizarre, and Squire Whitbourn, purple flake. These were all shown by Mr. Dodwell, and the first three named were also awarded first prizes in the seedling classes. Mr. Turner showed a new Picotee named Mrs. Webb, a heavy rose-edged sort. The show-room, one of Mr. Turner's large conservatories, was prettily decorated for the occasion.

THE POSSIBILITIES OF MISREPRESENTATION of misunderstanding are great. Mr. Douglas came to see us the other day, and in the course of conversation pleasantly remarked that we thought "all Carnations should be single." Having spilt more ink in begging of people to grow as many Carnations (not single ones), Cloves, and Pinks as they could find room for in their flower gardens and borders than anyone who ever wrote on these flowers, the remark surprised us. No word ever printed in *THE GARDEN*, *Gardening*, or any of the journals or books in which we deal with these plants could be quoted to justify the statement. We have tried to make the florist enlarge his sympathies by including every race of doubles among his favourites, and we have appealed beyond him to the public, not without result. And more may come of it yet. Mr. Douglas informs us that he is not without hope that a prize will be given for Clove Carnations by the Carnation Society next year, and also for border Carnations for cutting.

RECENT GARDEN APPOINTMENTS.

GARDINER, Mr. T., The Pastures, Derby.
BENNING, Mr. Geo., Ware Park.
BROWN, Mr. W. W., Elleron Lodge, Pickering.
DENTON, Mr. T., Penrhyn Lodge, Surbiton.
HARDY, Mr. W., Adderley Park, Salop.
SMITH, Mr. S., Swallowfield Park, Berks.
COPP, Mr. G. H., Holnest Park, Sherbourne.
DENNIS, Mr., Motcombe, Dorset.
CLEARE, Mr. J., Toddington, Gloucestershire.
MILNE, Mr. W., Levens, Westmoreland.
DAVIES, Mr. J. F., East Hill House, Wimbledon.
PRATT, Mr., Longleat, Warminster.
DRUMMOND, Mr. Wm., Drayton Hall, West Drayton, Middlesex.
PORTEUS, Mr. A. W., Aldenham Abbey, Watford.
WILKINS, Mr. T., Inwood House, Blandford.

GERMINATION OF PRIMULA SEED.

AT page 26 of *THE GARDEN* mention is made of the length of time taken by seeds of *Primula verticillata* to germinate. There is doubtless truth in "H. P.'s" words when he says it "might possibly depend on the ripeness of the seed." If the seed is not thoroughly matured, it is unreasonable to expect it to vegetate at one time; but if well matured, I do not think the length of time during which it is kept afterwards at all injurious to it, as the following will tend to show. In the spring of 1876 I saved some seeds of *P. verticillata* from plants which had flowered during the winter previous, and which I kept till March, 1881, being a lapse of about five years. On opening the packet the seeds had the appearance of being good and sound. I therefore determined to sow them and await the results. This I did, and in nineteen days from the date of sowing the surface of the soil was covered with seedlings, there being not fewer than 100 small plants; therefore, if seed will keep for five years, why not for ten? and if for ten, why not for any period, provided the conditions are the same? In my opinion, which is based partly on experience, and partly on information received from experimentalists, seeds may be preserved for any length of time, provided they occupy a position where they will be unaffected by atmospheric conditions of heat and cold.

E. JENKINS.

The Yucca at home.—We find the following sketch of this favourite plant in an account of the pleasant American pastime of camping out on the hills in California: "The Yucca or Spanish Bayonet, from which we have named our camp, is one of the most imposing flowers in the world. The plant itself is a bunch of bayonet-like leaves, stiff and sharp enough to inflict a painful wound, and 12 inches or 18 inches in length, growing close to the ground. Out of this cluster the single flower-stalk rises to a height of about 15 feet. The flowers are cream-white, about 2½ inches in diameter, pendulous on delicate stems in horizontal racemes which spring from the stalk in lengths so regularly graduated that the mass of blossoms presents the appearance of a gigantic white oval, about 6 feet long and 2 feet wide in the middle, tapering gracefully above and below. The specimen erected in our Plaza when we named the camp has seventy racemes, each containing from ten to thirty flowers. This gives about 1400 or 1500 blossoms for each stalk, and they shed a heavy Lily-like perfume, whose strength is commensurate with their grand proportions. These stately plants seem to be climbing precipitous mountains, and standing like sentries on the crest of the ridge. I am afraid it will seem prosaic if I add that the Yucca is good to eat. Mr. Albert Durer brought in the top of a young one which had not yet burst into flower. It looked like a stalk of Asparagus, 4 feet long and as thick as a man's wrist. The tender top, cut in pieces and stewed with cream sauce, made a pleasant addition to our dinner. It tasted something like Salsafy and something like Artichoke, and a good deal like Yucca. I believe that it is a favourite dish with Spanish Californians."—*New York Tribune*.

Saxifraga peltata is said (p. 51) to have leaves nearly a foot across. There are many here 18 inches across, produced by plants in fractured pots stood about half their depth in water. The object of thus growing them is to enable the roots to spread in the water, which they do, and soon form a huge black thready mass. It is also convenient as regards arrangement in ponds full of aquatics. When they die down they are removed to any out-of-the-way place secure from severe frost, and when at rest, if allowed to become nearly dust dry, they do not seem to suffer. These large leaves (no doubt larger in its native country) give colour to a statement which I have read somewhere, viz., that the Californians are in the habit of using them inverted for pots, and even for umbrellas.—J. M., *Charmouth, Dorset*.

OBITUARY.

It is with regret we have to notice the death of Captain Paterson, son of Dr. Paterson, of Bridge of Allan—the third within the last fifteen months. Captain Paterson died on the 6th of last month, from dysentery, in Pondoland, South-east Africa, after a few weeks' illness. He went out to Africa in January, 1878, and a few months after his arrival he joined the mounted volunteer forces of the colony, serving under Captain Ferreira, and with General Sir Evelyn Wood as lieutenant, and latterly under Colonel Baker, of "Baker's Horse," with the rank of captain. He received excellent testimonials from those officers under whom he served, and appears to have been much liked by all who knew him. At the conclusion of the late Zulu war he received a war medal in recognition of his services.

Mud edgings.—We notice that the hard black-brown edgings to flower-beds in the parks are still as impudently ugly as ever, cracked and bare, and that, too, in the middle of summer.

Hollyhocks (T. H. B.).—The flowers you send are good, particularly the dark crimson sort, which is one of the finest of its colour. In order to judge Hollyhocks properly, however, the full spikes must be seen.

Potato freaks (F. F. C. and C. H. T.).—Tubers on Potato haulm are by no means uncommon, and super-tuberating is equally familiar to Potato growers. The latter is the result of a second growth after that of the tuber first formed has ceased.

Rose Celeste.—Buds of this lovely Rose sent to us by Mr. Poë have reached us half expanded—a state in which they are exquisitely beautiful, the colour then being so tender and the form so fine. It is an excellent garden Rose, a strong grower and an abundant flowerer.

Seedling Begonias (Mrs. Brooks).—The flowers you send represent some very good varieties, particularly the pure white kind, which is as fine a white as we have yet seen, though of course we cannot judge of its habit—an important point. The large flesh pink sort, too, is, we consider, very good, the petals being good in texture, round, and symmetrical, thus making a well-shaped flower.

Protective duty on garden produce.—A large number of German owners of flower and kitchen gardens recently petitioned the Imperial Government for the production of a protective duty on cut Roses and other flowers; also on fresh leaves, fresh vegetables, table fruit, early Potatoes, flower bulbs, and on specimens for nurseries, as well as on seeds and vegetables. The petitioners had gone so far as to suggest a duty of 20 per cent. *ad valorem* on nursery articles, of 30 marks per kilo on cut Roses, &c., and of 1 mark per kilo on flower bulbs, a suggestion which a committee of experts is instructed to report upon. There is no doubt that this measure has been called forth by the opening of the St. Gothard railway, and is aimed more particularly at the competition created by the Italians.

Names of plants.—*C. E.*—The Strawberry is not uncommon and the colour is not unusual.—*C. M. O.*—1, *Gentiana cruciata*; 2, *Campanula rapunculoides*; shrub is *Lonicera Ledebouri*.—*J. C. S.*—1, *Orchis conopsea*; 2, *Asplenium Fabianum*; 3, *Asplenium Nidus-avis*; 4, *Abutilon vexillarium*; 5, *Asplenium variegatum maritimum*; 6, *Begonia fuchsoides*. Please remember our rule is to name but four plants each time.—*Lady King*.—*Lychnis flos-jovis*.—*G. S. W.*—*Heuchera Richardsonii*; annual too small to name.—*A. Elder*.—1, *Leptinella scariosa*; 2, *Funkia Sieboldi*; 3, *Centaurea macrocephala*.—*A. C. B.*—The blue flower is apparently an annual *Swertia*; the *Dianthus* looks like *D. tener*, but we cannot name accurately from flowers only. The *Spiraea* is *S. lobata*, commonly named *S. venusta*.—*Kennure Castle*.—1, *Zenobia speciosa*; 2, *Lonicera tomentella* (berries not edible); 3, *Aster albes-cens*; 4, specimen not sufficient to name.—*W. E. C.*—1, *Cacalia cylindrica*; 2, *Cereus flagelliformis*; 3, *Sedum Sieboldi variegatum*; 4, *Lychnis chalcodonia*.—*T. P. G.*—1, *Azolla pinnata*; 2, *Helianthemum polifolium*; 3, *Nepeta Mussini*; 4, *Tradescantia virginica*.—*R. W.*—2, *Lilium elegans sanguineum*; 3, cannot name; 4, *L. elegans atrosanguineum*.—*C. M. O.*—*Philadelphus grandiflorus*. The *Armerias* seem to be varieties of *A. mauritanica*. Are they characteristic specimens or drawn up?—*Anon.*—*Tradescantia virginica*, *Campanula persicifolia alba fl. pl.*, *Artemisia* sp.—*W. Forrester*.—1, *Hedychium coronarium* (Garland Flower); 2, *Philadelphus coronarius*; 3, *Lonicera Ledebouri*.—*R. W.*—1, *Microlepis hirta cristata* (exotic); 2, *Nephrolepis exaltata*; 3, *Davallia pyxidata*; 4, *Asplenium Trichomanes*; 5, *Farfugium grande*.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

A WOODLAND WILD GARDEN.

ABOUT this time of the year the flowering season of the majority of shrubs and dwarf trees may be said to be well-nigh over, and doubtless many a lover of hardy flowers, as he journeys along past shrubberies, through parks and along woodland walks, is struck with the somewhat tame and dull appearance presented, in comparison with the brilliant sight seen in shrubberies, &c., during the past exceptionally floriferous season, when *Rhododendrons* and other shrubs were laden with such a profusion of gay-coloured flowers. Under such circumstances it has occurred to me that a few wild garden plants might be found to enliven our woodlands at the present time. The first to arrest attention as one enters the woods would probably be our old acquaintance, *Campanula latifolia*, a strong clump of which is growing near the carriage drive, and stands up bravely amidst rank weed Grasses and other vigorous weed growth, its numerous spikes of bluish purple bells waving in the breeze. No one could pass without seeing and admiring this bright star of the wild garden. Another telling plant seen also at the same time raises its huge stalks above the highest weeds, and displays its lavender-coloured star-like flowers. This is *Mulgedium Plumieri*, a good inhabitant of the wild garden, decidedly different from all its associates on account of its large-sized leaves and their peculiar colour. This plant likes plenty of rich, moist soil to grow in, and when liberally treated, forms a plant of stately port and of almost gigantic proportions; a somewhat sheltered spot, half shady, and where there is an accumulation of leaf-mould or road drift is sure to suit its wants. Close beside the *Mulgedium* a mass of *Bocconia cordata* grows vigorously, and defies all weed interference. This uncommon-looking plant is admirably adapted for woodland wild gardens; its grey, large, curiously cut leaves with whitish undersides and brownish flower-spikes borne on the top of stout grey stalks from 4 feet to 5 feet high give it at once an attractive appearance. A starved, poor, thin soil will not suit the *Bocconia*, which needs a soil and site very similar to those in which the *Mulgedium* thrives. There is, however, this to be said in favour of the *Bocconia*, that if introduced into free, rich soil it will soon multiply and develop into a strong mass. Some Monkshoods have established themselves as neighbours to the *Bocconia*, with which their dark blue flowers form a striking contrast. The Monkshoods should, I think, all find a place in out-of-the-way shrubberies or woodland wild gardens on account of their poisonous nature. They are effective plants in woodlands and quite proof against rabbits, and they possess an advantage over many herbaceous plants in blooming late in the season. Some 50 yards or 60 yards further in the wood comes into view *Spiræa Aruncus*. It is quite 6 feet high and 8 feet through; its flowers are, however, becoming brownish, being now past their best. It is quite a striking object in the distance, and has a showy look. Other *Spiræas* are also in bloom, and amongst them *S. venusta*, a kind which is

doing well and looking quite gay, its rosy coloured flowers waving amongst the rough Grasses. *Spiræa* or rather *Astilbe rivularis* is just coming into flower. It has very large handsome white blossoms and is a famous plant for multiplying and running about when once put out in the woods—in short, a most desirable addition to the wild garden.

THE DAY LILIES, yellow and orange, do well, and are very different from the usual type of plants seen in woodlands; a few roots planted in rather bare places in rich soil soon make themselves at home and flower well. They are mostly planted under deciduous trees of spare habit, or under old half-dead Thorns where the shade does not prevent their blooming freely. Comfrey, blue, purple, and white, in groups, is now in flower a second time, having been cut over as soon as the first batch of flowers faded. It is a most useful plant for rough places. The purple one is the best bloomer and strongest grower; the blue is good in colour, but rather straggling in habit, and it does not hold its flower-stalks so well up together as the others, neither is it so profuse a flowerer; the white is useful for the sake of variety and contrast.

My object being to note plants now in bloom in the wild garden proper, I must mention a colony of that handsome and showy native weed, the Willow Herb (*Epilobium angustifolium*), a few transplanted roots of which have grown into a mass some distance clear of its neighbours, but nevertheless it comes into view along with them, and forms a worthy companion to the most beautiful of exotic plants ever planted in a wild garden. The wild Honeysuckle, too, is a striking feature in this bit of wild gardening which I am trying to describe, a strong plant having taken possession of a wild Cherry bush, and now almost smothering it with flowers. While mentioning climbers, and as I have exhausted the stock of flowering subjects in this particular spot, let me allude to a Virginian Creeper planted at the foot of a meagre old Thorn. It has taken firm hold of the Thorn's decaying head, on which it has a charming appearance, giving life to it in its declining years. The Creeper is just beginning to change colour from green to varied tints of purple and red, and in a few weeks the old Thorn will be aglow as if on fire. Another climber, the variegated Honeysuckle, planted on a Scotch Laburnum, will soon reach its topmost branches. This climber was killed down to the ground during the sharp winters of 1880 and 1882, when several other climbers that were making headway on different trees hereabouts were also killed. The common Hop, however, survived on an old Thorn, and is now fresh and green, giving a decorative and lively appearance to the half-dead tree. Before leaving this

ORNAMENTAL PART of the woodlands, I cannot refrain from mentioning two prominent objects that help to give a charm and finish to this bit of wild garden landscape. The first and nearest in view is a very fine specimen bush of the Golden Elder standing out on the Grass near a large wide-spreading Holly bush; the effect of the rich yellow-coloured Elder against the dark glossy leaves of the Holly is at once striking and attractive at some distance off. On approaching nearer and glancing beyond the Holly and Elder away in the background, a mass of light coloured foliage is seen, appearing at first sight somewhat like grey flying or watery clouds amongst the stems of the trees, but it is in reality a group of

Sea Buckthorn. Not only does this shrub afford a decided and pleasing change of colour from the varied greens of light and dark foliated vegetation, but its habit is also different from that of other shrubs. There is nothing stiff, common, or formal about it. On examining the mass in question, one plant is found to shoot its tapering wing-like branches straight up; another darts off diagonally; some run off at right angles, and others spread themselves over the Grass. The plants having had plenty of room in which to develop naturally, the group has formed a most picturesque mass with a broken and irregular shape and contour, displaying a variety of shades from light to dark. This mass of Buckthorn with its surroundings of old Thorn bushes, Birch, and other wildlings would, I venture to predict, be considered from an artist's point of view a quiet and effective piece of wild garden landscape. *Spiræa Douglasi* is found to be a showy shrub at this season. It has the good habit of keeping up a succession of flowering spikes, and therefore a large quantity of it has been put out in the woods. It succeeds well amongst rough, strong growing shrubs, and answers admirably for breaking the uniformity of trimmed Laurels or other monotonous shrub masses. *S. arifolia* has also been freely distributed, mostly in groups in open glades on the Grass, and its white feathery plumes have a very ornamental and lively effect. *Deutzia scabra*, planted in abundance, is now finely in blossom. One mass of flowering shrubs, composed of distinct groups of *Spiræa Douglasi* and *arifolia* and *Deutzia scabra*, all in bloom at the same time, produce a charming effect in rough woods. *Leycesteria formosa*, now in flower, planted in groups, also affords a decided change from the *Spiræas* and *Deutzias*; it thrives favourably on dry, light soils, and was not killed during the past severe winters, as was the case when growing on wet, low-lying, heavy lands. A dozen or more plants 3 feet or 4 feet high of *Pavia macrostachya* planted in an irregular long group look quite fresh and gay, a colony of *Aconite* being planted amongst them to cover the bare ground between the plants. The Monkshoods are at present in flower, and their dark blue spikes, shooting up amongst the palish green *Pavias*, have a very interesting appearance. While admiring this group the eye is attracted to a climber-covered tree. It is a Golden Ash, not in a very healthy state, the branches being thinly distributed, and some of them half dead; it, however, makes a capital support for a Virginian Creeper. Its rich tints, now increasing daily, in contrast with the golden-coloured bark and leaves of the Ash, produce a charming effect.

G. B.

CARNATIONS FOR THE GARDEN.

WE are indebted to Col. Stuart Wortley for some very pleasant evidence of the possibilities of gardening in London, in the shape of a fragrant bunch of Clove and border Carnations. A charming novelty among these was a good buff Carnation, admirable in colour. If this should prove a good free kind for gardens generally, it will be an important gain. Colonel Wortley says it is quite free with him. Carnations of similar hues are often poor in habit and weak; good, strong "border" kinds are therefore to be desired. Mr. Douglas lately spoke more than once in our columns of our being indebted to the florists for even our border Carnations, but there are a good many instances like the above, and Colonel Wortley could lay no more claim to the

title of "florist" than any ordinary mortal. It really does not matter who raises the flowers so long as we get them, but it would be a mistake to propagate an idea that any special class has possession, so to say, of the flower. It may be raised and grown by anyone, and the more seedlings people raise the better, keeping those that please them carefully. In various ways there is improvement desirable, apart wholly from the qualities sought by the florist pure and simple. Mr. J. Dundas has had, he says, much success with perpetual Carnations in the open air—raised from seed. Clearly raising kinds that would bloom longer is much to be desired, though the bloom now in some districts is by no means short-lived. If all who love the flower would work together for its improvement, it would be well. It will grace the summer for us, as the Narcissus does the spring, if we will only take the trouble to grow it well as a garden plant, secure good kinds, and increase them freely every year. If it were possible to have an exhibition where the various races and kinds could be shown as they grow, and arranged with some taste, there would be no need to urge their claims on any who saw it. Yet even that could not give a good idea of the value of the various races raised from *Dianthus caryophyllus* for the decoration of the British flower garden! So we say to each gardener and amateur, Grow and study these plants in your own way, and do your best to make them known to all. There is no way in which you can better aid the improvement of our "hardy" flower garden. We wish every one of our readers could see a basket of the white Clove Gloire de Nancy just come from Mr. Ware—long stems, buds, and flowers all cut as they should be—not a flower touched. The effect in a white china basket (arranged in two minutes) was excellent, and the like of which is never attained by those who waste long and weary hours over the innumerable flowers painfully set together in the vases at the shows.

ORCHIDS.

HARDY TERRESTRIAL ORCHIDS.

In addition to our native Orchids there are a great many Continental as well as North American species of singular beauty, and well worthy of our best efforts to successfully cultivate. Many are, however, debarred from attempting to grow these foreigners by an erroneous idea regarding their hardiness, but in my opinion where failure has thwarted an honest effort to grow these plants, other causes, which have been passed by unnoticed, may to a great extent be blamed, such as the wretched and emaciated condition in which the bulbs or tubers are generally received, wrong treatment as regards soil and situation, and last, but not least, placing the tubers at too shallow a depth in the ground. The latter cause is, I am positive, a fruitful source of failure with these as well as several other Continental bulbs, for if planted at the ordinary depth of our native species they frequently appear in mid-winter or early spring, when their doom is speedily sealed by a few nights' frost. I by no means wish to assert that all Continental species are hardy or even half-hardy, but with good sound bulbs and planting at a moderate depth, those found in Southern Europe and North Africa, as well as the countries bordering on the Mediterranean, may be successfully grown in our climate and soil.

ANOTHER SOURCE OF FAILURE with many hardy Orchids is planting in bare garden soil without a carpeting or covering of any kind. Now, it is well known that most terrestrial Orchids in a state of Nature are found, not in bare earth, but where

Grass or other vegetation preserves uniform moisture during summer as well as guards from excessive cold in winter. By following out the Rev. H. Harpur Crewe's advice tendered in THE GARDEN last year regarding deep planting, I have been pretty successful with many of the foreign species of *Ophrys*, *Orchis*, and *Serapias*, and have no doubt that others I have not yet tried will turn out equally as suitable for cultivation in this country. The genus

SERAPIAS is well worthy of attention, and contains some of the most ornamental and, I believe, easily managed of the Mediterranean Orchids. Two of these, *S. neglecta* and *S. cordigera*, flowered well with us this season, and their ornamental and curious appearance, as well as lasting qualities, have been frequently referred to by visitors. These have been planted out during the last winter without protection of any kind, and though at times the frost was pretty severe, they certainly seemed none the worse from the ordeal. Two or three other species of *Serapias* are also highly ornamental, such as *S. Lingua*, *S. longipetala*, and *S. parviflora*. The soil I find best suited for these is pure loam, with the addition of a little chalk or lime. Of

THE GENUS *ORCHIS*, the most ornamental are *O. tephrosanthos*, *O. undulatifolia*, *O. Stabiana*, *O. pauciflora*, *O. pallens*, *O. globosa*, and *O. laxiflora*, all of which I have had planted out for the past two years. The Monkey Orchis (*O. tephrosanthos*) is a very showy and distinct species, and in general form resembles the Wavy-leaved Orchis (*O. undulatifolia*). Both are easily grown in good calcareous loam, and will well repay, by their quaint and curious flowers, any little trouble bestowed on their cultivation. The Butterfly Orchis (*O. papilionacea*) has flowers of a dull crimson or chocolate colour, and looked well with us this season in a clump of some half-dozen plants, while *O. pallens* and sulphurea are of a rich, soft yellow. The latter is a very distinct and effective species from Portugal, and easily managed in a shady corner of the garden in light, calcareous loam. From Austria we have *O. globosa*, with large spherical heads of bright rose flowers, closely resembling those of our native species, *O. pyramidalis*; while Italy furnishes us with two desirable species, *O. expansa* and *O. pauciflora*, the latter bearing unusually large flowers of a bright golden yellow. Another Italian species that did well with us this season is *O. stabiana*, with flowers not unlike those of *O. maculata*, but more ornamental. With

NORTH AMERICAN SPECIES, with the exception of the *Cypripediums* and one or two others, I can do little or no good. The *Habenarias* completely baffle me to cultivate, although they do well for the first season after being imported into this country. I have tried *H. fimbriata*, *H. cristata*, *H. psychodes*, *H. orbiculata*, and *H. lacera* with little or no success. They may flower well enough the first year, but gradually decline afterwards, probably owing to our summers being less warm than in America. *H. orbiculata*, or large-leaved Orchis, from the Eastern States of America, is a grand species with large, silvery foliage about 2 feet in height, and will, I think, be more easily managed than any of the others, at least judging from specimens in my own collection. The ragged Orchis (*Habenaria lacera*) is probably the most ornamental of the whole genus, but is rather difficult to procure, and, I am sorry to add, more difficult to cultivate. The North American *Cypripedes* are not generally so difficult to manage. *C. acaule*, *C. spectabile*, *C. pubescens*, and *C. parviflorum* do fairly well with me, but *C. arietinum*, *C. candidum*, and our native *C. Calceolus* I have not flowered, although some half-dozen of apparently healthy specimens of the latter and a couple each of the former have been planted out for some time. Several

SPECIES OF *GOODYERA* have done well planted out in a damp shady spot in leaf-mould and sand, including *G. Menziesi*, *G. pubescens*, and *G. repens*. These are perhaps more ornamental as foliated plants than for any beauty of flowers they possess, most of the species being of a white

colour and rather insignificant. The foliage of *G. Menziesi* is especially ornamental, being of a velvety green, edged, striped, and netted with silver. Both these species and *G. repens* are showing flowers at present, the latter having become thoroughly established in a damp, shady bed. Another North American Orchid that we must not pass unnoticed is *O. spectabile*, a native of damp peaty soils, and one that is easily managed in our gardens. It grows to the height of 18 inches, bearing bright spikes of pinky flowers. *Arethusa bulbosa*, *Calopogon pulchellus*, and *Calypso borealis* I have never flowered; indeed, the appearance of roots which I purchased would lead one to suppose that they never could flower.

THE MADEIRA ORCHIS (*O. foliosa*) is without doubt the grandest and noblest of foreign importations; it is also of the easiest culture, and increases rapidly from year to year. In a damp, peaty bed, with the assistance of a little shade, this gigantic Orchid will often throw up flower-stems 3 feet in height, the flower-spike alone measuring 7 inches in length by 3 inches in diameter. Orchis longibracteata or Robertiana, figured recently in THE GARDEN, is another noble species from the island of Sicily. Although reputed hardy, this Orchis does not thrive well with me, our climate seeming to be too cold and damp for its successful cultivation. This Orchid, as well as many others mentioned in this paper, are beautifully illustrated in the "Iconographie des Orchidées" by J. B. Barla, and kindly lent me by Mr. P. Neill Fraser. It contains sixty-three coloured plates (life size) of European terrestrial Orchids.

Llandegai, Bangor.

A. D. WEBSTER.

Disa grandiflora rosea.—This is a distinct and very beautiful variety of the "Flower of the Gods," judging by some specimens of it now in flower in Messrs. Shuttleworth and Carder's nursery, Park Road, Clapham. Its flowers have a decided suffusion of rose colour in them, which softens the fiery brilliancy of the scarlet. The large flowered *Disa* is also grown well in this establishment.

Batemannia Colleyi.—We were interested in this rare little Orchid which we saw the other day at Messrs. Shuttleworth & Carder's nursery. It is of dwarf growth, the habit partaking of that of *Huntleya*. The flowers are produced in pendulous spikes, the sepals and petals being purplish, while the labellum is white, spotted and blotched with violet-purple. It is a native of Demerara, and succeeds well in the ordinary temperature of the Cattleya house.

Epidendrum nemorale majus.—We were not aware of the distinctness of this large flowering variety till we saw a flowering specimen of it the other day in Messrs. Shuttleworth & Carder's nursery. Its flowers are not only larger than those of the typical form, but the colour is richer and deeper, and the spike is more massive and more densely furnished with bloom. The ordinary form of this Orchid is charming enough, but it is surpassed by this major variety. It is grown with the Mexican and Brazilian Orchids.

Miltonia Regnelli.—This is a most desirable August-flowering Orchid, but one that is somewhat rare. Its growth is in the way of that of *M. cuneata*; the flower-spikes, which are erect, each carry from three to six flowers, which have white sepals and petals and a broad labellum of a light purplish rose, varied in shade in the different forms. It is altogether a charming Orchid, and as it lasts in bloom for several weeks together it well repays culture. In Messrs. Shuttleworth & Carder's nursery, Park Road, Clapham, where it is now finely in flower, it is grown successfully in an intermediate house in company with other Brazilian Orchids.

Cattleya crispa.—Sir Alexander Ramsay, Montpellier Parade, Cheltenham, sends us a spike of this lovely Orchid, together with an excellent photograph of an uncommonly fine specimen of it bearing ten spikes, with the flowers all fully expanded—a beautiful object.

TREES AND SHRUBS.

TREE SEEDS AND THEIR TREATMENT.

COLLECTION.—The best seeds are produced by fully fertile, healthy, vigorous trees growing not too close together in a favourable soil and situation. Very young trees usually furnish a large proportion of barren seed, while very old or weakly trees yield seeds which are not only difficult to keep, but also produce weak plants. Seeds ought to be collected only when they are ripe; such as are not fully ripe when taken off the tree do not possess the germinative faculty in the same degree as ripe seeds, and, moreover, lose that faculty much sooner. The ripe fruit of some species persist on the trees for a more or less considerable time. Such fruit one need be in no hurry to harvest; but there are other species, the majority of the seeds of which, with or without the rest of the fruit, are shed as soon as, or soon after, this ripens, *e.g.*, the Deodar, several kinds of Oaks, Abies Webbiana, Birch, &c. The collection of such seeds evidently admits of no delay. Rainy weather ought, whenever possible, to be avoided for the collection of seeds, especially of such as are small; but this prohibition, as a matter of course, does not extend to such seeds as are to be sown at once, or which comes to the same thing, as cannot under any circumstances be preserved.

HAND-PLUCKING OFF STANDING TREES is the most costly method, but is the only one applicable in the case of small or light fruit, *e.g.*, Elms, Maples, Ash, &c., or of small light seeds that escape from the ripe fruit still hanging on the tree, *e.g.*, Deodar, Silver Fir, Birch, &c. The seed collector must climb up into the crown of the tree, with or without the help of a ladder, just as he can manage, and with a sack slung over his shoulder. What he cannot reach directly with his hand he must draw to within arm's length of himself by means of a hook attached to the end of a light, but strong sapling of sufficient length. Branches and branchlets break off less easily when drawn upwards than if pulled downwards; hence it is always advisable for the collector to climb up to the highest point he can attain and begin by plucking off the fruit hanging at the summit of the tree.

GATHERING OFF THE GROUND.—This method of collection is very economical, and is peculiarly suited to large, heavy fruit which falls more or less perpendicularly, and which does not break up and allow the included seed or seeds to disperse. To help the fall of the seed or fruit, the branches of the trees may be shaken.

BREAKING OFF THE FRUIT FORCIBLY FROM STANDING TREES.—When trees marked to fall within a year or so are chosen as the seed-bearers, it may be found inconvenient or impossible to fell the trees as soon as the fruit ripens. On account of the nature and small size of the fruit and seed, the third method may also be inapplicable, while the first would be unnecessarily expensive, since there is no reason for sparing the fruit-bearing branchlets and twigs of such trees. The fruit may then be broken off singly or in bunches with the aid of a strong hook forming a sharp angle of about 30° firmly attached to one end of a long sapling. The inside edge of the hook should be sharp and serrated and slightly curved inwards. The hook should be passed over the fruit-bearing branchlet or twig at the point at which it is to be broken off, and jerked downwards; or, if that does not suffice, it should be twisted round once or twice, by which means the branchlet or twig, as the case may be, will be firmly caught in it and a single jerk will then suffice to cut the former through. Where small wood has no value, and there is no objection to thinning out the crowns of the trees, branchlets of a certain thickness may be cut off with a bill-hook, and the fruit then hand-plucked from them. Some trees produce bunches of fruit, the common stalk of which dries up at maturity and early disarticulates from the rest of the branchlet.

In the case of seeds covered with a thick fibrous rind the rind must be torn off with the aid of force and special shears, and in that of seeds included in a capsule or pod or between scales, the quickest method, when that is practicable, is the application of heat, under the action of which the valves of the capsules or pods and the scales of cones open out or disarticulate, and allow the enclosed seeds to escape. In many cases simple exposure to the sun suffices; in others, however, a higher and more sustained temperature is required.

With seeds with foliaceous appendages, the wholesale removal of the appendages, except one by one with the hand, is not always possible without injury to the germinative power of the seeds; but whenever practicable, it should be effected. If the seed is hard or tough, friction, more or less rough, suffices to detach these appendages. When this is the case, a very expeditious method is to nearly, but not quite, fill large stout sacks with the seed, and to thresh these or work them violently backwards and forwards, according to the toughness of the seed, until the appendages are detached or crushed, when they can be easily separated by the ordinary process of winnowing.

In the case of seeds too moist to be stored at once, the seeds of many species have to be plucked from the parent tree before they are quite dry, in order to prevent their being disseminated and scattered far and wide. Other kinds of seed contain a great deal of moisture even when they fall off naturally. Such seeds should be spread out not more than from 2 inches to 3 inches high in a dry, airy, sunny place, and turned over with a rake twice or thrice daily for a period varying with the kind of seed and the dryness and temperature of the weather. After this they should be piled up higher, the raking being continued as before, but being limited to only once a day. This latter process should go on until the seeds are sufficiently dry. Experience alone can tell when this is the case. It is needless to say that in cold weather the seeds should be removed under shelter while dew is being deposited. As regards seeds that are moist even when they are shed naturally, this drying is really the completion of the ripening process. W.

PLANTS IN FLOWER.

SWEET PEA NEW CARMINE.—Amongst all the varieties that are being grown and tested at Chiswick this year, the most beautiful is this one, raised by Mr. Laxton. The colour is very distinct, being a sort of rose-pink suffused with carmine. The flowers are large and the petals good in substance.

NEW RED MIGNONETTE.—M. D. Guihéneuf, of Nantes, sends us a spike of his new red Mignonette, a kind unlike any other variety that we remember, the dense spikes being a mass of orange-red. The perfume, too, is, we think, stronger than usual. It is a vigorous grower and of good habit; it will be an acquisition.

LILIU VENUSTUM is one of the finest of all Lilies now in bloom, the colour (a rich deep apricot) being so unlike that of any other Lily. It is a variety of *L. elegans* or *Thunbergianum*, but abundantly distinct, being a stronger grower and a freer flowerer. A large bed of it in the Hale Farm Nursery, Tottenham, is a fine sight at the present time.

SAGITTARIA SIMPLEX, a rare species of Arrowhead, is a very pretty aquatic plant, as it shows itself in a sunk tub at Mr. Ware's nursery. The leaves are different in size and form from the common native Arrowhead, being smaller and not so arrow-shaped, and the flowers, of a soft primrose-yellow, are very delicate and pretty. The list of hardy water plants being somewhat short, this is a plant worth knowing.

CARNATION GLOIRE DE NANCY.—By far the finest display of Carnations and Picotees of all kinds that we have ever seen is that in Mr. Ware's nursery at Tottenham, but of the numbers of sorts grown there none charmed us so much as a wide bed about 100 yards long of Gloire de Nancy,

which, without doubt, is the finest of all white Carnations. It is remarkable for the large size of the flowers and its extreme floriferousness. It is, moreover, a very strong grower; its foliage partakes strongly of that of the old crimson Clove, and the flowers possess the same strong Clove-like perfume. It is particularly beautiful in the bud stage.

WEIGELA GRANDIFLORA.—Judging by a specimen of this shrub sent to us by the New Plant and Bulb Company, Colchester, this species is quite different from the commoner ones—*W. rosea* and *W. amabilis*. It is altogether a larger growing shrub, more vigorous, but, we imagine, not so elegant in growth. It must be extremely floriferous, for the branch sent us is thickly wreathed with flowers about the size of those of the other species, white when first expanded, but afterwards changing to a dark rose.

MATRICARIA INODORA FL.-PL.—This, being an abundant bloomer, is a most useful plant to grow for cutting from. In growth and foliage, too, it is also elegant, the latter resembling that of Fennel. The flowers, which are like small double early Chrysanthemums, are pure white, and quite free from the objectionable odour inherited by most of its family. Those who do not know it should add it to the list of things worth growing. Flowers of it have been sent to us by Mr. Kirsten, Bridlington, who speaks highly of it.

MARYLAND PINK ROOT.—A large mass of this North American plant in the Hale Farm Nursery, Tottenham, is just now an uncommonly pretty sight, as the plants are in full flower, the slender stems being wreathed with tubular flowers 1½ inches long, of a bright red and yellow—colours which render them very showy. This plant is generally considered a difficult one to manage, but it thrives to perfection in a shady, moist peat bed that is protected on all sides by hedges. The botanical name of the plant is *Spigelia marylandica*.

THE CROWN DAISY (*Chrysanthemum coronarium*) has been sent to us in numerous varieties by Mr. Carter, Downhill, Coleraine, who considers it a most valuable flower for the garden, as the flowers are so durable when cut and placed in water; they even, it is said, improve in size for quite a week after they are cut. There is a great variety of colour amongst these Crown Daisies; most of the flowers are selfs, varying from a deep maroon-crimson or yellow through every shade to white, while others are tricolorous, and some are double and semi-double.

CISTUS FLORENTINUS, seen in its present stage in the rock garden at the Hale Farm Nursery, Tottenham, is a charming plant. It is a very dwarf grower compared with the other species, being only about 6 inches high. Its growth is somewhat trailing and close, and its dense cushion of deep green foliage is now studded with blossoms as large as a crown-piece, pure white, with a centre tuft of yellow stamens. It is an admirable rock garden shrub, and one that everyone would be pleased with.

SHRUBBY SPIREAS.—We have been charmed by the beauty of a group of these from Mr. Noble, of Bagshot. We may almost call them neglected shrubs. Few give them the attention which they deserve. Their beauty is of a very high order, and they come at a time when flowers are most welcome—towards the end of July and early in August, according to position. Nothing pays better for good cultivation and full exposure to sun and air. Among the many things that are stuffed into the shrubbery to dwindle, they are seldom so well cultivated or their wood so well ripened by the sun as to enable us to get their flowers good. The white and crimson are charming as cut flowers. A tenth of the care devoted to a specimen plant in a pot would produce a much finer bush on the lawn or in the open shrubbery. The specimens sent by Mr. Noble are *S. arifolia*, which now adorns so many gardens with its long feathery clusters of white blossoms; *S. Lindleyana*, the beautiful species alluded to last week as being so fine this year at Hampton Court and other places; *S. callosa*, one of the most elegant and attractive of all,

and easily raised from seed; *S. Nobleana*, and *S. Douglasi*. The two last named are remarkably handsome species, natives of California. Both bear dense plumes of flowers of a rich rose-pink, the flowers terminating the young erect shoots, but the first is easily distinguished from the other by the broad thyrsoid panicle not being so attenuated. Both grow from 3 feet to 4 feet high, and are well worth a place in every garden.

HYPERICUM OBLONGIFOLIUM.—This extremely handsome shrub is grown to perfection in Mr. Noble's nursery at Bagshot, judging by some specimens of it which he sends to us, and which are as fine as any we have seen, the bright golden cupped flowers being unusually large, and borne numerously in terminal clusters on every twig. It is one of the handsomest of small shrubs which one can have in a garden, and is particularly valuable on account of its flowering late in the summer, when comparatively few others are in bloom. It grows from 3 feet to 5 feet high and flourishes in any good soil.

CALOCHORTUS VENUSTUS EMPEROR.—A further illustration of the beauty and distinctness of this variety has been brought under our notice by Dr. Wallace, of the New Plant and Bulb Company, Colchester. The specimen is 3 feet high, and carries nine flowers and buds. The blossoms are not much larger than those of an ordinary *C. venustus*, but the colour is much richer, being a deep violet-purple, shading to almost white. From the same nursery we have also received flowers of the new *C. Weedi*, a kind in the way of *C. luteus*. It is a lovely plant, the flowers of which are bright in colour and of a beautiful cup-like form.

LITTONIA KEITI.—A fine flowering branch of this charming plant, which is a large variety of *L. modesta*, has been sent to us by M. Max Leichtlin, of Baden-Baden, to show how floriferous it is. The branch measures only a foot in length, but carries nineteen blossoms, which are somewhat bell-shaped and drooping, and of a bright orange-yellow. Like the allied genus, *Gloriosa*, it is a twining plant, each of the leaves being terminated by a tendril, by which it clings for support. The better-known *L. modesta* is a pretty greenhouse twiner, but this new Keiti variety is in every respect superior to it.

SUMMER CHRYSANTHEMUMS FROM DERRY.—The early kinds of these charming plants are at present nicely in bloom with us, and so well satisfied are we with them that it is intended to use them largely another year in the flower garden in place of some of the ordinary bedders. Those now in flower are Little Bob, Delphine Caboche, La Petite Marie, and Mdle. Joliwart. These and one called St. Mary were the first that opened. All their blooms are very good and useful both on the plants and in a cut state. There is, I think, no reason why the Chrysanthemum should not be had in flower for nine months in the year were that desirable.—**JOSIAH JEFFREY.**

OTTELLA OVALIFOLIA.—In the Water Lily house at Kew we noticed several plants of this new Australian aquatic, on one of which a handsome flower was expanded. This is, we believe, the first time in which this plant has flowered in Europe, and should it prove a free flowerer—and there is every prospect of this, judging by the large number of buds on the Kew plant—there is no doubt that it will soon become popular. *Otella* is closely allied to our native Frog-bit (*Hydrocharis*), to which it bears some resemblance. The leaves, which in the seedling form are strap-shaped and submerged, become on strong plants petiolate, with a blade about 6 inches long, elliptical, and floating on the surface. The flowers are borne a little above the surface of the water, and are composed of small green outer segments and three petals about the size of half-a-crown, pure white, with a blotch of deep crimson at the base of each. The fugacious character of the petals is a point against this plant, but a quick succession of bloom will doubtless make up for this fault. For tropical aquaria this *Otella* should prove an acquisition, and as it bears seeds freely it is likely to become plentiful. *O. alismoides* is the only species besides the above that has found

its way into European gardens. This species is a native of India as well as Australia. It is figured in an early volume of the *Botanical Magazine*. *Otella ovalifolia* is the second new aquatic flowered at Kew for the first time this year, the other being the handsome *Sagittaria montevidensis* recently noted in these pages. Another *Sagittaria* also new to gardens is now flowering in the same house at Kew, viz., *S. lancifolia*, a white-flowered species from the West Indies.

LEITZIA BRASILIENSIS.—The first flowers we have seen of this new Gesneraceous plant come from Mr. Kirsten, Bridlington. The plant is tuberous-rooted, and in habit and foliage much resembles some well-known species of *Gesnera*, such, for instance, as *G. caracasana*. It is, however, quite different as regards the flowers, which are of a curious, irregular shape, having a wide, gaping corolla of a lightish green colour, copiously spotted with purplish brown. It appears to be of annual duration. If seeds are sown in the early part of the year the seedlings will flower freely during the following summer. It is a Brazilian plant, first found on the banks of the river Doce by Herr Leitz, after whom the genus is named.

SEEDLING CARNATIONS.—A numerous and excellent gathering of these has been sent to us by Mr. Payn, gardener at Earl's Court, Tunbridge Wells, by whom they were raised from seed. The colours are well varied, and many are quite distinct in tone from that of the ordinary run of border Carnations. The blooms are for the most part large and well formed, though, perhaps, they would be rejected by the conventional florist. Such a gathering as this shows admirably what can be done in gardens by raising seedlings on a large scale for cutting from, and which for the embellishment of vases are quite as good as the finest named sorts. In order to judge seedlings properly, however, they must be seen growing in the open border.

VICTORIA REGIA.—The Kew plant of this giant Water Lily is now in fine condition, and has already borne several large deliciously scented blossoms. To readers of THE GARDEN desirous of seeing this noble plant in bloom it may be interesting to know that the flowers are produced in quick succession, the plant being without an open flower only one day in three during the flowering season, which lasts under favourable conditions about ten weeks. On the first day the flower opens in the afternoon, when it is white and very powerfully scented. On the following day the petals recurve, displaying a deep rose-coloured torus, on which the stamens are placed. In the evening the flower closes and sinks below the water to mature its seeds. On the day following no flower opens. Some of the leaves on the Kew plant measure over 6 feet in diameter and have the margins turned up about 4 inches.

BESSERA ELEGANS.—The reintroduction of such a charming plant as this will be hailed with delight by plant lovers, particularly by those who have a liking for bulbous plants. It is, we consider, one of the prettiest and most elegant plants that we have seen for a long time. Its tunicated bulbs throw up semi-cylindrical foliage, which is striated and slightly glaucous. The flower-stems are slender and erect, about a foot in height, and slightly overtop the foliage. The blossoms are produced in umbels, from five to fifteen in an umbel, but, singularly enough, only one flower expands at a time, but this lasts good for several days, and is immediately succeeded by another. The flowers are produced on very slender stalks, hence are drooping, and, being bell-shape, have a pretty effect. They are about the size of those of the African Lily (*Agapanthus*); the outer surface of the flower is a bright cherry red, while the interior is white, with a border of red to each division, and a conspicuous line of red running through the middle of each—an arrangement of colours we have never before seen. The plant is a native of Mexico, where it grows in company with the beautiful *Milla biflora*; hence it may be inferred that it is quite hardy, and needs the same cultural treatment. It may now be seen in full flower in Mr. Ware's nursery at Tottenham, where

a large importation of it has been received. It was in cultivation about forty years ago, but seems to have been lost or become very rare. A coloured figure of it will shortly be given in THE GARDEN.

SCILLA MARITIMA.—The flowering of this plant is of such rare occurrence as to cause the specimen now in bloom, in the economic collection at Kew, to be of unusual interest. Even where this plant is found luxuriating in a wild state flowers are but rarely produced. In the Mediterranean regions, especially in Southern Spain, Morocco, Algeria, &c., it is very abundant. It is also found so far south as the Cape of Good Hope. In some of the countries just mentioned the cultivation of Squills is an important industry. The Squills of commerce are composed of the sliced bulbs of this plant dried. Its bulb is short and thick, and about as large as a man's double fists; it produces several long strap-shaped recurved leaves, which perish in autumn, and are followed by the flower-spike, when it does come. This spike is about 3 feet long, the upper half being clothed with white blossoms, not at all unhandsome and they last for about two months. A dry cool temperature and a good drying off every autumn are conditions most favourable to the growth and flowering of this plant.

EURYALE FEROX.—In the Victoria house at Kew, growing along with the Victoria regia, is a plant of the closely related *Euryale*. Although not nearly so ornamental as the giant American Water Lily, this denizen of the eastern waters has points of interest peculiar to itself. It is an old inhabitant of European gardens, and from its thriving in a smaller tank and in water at a lower temperature than that in which the Victoria thrives, it may be recommended for cultivation where convenience for cultivating the latter is not obtainable. On well-grown plants the leaves are almost 3 feet in diameter, and in addition to possessing the purple under-side and the large reticulated prominent ribs of the foliage of the Victoria, the *Euryale* has a dark network of purplish brown lines on the upper surface, which is also curiously puckered or bullate. The flowers are, compared with those of the Victoria, small and uninteresting, the stamens being shorter than the whorl of sepals, and therefore hardly perceptible. Notwithstanding this, the *Euryale* is worthy of a place in tropical or temperate aquaria. It is a native of India, China, and Japan, where it is cultivated for the sake of its tubers and seeds, which contain useful medicinal and nutritive properties.

DESFONTAINEA SPINOSA.—While our large Rhododendrons are festooned with climbing Ayrshire Roses, Honeysuckles, *Tropæolum speciosum*, and other shrubs, viz., *Escallonia macrantha*, *Spiræa aræfolia*, *Deutzia crenata* fl.-pl., and the Sumach (*Rhus Cotinus*), &c., are in full bloom, none can at present at all equal in beauty *Desfontainea spinosa*. The plant from which I sent you specimens the other day is completely studded all over with flowers and buds in different stages of development. It is 5 feet 9 inches high and 5 feet through, and will continue in flower for some months to come. I planted it some years ago in the pleasure ground, in the natural soil of the place, viz., a light rich loam, perfectly drained, on a sloping southern aspect, fully exposed to the sun's influence, but sheltered by stronger growing flowering shrubs, &c., on a rising background. In this position it has withstood severe winters with impunity, when the thermometer has been down to within 5° or 6° of zero Fahr. A very large specimen of *Photinia serrulata* by its side was killed outright, and 2 feet or 3 feet of the tops of the common Laurel were also quite killed, so severe was the frost. In many cases the *Desfontainea* has been treated too much as a greenhouse plant, its health and vigour being impaired thereby. Cuttings of it root freely in a cold frame put in in October.—**JOHN GARLAND, Killerton, Eceter.**

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FLOWER GARDEN.

ANEMONE NARCISSIFLORA.

DEAR, faithful old Parkinson has in his "Garden of Pleasant Flowers" a page or two (chap. iv.) treating of "the nature and names of divers outlandish flowers, that, for their pride, beauty, and earliness, are to be planted in gardens of pleasure for delight." And under this head (see "Paradisus Terrestris," p. 9) he thus alludes to Anemones: "The Anemones likewise, or Wind-flowers, are so full of variety, and so dainty, so

to flower in November, and do their best to defy all but the most bitter of frosts or of snowy weather.

ANEMONE NARCISSIFLORA is so graceful in habit of leaf and inflorescence alike, that we may fairly say that no collection is complete without it. It is a native of the Pyrenees and grows from 18 inches to 2 feet in height when in flower in May. A deep, rich, moist soil in a partially shaded position suits it perfectly. Its finely cut leaves are borne on stalks varying from 6 inches to a foot in height, and from these the flower-stems spring, each bearing from four to

grows in great luxuriance here, covering banks both in shade and sunshine, but the shoots nearest to the walk are this summer all withered. Could this be accounted for by the use of sea gravel, though it injures no other plants with which it comes in contact?—T. [We can see no fungus on the leaves sent, though sometimes St. John's Worts are attacked by a fungus named *Uredo hypericorum*. Their appearance reminds us of scorching by the sun when the leaves are wet. The white flocculence is of insect origin.—W. G. S.]

PINKS AND CARNATIONS.

"A MERE AMATEUR" (p. 62) accuses me of saying "that all our Pinks and Carnations are raised by florists," a statement never made by me. I said that "every one of the Carnations grown at Chelsea were the result of the labours of the florist." "A mere Amateur" also takes exception to the word "florist." Well, it was used before I was born, and doubtless will be after both he and I have gone over to the majority. Carnations are called "florists' flowers," because the double flakes, bizarres, and selfs have been raised and improved by florists crossing and selecting and raising them from an original single form. If "A mere Amateur" has raised one or two kinds that people admire, were the seeds saved, let me inquire, from the original wild form by himself, or were they saved from double flowers, the result of the labours of some one else? Such Carnations as he has raised should be submitted to the committee of the Royal Horticultural Society or National Carnation Society, where their merits will be determined by men who have made the study of the Carnation part of their life work. There is room for everybody as regards the work of raising new forms of both the Carnation and Pink, and the results of anyone who may be able to carry seedling raising forward on new lines will obtain ample recognition. If the florists are wrong in their "fancies and foibles," it behoves those who find fault with them to do better. Every florist will object to the remark that the "beauty of the Carnation as a plant and as a cut flower was not seen there." First, as to plants, who is to blame for their absence? Not the framers of the schedule, for in that prizes were offered for plants in pots, and it was stated that "the object of those prizes is to develop excellence as decorative subjects, and the judges will be instructed to award the prizes for cultural excellence, and a liberal head of flowers which may not be shown on cards. The plants may have been lifted from the open ground, and the pots may contain one or more plants at the option of the exhibitor." If, therefore, Mr. Turner or Mr. Douglas were the only exhibitors, it was no fault of theirs. Next as to cut blooms. The object of those who exhibit them is to compete for prizes, and I must repeat what I have said before, that the man who exhibits his flowers without cards would have no chance against the man who uses them. Messrs. Veitch and Messrs. Cannell knew this, and wisely placed cards under their flowers. Although Messrs. Veitch had beautiful green Moss for a background, they still felt that cards were needful. The suggestion that a vase or epergne should be decorated with Carnation blooms is a good one. The flowers could be cut with long stems, and be placed daintily into the glasses. Half a dozen or more of these placed at intervals down the table would have an excellent effect, and show the value of the Carnation for room decoration. Border Carnations, I may mention, are shown as mixed flowers, and it would still add to the attractiveness of the exhibition if prizes could be offered for a stand of say six scarlet varieties and as many crimson, rose, white, or yellow kinds. Prizes are offered in that way at the Rose show and it might also be done here. It can be done by those who are interested in such work coming forward and offering to exhibit their flowers, or to subscribe the needful funds for the prizes. The National Society finds funds for the prizes from the subscriptions of the exhibitors, the largest exhibitors finding the largest proportions of the funds usually.



Anemone narcissiflora.

pleasant, and so delightful flowers, that the sight of them doth enforce an earnest, longing desire in the mind of anyone to be a possessor of some of them at least. For without all doubt this one kind (genus) of flower, so variable in colours, so differing in form (being almost as many sorts of them double as single), so plentiful in bearing flowers, and so durable in lasting, and also so easy both to preserve and grow is of itself almost sufficient to furnish a garden with flowers for almost half a year." Altogether our old author describes between sixty and seventy varieties, and gives engravings of many. This was in the year 1629, but now-a-days the species and varieties of Anemone girdle the whole year with their flowers, seeing that on warm, dry soils near the sea the seedling varieties of *A. coronaria* (sown in April) commence

twelve flowers in an irregular umbel, the flower-stalks or pedicels springing from a whorl of leaf-like involucre bracts. The flowers themselves are pure white, hairy behind, with a tuft of golden stamens in the centre. Well grown it is a noble plant, almost as rare as it is beautiful. It belongs to that race of Windflowers which bear long-awned or Clematis-like seeds, and although freshly harvested seed may germinate more freely, I have always failed with the imported seeds which I have obtained from time to time. Our illustration was drawn from a fine specimen bearing six or eight tall flowering stems in the garden at Straffan House, County Kildare. F. W. B.

Diseased St. John's Worts.—I enclose a sprig of St. John's Wort sadly blighted. The plant

At the same time if an exhibitor finds he is not able to subscribe, it is not incumbent for him to do so. Anyone can exhibit and take prizes without being a subscriber. J. DOUGLAS.

PENTSTEMONS.

AMONG herbaceous plants few, if any, are more showy and useful than Pentstemons, which, besides assisting largely to make borders gay during several months in the year, are of great value for cutting; their light, graceful spikes of flowers are not only dressy, but they last fresh for a long time in water. The way to get plenty of variety is to obtain a packet of seed of a good strain, and to sow either in pans filled with fine soil or under a handlight, where it can be kept close and damp till the seed germinates, when the young plants should be pricked off under glass, and shaded for a few days till they become re-established, after which it is necessary for them to be fully exposed in order that the growth they make may be sturdy and strong. Although Pentstemons are classed as hardy, they are only so in favoured parts of the country or in sheltered positions, and only stand uninjured when we have mild winters; that being so, it is always advisable to protect by having them in frames during the season named, and to plant out after they have been hardened off early in spring, which is the best time for sowing, as plants raised then bloom with great freedom the following year, as do also those from cuttings made now. In keeping up a stock in this way the best only should be selected, and by propagating annually and weeding out, a garden may soon be made rich with very fine sorts, as Pentstemons have been so much improved that the flowers are far richer in colour and double the size and substance they were. The easiest way to strike cuttings is to take off the young, half-ripe shoots at about 3 inches long, and, having trimmed them in the ordinary manner, to insert them in sharp sandy mould under the shelter of a handlight, which should be shaded by sticking a few branches of Evergreens on the sunny side; they will soon root if kept syringed and properly moist, and may then be taken up and potted singly to be wintered in cold frames till the time arrives for planting them out. Although Pentstemons will grow in almost any kind of soil, they succeed and flower best in that which is rich and deep, as the stronger the shoots are the finer will the spikes of blooms be if the plants are in an open, sunny position, so as to have the full benefit of all the light and air to build up and stiffen their stems. As a protection to old plants that it may be desired to keep on borders, I have found half-rotten leaves answer well; a few handfuls of them placed around the collars and kept there by a branch or two of Whin, to prevent the birds scattering them abroad, will preserve them from sharp frost sufficiently to enable them to break and start well again. S. D.

Blue Poppy of the Himalayas.—The *Meconopsis aculeata*, a plant of which I had a few years ago from Messrs. Backhouse, but which has only existed, making no progress till this year, has at last come forth in great vigour and beauty. The stem is 4 feet 9 inches in height, and proportionately strong, covered with bristles of a tawny hue, and having leaves branching gracefully from top to bottom. At first there was a compact cluster of buds at the top, heart-shaped, and more than twenty in number, and at the juncture of each leaf with the stem there was also a bud. The buds at the top gradually separated, each having its own stalk from which additional pendent buds have appeared. The side buds have pushed out in the same way, so that there have been buds innumerable altogether, and these have kept opening for weeks past, from twelve to twenty at a time, and there are still many to expand. The colour of the flower when the bud begins to open is decidedly blue, though light, but the petals, when fully developed, are a French grey or lavender colour, with large and brilliant

golden bunches or tassels of stamens. The plant is growing on a rocky of limestone.—EDWARD MASSIE, *Nutwood, Grange-over-Sands.*

Lilium longiflorum Takesima.—The split tube alluded to in THE GARDEN (p. 77) is not confined to this variety; on the contrary, all the varieties of *L. longiflorum* are more or less liable to it, but *Takesima* and *eximium* more so than the common kind, which seldom suffers in that way to any great extent. It is, in my opinion, caused by wet, in confirmation of which I may mention that some clumps of *Takesima* and *eximium*, which last year were perfect and promised to be the same this season, commenced to split as soon as the first heavy rains came. I had some in pots, too, which shared the same fate, but I removed those in a backward bud state to the greenhouse, where most of them have opened their blossoms free from tube-splitting. Quite three parts of them were perfect, while out-of-doors three parts at least were split. From this it would appear that it is desirable to keep these Lilies, and indeed all kinds when in pots, as much protected from heavy rains as possible, especially when near the time of flowering in order to obviate splitting.—H. P.

INDOOR GARDEN.

FRANCISCEAS AND THEIR CULTURE.

FRANCISCEAS rank amongst the finest and most distinct of flowering stove plants; they vary considerably in size from the small moderately compact, upright-habited *F. Hopeana* to the broad Laurel-leaved *F. confertiflora*, which, when well grown, attains a height of 4 feet or 5 feet, and 3 feet or 4 feet in diameter; its ample dark green glossy leaves form a perfect background to its large purple flowers, deep in colour when first opened, but, like those of most of the other species, turning gradually paler as they get older, until they assume almost a white shade. *F. confertiflora* is undoubtedly the finest representative of the genus, taking all its properties into account, although it is eclipsed in size of flower by the largest form of *F. calycina* called *F. calycina major*, but neither this nor the smaller form retains its leaves so well as *F. confertiflora*, nor do they grow so freely. The beauty of the flowers of most of the species is much increased by the white ring round the mouth of the tube, which is most conspicuous when they first open, contrasting well with the intense colour of the newly expanded blossoms. Another desirable property which they possess is that, in addition to opening their flowers in succession—a circumstance which prolongs their blooming over a considerable period—the time of their flowering may be so regulated as to have a continuance for several months, extending from early spring until the summer is far advanced. This much increases their value for exhibition purposes or for general decoration, for which latter they are invaluable, as they will stand in a conservatory when in flower in summer. There is one thing in which several of the species, more particularly *F. confertiflora*, differ from most plants, and that is that, although they need a moderate heat to grow them well, they will open their flowers freely and much finer in colour in a cool house and when closely shaded than they do in heat. This is the more remarkable as it is completely at variance with the requirements of the greater number of plants. There are one or two matters peculiar to their cultivation which it is essential not to lose sight of. First, at no season, either when making their growth, or even when it is completed and the wood and leaves fully matured, can they bear the effects of the direct action of the sun, or the deep glossy green of their leaves will be quickly converted into a dingy brown, sickly hue. When in flower, too, the colour of the blooms becomes bleached in a day or two if the sun is allowed to shine upon them. The second and equally important point is that they should at all times be kept free from insects—especially that worst of all pests, mealy bug, which if present is sure to get the plants into bad

condition, for not only do the flower-buds get injured by the operation of cleaning and fall off, but the leaves also suffer. Other insects will live on Francisceas, but none else are so injurious.

PROPAGATION.—All Francisceas are easily propagated by means of cuttings made of the half-ripened wood, which may generally be obtained by the end of March from plants that have made early growth in the stove. Bits of the leading shoots about 4 inches or 5 inches in length inserted in small pots filled with sand placed in a temperature of 70°, covered with propagating glasses and shaded, root in a few weeks, after which the glasses should be removed. Put them where they will receive plenty of light, but shaded from the sun. As soon as the cuttings have filled their little pots with roots they should be removed into others 4 inches or 5 inches in diameter. They will all grow in either peat or loam or a mixture of both; but, like most evergreen plants with large leaves, they grow freest in peat, which gives the deep green colour to the leaves so desirable. In peat they make stronger shoots, which, in the case of Francisceas, always produce the most flowers. The peat should be of good quality, containing plenty of undecomposed vegetable fibre. For the first potting, break the soil into bits the size of acorns, and add one-sixth of clean sand; drain the pots sufficiently, and press the soil moderately firm. Pinch out the points, at the same time bending the leading shoot down in a horizontal position, which will cause more of the latent back buds to break than would otherwise happen if the principal growth was allowed to remain upright. They will grow in an intermediate temperature, but make more progress if kept through the summer at 70° during the night, with 10° or 15° higher in the daytime. Do not allow the shading to remain over them when the sun is not out; for although, as I have already stated, they cannot bear direct sunshine, if grown with insufficient light the leaves will be soft and deficient in substance, light being indispensable to vigorous health; give air in the early part of the day, but close sufficiently soon to cause the temperature to rise for an hour or two up to 90°, syringing overhead at the same time. They are free-rooting subjects, and by the middle of July will require another shift, moving them into pots 3 inches larger, at the same time pinching out the points of the shoots and tying them out so as to keep the plants open; in other respects treat them as before, supplying them with plenty of water at the roots. By the beginning of September they should have more air, decreasing the shading, but not dispensing with it altogether until the sun has less power. Though the different species will through the winter do with a temperature of from 45° to 50°, in the early stages of their growth it will be advisable to keep them warmer, as the object will be to get them on in size. A temperature of 55° will be a suitable heat for them until the end of February, when it may be raised 5°. In March again give them a shift into pots from 4 inches to 6 inches larger, according to the kinds, the smaller varieties, such as *F. Hopeana*, *F. eximia*, and *F. Lindenii* not requiring nearly so much room as the stronger-growing *F. confertiflora* and *F. calycina*. A 12-inch or 13-inch pot is large enough for a full-grown specimen of *F. Hopeana*, which is the smallest; whereas *F. confertiflora*, when at its full size, will need one 16 inches or 18 inches in diameter. In other respects, as to

SOIL, TEMPERATURE, SHADE, AND MOISTURE, similar treatment will answer for all. Again pinch the points of the shoots, tying them out, so as to well furnish the base of the plants down to the rims of the pots. As the season advances increase the temperature as before, giving shade, air, and moisture as in the preceding summer. By the middle of June they will again require stopping, after which the treatment will be of a routine description. They will make good decorative plants the coming spring, and to afford a succession there will need to be a difference made in the time during which some are allowed to remain in heat after the last stopping. As soon as the shoots have attained their full length, which

may be looked for in September, a portion of the plants ought to be at once moved to a cool house, where they should have a moderate amount of air, but slightly shaded when the sun is bright, as even at this time of the year, when its power is fast waning, the leaves will be much better not exposed to its full influence. The remaining portion of the plants may be allowed to remain in heat some weeks longer until the flower-buds are quite visible, when they also should be moved to cooler quarters, giving them less water; but at no time must they be kept so dry as many things require to be, or the large-leaved ones will be found to flag when air is given them, which has the effect of injuring the foliage. They should be kept through the winter at from 45° to 50°. A lower temperature than this they do not like, and anything above it will bring them into flower too early in the spring. The plants that were allowed to stay the longest in heat until their bloom-buds were formed will go on increasing them in size during the winter, and will flower the earliest, the time being easily regulated by giving them more or less warmth. Those that were first taken out of heat will make little progress until the days begin to lengthen, when the increased solar warmth will cause the buds to swell. They will keep gradually, but slowly, increasing in size until they expand. Plants thus managed may be kept, by placing them in a north house at the end of April, to bloom in July, in all cases shading when the sun is bright, even as early as the beginning of March. In their ability thus to set flowers in a lower temperature than that in which they have been grown they differ from most plants. After blooming they should have their shoots cut back, so as to keep them bushy. If not shortened in each season before they are started into growth they would soon get into a loose, straggling condition. Again place them in heat; although they do not require it, still they will bear as high a temperature whilst growing as most plants. As soon as they have broken into growth they will require repotting, giving them a shift proportionate to the condition of the plants and the size and strength of the species grown. From this time forward they will not need much, if any, stopping, except in the case of such as have bloomed early in the spring, simply managing them in other respects as in the past season. If kept free from insects and fairly treated they will last for a number of years, assisting them during the growing season with a regular supply of manure water. When they get into pots as large as it is desirable to put them, and the soil in these is exhausted, they may be headed back to half their size, and when they have broken, turned out of the pots and half the old soil removed, placing them in smaller ones. Thus treated, they can be furnished with strong flowering shoots, even superior to what they possessed in the early stages of their existence. The under-mentioned sorts are all deserving of cultivation.

F. CONFERTIFLORA.—A free, dense growing species, one of the finest exhibition plants in existence, and suitable for conservatory decoration, the deep purple colour harmonising well with that of almost any other flower. It comes from Brazil.

F. CONFERTIFLORA VARIEGATA.—A form of the preceding, with leaves prettily variegated with white. The flowers are in no way different from those of the original species.

F. CALYCINA MAJOR.—This is a large flowering, strong-wooded kind, with ample leaves and very large deep-coloured flowers, but the latter are not produced in such numbers as in the case of *F. confertiflora*; nevertheless, it is a splendid sort. From Brazil.

F. EXIMIA.—A somewhat erect-habited plant of moderate growth, producing large heads of purple flowers. Also a native of Brazil.

F. LINDENI.—A smallish-growing species, with dull-coloured leaves and very bright purplish flowers. A very desirable plant for general decorative purposes, not so well known or so extensively grown as it deserves to be. Brazil.

F. HOPEANA (uniflora).—A small-growing species that produces its flowers freely from short

spurs up the branches, as well as from the points of the shoots and axils of the leaves. The colour is pale purple or lilac, changing to white. Brazil.

F. ACUMINATA.—An old, but handsome kind, distinct in appearance. The flowers are purple. A native of Rio de Janeiro.

INSECTS.—Thrips, red spider, and green fly will sometimes make their appearance upon *Franciscea*, but, from the repeated use of the syringe during the growing season, they do not often become very troublesome. Copious syringing and fumigation will be found sufficient to destroy these pests. Should mealy bug and scale appear they should have no quarter, or they will, if allowed to get numerous, reduce the plants to a condition that precludes the possibility of their flowering satisfactorily. They must be diligently sought after during the growing season, using the sponge and a soft brush for their destruction, and when at rest giving repeated washing, syringing, and dipping with some insecticide.

T. BAINES.

PROPAGATING CAMELLIAS.

THE propagation of Camellias by means of cuttings is seldom resorted to unless in the case of the single red, which is frequently struck in great numbers and used as a stock on which to graft the other kinds; still, though so seldom increased in this way, some of the vigorous growing varieties strike pretty freely and form good plants; others again root only with difficulty, and in their case grafting is necessary. For putting in cuttings July, August, and the early part of September are the most suitable times either for the different varieties or the single red to be used as stocks when large enough. The cuttings should be taken when the young shoots are approaching maturity, that is when rather firmer in texture than the half-ripened condition—the best for so many things. The time at which they reach this stage depends upon the season when they are started into growth; for instance, some of the earliest will be ready in July, and others not till September. In preparing soil for cuttings sift some peat and sand through a quarter of an inch sieve; about two-thirds of the former to one of the latter will make a good compost, to which add a small quantity of loam. Next take some clean 5-inch pots, half fill them with broken crocks, rough at the bottom and finer towards the top, then put in the soil and press all down firmly, leaving just space enough at the top for a thin layer of sand. Having prepared a number of pots in this way, give them a slight watering, and allow them to stand for a little while, when they will be ready for the insertion of the cuttings. In taking the latter bear in mind that the weaker shoots are the easiest to strike provided they come from the outside of the plant, those drawn up in the centre being wanting in sturdiness. About 4 inches is a suitable length for the cuttings, and of this 2 inches may be buried in the soil; the leaves up to this depth should be removed, but do not take off any that can be retained consistent with the proper insertion of the cuttings. In

INSERTING CUTTINGS, put them in firmly and as thickly as possible without undue crowding; then as each pot is finished give it a thorough watering, enough, in fact, to cause the sand on the top to form a level surface. When finished put them under handlights or propagating cases in a cool house, or they may be put in a cold frame, which should be prepared beforehand for their reception by having had a thorough cleaning. The inside should be whitewashed with hot lime, which is better than paint, as it serves to sweeten the atmosphere and prevent decay, while a bottoming of coal ashes is a good material on which to place the pots. If the frame is rather deep place ashes enough therein to raise the cuttings up to within a foot of the glass. The lights must be thoroughly cleaned beforehand and, when the cuttings are put in, kept close at all times and shaded during sunshine. By being kept close at all times, I mean when not removed for the purpose of examining the cuttings, which should be looked over every morning in order to

observe how they stand as regards water, or to remove a dead leaf if necessary, as a single decaying leaf, if allowed to remain, will frequently do a good deal of mischief. If kept in the cold frame in winter they must be thoroughly protected from frost, but they will root quicker if a little heat be applied about the middle of October—just enough to keep out frost. This increased temperature must not be overdone, otherwise it would be safer to leave them in the cold frame till the ensuing spring. At that time in either case they will be well callused, when they should be plunged in a gentle bottom heat, which will greatly assist the formation of roots, and in the course of the following summer they will be fit to pot off. They may also be struck by being put into heat at once, but in that case the number of deaths is frequently large. As soon as they are well rooted pot them off into small pots, being very careful not to damage any of the tender roots, and then keep them close till they recover from the check thus received. In this way the single red will strike readily, and may be grown on till large enough to be used on stocks on which to graft the different varieties.

SEEDS of the single red are often imported from Japan, and when large enough the young plants are used for stocks. The seeds should be sown in a frame or in pans or boxes of soil, and will sometimes germinate quickly, while at others they will lie in the ground more than a year and then grow. This is probably owing to the amount of time that has elapsed between the season of ripening and that of sowing. When large enough the young plants must be potted off and grown on in the same way as cuttings till required for grafting.

GRAFTING is generally performed in July August, or September, the first being the best time, as the plants then get well established before winter. Whether the stocks be raised from cuttings or seeds, they should be allowed to get as thick as an ordinary lead pencil before they are grafted. Side and veneer grafting are the two methods used. In side grafting take as a scion a shoot just as for a cutting, i.e., one with three or four leaves and a terminal bud; then cut about 1½ inches in length of the bottom portion in the form of a wedge. That done, take the stock and make a slightly sloping cut downwards, in such a way that a strip of bark, with just a thin film of wood, is separated from the stem, except at its lower part by which it still remains attached to it. The effect of this is to leave a wedge-shaped incision in the stock into which the graft will just fit, when it must be tied securely in its place, and the operation is complete. In veneer grafting, which is more generally employed than the preceding, the scion is formed with a sloping cut, extending for 1½ inches or 2 inches from side to side; the bottom portion is then cut level, which completes the scion. In the stock make a slight horizontal incision, then as much above it as the cut portion of the scion extends make a slightly sloping cut down to the horizontal one. The effect of this will be to remove a piece into which the cut part of the scion will exactly fit, when it must be thoroughly secured in its place. As the object is to obtain a perfect union, the portion removed from the stock will depend upon the size of the scion. Unless inconveniently tall, no part of the stock must be headed down when grafting, but after a union has taken place, the head should be removed by degrees. When grafted, wax or clay may or may not be used, as if they can be kept air-tight, no waxing or claying is necessary, but where not too secure in that respect, either one or the other should be employed. By air-tight I mean in a close case inside the propagating house, as then no more air is given in the house than is absolutely necessary to maintain an even temperature, and the case being inside, complete isolation from the outside air is ensured. In this latter case the progress of the union can be watched and the plants treated accordingly. The grafts must be thoroughly well shaded till a union has been effected, when air may be given by degrees, and after that a portion of the head may

be removed. Great caution is necessary, first in exposing the plants to the air, as if done before a complete union has taken place, the graft will be lost. For tying on the graft nothing is better than a thick soft cotton, as it does not decay so quickly as bast, and from its soft character it does not injure the bark. T.

CLERODENDRONS.

THERE are three very distinct sections of Clerodendrons that are extensively grown in stoves; one consists of deciduous twiners, of which *C. Balfouri* may be taken as a representative; a second is *C. splendens*, which is also a twiner, but differs from the last-named section in being evergreen and in requiring different treatment; then comes the third division, which consists of evergreen shrubs, very distinct, and which need treatment different from the others. A selection from these sections may with advantage find a place amongst the best collections of plants; they have much to recommend them, inasmuch as they grow freely, and succeed with less attention than most things, not being impatient of either drought or moisture to such an extent as the generality of cultivated plants. The Chinese *C. fragrans* is one of the sweetest scented flowers grown. Another advantage which Clerodendrons possess is, they can be flowered in either a large or small state, several of them being alike suitable for twining round a pillar or for draping a rafter. Where room is a consideration, there is another property possessed by the shrubby species that is deserving of attention; it is the way in which they may be cut in every autumn, so as to occupy little room during the winter; not only will they bear this treatment without injury, but to keep them in their wonted shape it is necessary to so reduce their size as to literally head them down. As regards

CULTURAL REQUIREMENTS, let us commence with the shrubby kinds, of which we may take *C. fallax* as a good representative. This is a vigorous growing shrub, with ample lively green leaves, supported on stout petioles 8 inches or 10 inches in length; above these, from the points of the current season's shoots, spring the flowers, which are bright scarlet in colour and borne in very large stately, erect panicles, 10 inches in diameter and a foot high. This sort strikes readily from cuttings, which can generally be obtained about the end of June. When they can be got 6 inches long they should be taken off with a heel and inserted singly in 3-inch pots in half sand and finely sifted loam; the soil ought to be kept moist and the propagating glasses sufficiently close to prevent the leaves flagging; these, from their size and somewhat soft texture, will not bear so much air as some kinds of foliage until roots are formed. They should be in a temperature of 70° at night, and allowed 10° more in the daytime during bright weather. The cuttings will root in a few weeks, when the glasses may be removed and the plants placed for a week or two in a light situation; they should then be moved into 6-inch or 7-inch pots, according to the quantity of roots which they are found to have made when turned out of the cutting pots. Let them be potted in good fibrous loam, not broken too fine. To this should be added one-fifth rotten manure and an equal quantity of sand; make the soil quite firm in the pots, and place them on a shelf as near the glass as they can be got. This is important in order to keep them dwarf and short-jointed, upon which in a great measure depends their good appearance afterwards more than in the case of most plants; if allowed to become at all drawn no subsequent treatment can furnish them with stout, healthy leaves down to the pots until they have been headed down, which would entail the loss of a season. They must never be allowed to suffer from want of water, or the leaves will be injured. Syringe freely every afternoon both the upper and under surfaces of the foliage; they will require slightly shading in very bright weather until the middle of September, when it should be discontinued; give more air, and reduce the temperature to 65° at night, and proportion-

ately low during the day, lowering it 5° more as the days get shorter. During winter little growth will be made, and correspondingly less water must be given; but as these Clerodendrons do not require the wood to be ripened so much as that of most plants, they must never be allowed to get too dry at the roots, so as to cause the leaves to flag, or they will be injured. Keep them where they will have plenty of light, and continue this treatment until the middle of February, when the temperature should be raised 5° day and night, and the plants moved into 10-inch pots, now using the soil in larger pieces than before, but with a similar quantity of manure and sand added. After this be careful not to give too much water until the roots have got well hold of the soil; towards the latter end of March raise the temperature 5° more, and begin to syringe overhead in the afternoon. They will now grow fast, and should have a little air in the daytime; as the sun gets powerful a slight shade will also be necessary in the middle of the day. They make roots freely, and by the end of April they should be moved into 13-inch pots, which size will be large enough for the present season, using soil such as that recommended for the previous shift. The temperature may now be kept at 75° in the night if the plants are required to flower early in the season, but with this heat they must be placed near the glass and be allowed a moderate amount of air every day. About the beginning of June they should show bloom, when they may have manure water given twice a week. In a few weeks the flowers will commence to open; the plants can then be moved to the coolest end of the stove, or if a house is available where an intermediate temperature is kept up they may be removed to it, which will prolong their time of blooming. When the flowering is over, if the spikes are cut out at the bottom just above where they spring from the upper leaves, and the plants are again subjected to a brisk heat, they will push up one or more shoots from the points from which the flower-stems were removed, and will bloom again in the end of August or beginning of September; after this they may be cut down to within 8 inches or 10 inches of the bottom, and should be kept at about 65° at night and a little higher in the daytime, syringing daily, but not giving much water to the soil until they have again begun to grow; the temperature may be lowered as in the preceding autumn, wintering them as before. As the days lengthen give them more warmth; in March take them out of their pots and remove one-third of the old soil, putting them in others 2 inches or 3 inches larger; press the soil moderately firm, and treat them in every way as during the previous summer, except that they will not require potting a second time; they will flower again twice, but they must not be cut back after the first blooming further than just removing the flower-stems. Plants thus treated will last for years, and may, if desired, be grown in 18-inch or 20-inch pots, in which way they will attain a large size, bearing eight or ten spikes of bloom at a time.

C. KEMPERI.—This handsome South American species also bears scarlet flowers. It (and also *C. fallax*) can be raised from seeds sown as soon as ripe in autumn; but in order to obtain them the first flower-stems of the season must not be removed, but allowed to remain on the plant until the seed is matured. Sow the seeds singly in small pots, covering them with a quarter of an inch of soil. They will soon vegetate, and will require treating in every way similarly to young plants raised from cuttings.

C. FRAGRANS FL.-PL.—This is a weaker growing plant than the preceding, producing close, compact heads of pinkish white double flowers, so highly and agreeably scented as to be preferred by many to those of *Daphne indica*, *Tuberose*, or the old *Clove Carnation*. It requires similar treatment to the two first-named kinds, but does not need so much root room. It is a native of China. All the above are sufficiently stout in their habit of growth not to need any support beyond a single stick to each shoot.

C. SPLENDENS.—This is an evergreen twiner of moderate, but not very quick growth. The flowers, which are deep scarlet, are produced in slightly drooping panicles from the young wood, and are very handsome. This species is well adapted for clothing a pillar or rafter, and looks well trained on a moderate sized wire trellis. It is from *Sierra Leone*, and can be propagated by means of cuttings, but these require to be selected with judgment, as if made from hard, wiry shoots, they do not either root or grow freely, and, on the other hand, if too soft they generally damp off. The best cuttings are those obtained from a strong, mature branch that has been cut back. The young shoots that afterwards break from it should be taken off with a heel when about 8 inches long. These can be got in the summer, and will root in sand. They should be placed singly in small pots under a propagating glass in a temperature of 75°, and when well rooted they should be moved into 6-inch pots in fibrous peat, to which has been added one-sixth of sand. When they begin to grow place a stick in each pot for support, giving them a light situation, with air every day, and shade when the weather is such as to require it, syringing overhead when the house is closed until autumn. Reduce the heat 5° day and night as the sun gets less powerful, and in winter a night temperature of 65° will be sufficient. About the middle of February give them 5° more warmth, which will induce the roots to move, and a month afterwards shift them into 10-inch pots, again using good peat and enough sand to keep it open; pinch out the points of the shoots, in order to induce them to break back. During the spring and summer they will bear a temperature of 75° at night, giving air when the thermometer rises to 80°; shade in sunny weather during the middle of the day, and syringe freely overhead when the house is closed, which should be done early in the afternoon. As the growth requires support, put in each pot four or five sticks, round which train the shoots, but do not allow them to become entangled one with another, which often happens if not attended to. Keep them in these pots during the season, again lowering the temperature in autumn, and discontinue the use of shading and syringing; winter as last year, gradually raising the temperature when the days lengthen sufficiently to require it. About the same time in spring shift them into their flowering pots, which for this first season should be 13-in. ones; put them in soil similar to that previously recommended, and place a wire trellis to each plant, over which train the shoots evenly. Give heat, shade, and air as during the previous summer, and also water to the roots and overhead. By midsummer they may be expected to show flowers, which will continue to open and remain in good condition for several weeks, during which time the plants may be placed where they can be kept a little cooler, but they must not be put where they will be subjected to draughts or to too low a temperature, or the flowers will fall off before they open. Keep the shoots regularly trained as hitherto. After the blooming is over, they may, if too full of growth, be slightly cut in and kept through the autumn and winter as before. Again about the time that growth is commencing the plants should be turned out of their pots, removing any loose soil that may exist, but they must not be shaken out, as is often done in the case of deciduous subjects, or the leaves will suffer; move them into pots 3 inches larger, using soil the same as previously, and treating them in every way similarly. They will last for many years by removing a little of the surface soil each spring without disturbing the roots too much; they will also be benefited by receiving manure water in the growing season. When this Clerodendron is used as a climber it is better to grow it in a pot, as from its moderate habit of growth the roots are not so well calculated for planting out. *C. speciosum*, which is a handsome variety of *C. splendens*, may be treated in every way like it.

C. BALFOURI.—Among deciduous, twining Clerodendrons this is much the best. It is a vigorous, quick grower, and may be either planted out or grown in a pot, for which latter purpose it is well adapted either for flowering in a small

state, or for growing into large specimens. It strikes freely from cuttings, which should be taken off with a heel as soon as they are 8 inches long, and if the plants have been started about the beginning of February, the cuttings will be large enough to take off by the end of March. Put them singly in 3-inch pots, filled with two-thirds sand to one of loam, sifted fine. Being very soft, they require to be kept moist, or they will flag if much air is given. Keep them until rooted under a propagating glass in a night temperature of 70°, with a little more heat during the day. Give just as much air as will prevent damping. They will root in a very short time, after which place them where they will receive a fair amount of light for a few weeks; then move them into 6-inch or 7-inch pots. The soil should consist of four parts good turfy loam to one of rotten manure and sand in equal quantities; press it firmly in the pots, and pinch out the points of the shoots to induce a branching habit; let them have plenty of light and water freely. When the roots have begun to move well they will bear a temperature of 75° at night and 10° higher with sun heat, syringing overhead at the time the house is closed. When the shoots have grown three or four joints past the point at which they were first stopped, they should be again stopped. By the end of July they will want moving into 10-inch or 11-inch pots, but this time do not break the soil fine; each pot should now have four or five sticks, a yard high, placed just inside the rim round which to train the shoots; very little shade is required, full exposure to the light being necessary to induce their flowering profusely. Give a moderate amount of air all through the summer, and increase it in September, at the same time discontinue the use of the syringe. About the close of the month water should be withheld from the soil until the leaves flag considerably, after which give a little to freshen them up, again allowing the soil to become dry, so as to cause the foliage to droop before water is applied. Keep on repeating this process, which will stop further extension of the shoots, harden up the wood, and ultimately cause the leaves to turn yellow and fall off; after that reduce the temperature to 55° during the winter, giving no more water than will just keep the soil slightly moist. When starting them into growth, which may be at any time from the end of February to May, they must have the ball of earth well moistened at the time when they are subjected to a higher temperature. This will be best managed by soaking them in a pail of tepid water, letting them stand, pot and all, in it for twelve hours. After this raise the heat 5°, at the same time training the shoots neatly round the sticks. When they have made a few inches of growth the temperature may be raised to 65° at night, giving 8° or 10° more during the day. Syringe regularly overhead in the afternoon. In a few weeks they will show flower, which will grow rapidly, and as a rule begin to open in eight weeks from the time when the plants were first started. If bloomed early it will be necessary to keep them in a temperature similar to that in which they have been brought on, but if not flowered until later they may be moved when in bloom to the conservatory, where they will last in good condition for several weeks. After this they can be at once shifted into 16-inch or 18-inch pots. The shoots should then be untied from the sticks, cut back to 4 feet or 5 feet in length, and each plant trained near the roof in a house or pit where they will receive plenty of light, with a temperature during summer such as that of the preceding season, treating them in other respects similarly, and drying them off in autumn, as before. After this a strong wire trellis should be fixed on each pot, over which the shoots may be evenly tied. Winter in a similar temperature, and again bring them into flower when required. After blooming this season they should be well cut back, turned out of their pots, and one-third of the ball of earth removed, replacing them in the same pots in new soil, and growing them through the season, as recommended for the last. They will now be benefited by manure water when growing; managed in this way, they will last for several

years. If required for planting out, they should have a well-drained border in which there is not too much room for the roots, or over-luxuriant growth may be the result. The soil ought to be similar to that which has been advised for pot-culture, drying the plants off similarly in autumn. After the first season a little of the surface soil should be removed each year, replacing it with fresh material and giving manure water liberally; prune well in each season after flowering. C. Thomsoni and C. Rollissoni will succeed under the same treatment.

INSECTS.—As regards insects, deciduous Clerodendrons are not much subject to them. Red spider will sometimes make its appearance, and if not removed soon injures the leaves. For this the best preventive is a free use of the syringe. The shrubby species are often attacked by both brown scale and mealy bug, but diligent use of the syringe and sponging will keep them in check. When they are headed down affected plants should be well washed with an insecticide. The large-leaved kinds are sometimes infested with red spider if the undersides of the leaves are not kept well syringed. C. splendens and C. speciosum should be treated in a like manner if troubled with insects. T. BAINES.

Fuchsias (G. D. J.)—Your Fuchsias are attacked by thrips, which may be killed by fumigation or by dipping the plants in or washing them in one pound of soft soap dissolved in two gallons of rain water, to which add one quart of tobacco water. Before the above mixture is quite dry, wash the plants with clean water. Repeat the process in a fortnight, as the eggs will not have been destroyed. Three ounces of Gishurst compound and one gallon of Tobacco water is also very effective as a wash.—G. S. S.

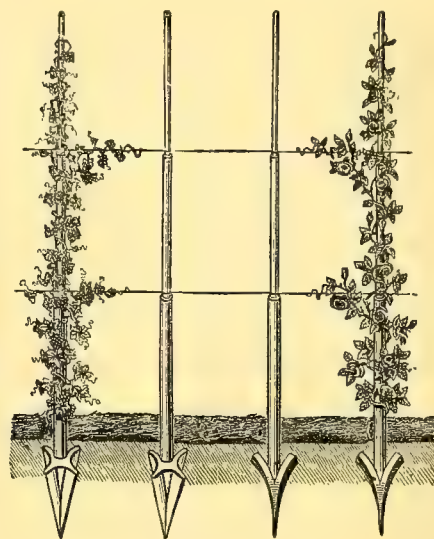
Variegated Ficus.—We remarked your notice of our *Ficus elastica albo-variegata* in last week's GARDEN (p. 79). It may not be out of place to say that we know there are two other variegated varieties, one of which runs out at once, and the variegation only shows in the young leaves; the other is a yellow margined variety, but the foliage is not flat, nor is the colour bright. We have both forms. In the variety certificated every leaf is constant and the habit of the plant close-jointed, producing, as would be seen, plenty of very fine leaves. Under artificial light the variegation is very brilliant. Being evergreen and thick-leaved, it is incomparably better than the Coleuses, which are useful in winter and spring. We have *Dracæna Goldieana* in fruit; the latter are like small Crab Apples, and dull vermilion in colour.—R. P. KER & SONS, 6, Bassett Street, Liverpool.

5027.—Chrysanthemum buds.—Many plants put into their blooming pots early will by this time be forming what are called terminal buds, and if properly managed these buds will make very large blooms. But, speaking generally, it is only the most experienced growers who succeed with them. If the plants are in the least neglected with regard to watering, or pinching out the side-shoots that form immediately below the buds, they very often turn blind or become deformed, and are altogether useless. I have sometimes set these July buds on a portion of my plants by way of experiment, but I find that they are too early for exhibition in November. "J. W." will find it advantageous to pinch out the buds already formed and to encourage the growth of axillary branches. The number of branches to be left on each shoot must depend on the number of blooms the plants are intended to carry. If in 10-inch or 11-inch pots, and strong, and the wood well matured, such varieties as Queen of England may be allowed to carry ten blooms; but if plants of the Mrs. Dixon type, they may be allowed to carry from twelve to fifteen blooms. As regards the time when the buds should be set, it depends on the time when the show is to take place. I find that buds set the first week in September are generally right for exhibition about November 22, but where the plants can have a little fire heat, when necessary, to bring them on, that alters

matters considerably, and in that case the grower must use his own judgment.—H. PARKER.

GALVANISED IRON STAKES.

THESE are recommended for supporting Vines, Hops, fruit and other standard trees, Hollyhocks, Roses, Dahlias, and also for the construction of espaliers and archways, offering as they do no harbour for insects. Although their first cost is more than for wood, they will prove in time to be more economical, as they do not require any repairs, and are in fact imperishable, while wood rots away, and in that state harbours all kinds of insects. In using these stakes for espaliers they are provided with rings to put wire through; and for archways there is a strong loop at the top of the stake, to which the roofing wire is fastened. The foot is of cast iron, of conical form, easy to drive into the ground, and not liable



Galvanised iron trellis.

to rust. They may be had in lengths 3 feet 3 inches to 8 feet, and they are by no means dear. For the annexed illustration we are indebted to Mr. F. Martin, Granville Road, Walthamstow.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 83.)

GONIOPHLEBIUM.—This genus, which is closely related to that of *Polypodium*, contains many species which, although they vary greatly in size, are all very ornamental. The smaller-growing ones, such as *G. incanum* and *sepultum*, are specially adapted for Fern cases, and most of the others, producing pinnate fronds from 6 feet to 10 feet long, are extremely useful for covering trunks of dead Tree Ferns. Those of a pendulous habit may be used with advantage for filling baskets of large dimensions; grown in that way they show themselves off to perfection, their pinnae, which in most cases are beautiful, beset with sori, appearing on the upper surface like rows of buttons evenly and elegantly disposed. They are all provided with rhizomes, the size of which is generally proportionate to that of the fronds which they produce. In most cases they are underground, preferring to be slightly covered with soil to being thoroughly exposed. They should therefore be pegged into the soil like those of *Davallia* and most *Gleichenias*. One of the most effective and at the same time a most suitable way of growing this class of Ferns is on pyramids of peat, which may be made to any size according to the diameter allowed for their base; these should be made of good fibrous peat in turves skewered together. In the first instance

the rhizomes may require a little encouragement in the way of pegging down, but they will in a short time bind the whole into a solid mass by means of their fibrous roots, which are very tenacious, and have a peculiar way of growing and forming a regular and closely-woven sort of network. All the species belonging to this genus are very fond of water at the roots, especially those on Tree Fern stems or in baskets, which must be often syringed. The most efficacious way of watering them, however, is by means of occasional dippings or complete immersion, leaving either basket or stem under water for a few minutes. The few species whose fronds are hairy or scaly, such as those of *G. sepultum*, although requiring the same amount of water at the roots, are particularly averse to being wetted overhead. For pot culture, where turves of peat cannot be used in their entirety, the most suitable soil is a compost of two-thirds fibrous peat chopped, but not sifted, and one-third silver sand, which greatly helps to keep the mixture porous, and allows water to run freely from the roots.

G. APPENDICULATUM.—A very beautiful and interesting species from Mexico, rendered quite distinct from any other Fern in cultivation by the rich, deep crimson with which its handsome and gracefully pendulous fronds are ornamented. The latter are freely produced from thick, fleshy underground rhizomes; they are deeply pinnatifid, about 15 inches long, pale green, with the exception of the mid-ribs and veins, which, being of a deep crimson, form a brilliant network covering nearly the whole of the surface, thus producing a very pleasing contrast with the pale green of the frond, and giving the whole plant a most striking appearance. It is an excellent plant for growing in a basket, in which it shows off its beautiful markings to great advantage, as the colouring of the veins and mid-ribs is intensified by the strength of the light to which the plant is subjected. Stove.

G. GLAUCUM.—This very pretty dwarf-growing and evergreen kind comes from Brazil, where it is very plentiful. Although it seldom grows more than 18 inches high, it is a very ornamental plant, well suited for the Fern case on account of its compact habit and symmetrical outlines. The fronds, which are abundantly produced from short, close rhizomes, are lanceolate in shape, and very rarely attain more than 15 inches in length. The pinnules, which are closely set, are obtuse at the points and glabrous. The whole plant is of a delightful grey or bluish green hue, most conspicuous amongst other Ferns. It also makes a very good pot plant. Stove.

G. INCANUM.—Although one of the dwarfest-growing species comprised in the genus, this tropical American kind is very interesting on account of its little fronds, seldom measuring more than 4 inches or 5 inches long; they are deeply pinnatifid and of a very calcareous texture; the whole of their undersides is also completely covered with a quantity of round, slightly ciliated scales of a dull brown colour. The species has an altogether distinct dark green aspect. Greenhouse.

G. LEPIDOPTERIS (*Lepicystis sepulta*).—A tropical American kind and one of the handsomest of the genus. Its beautiful silvery pendulous fronds are produced by rhizomes of a very woody texture and of comparatively slow growth; they are deeply pinnate and lanceolate in shape, the pinnæ being oblong and obtuse; they generally average about 20 inches in length and are of a dark green colour, completely covered with ciliated scales of a brilliant white hue. The beauty of the plant is also enhanced by the sori being of a deep red colour, thus contrasting strikingly with the silvery tint of the whole plant. It succeeds much better in a shallow pan than in either pot or basket; insects attack it if grown in heat, but if kept in the greenhouse it is a clean and easily grown species.

G. PILOSELLOIDES.—A very pretty West Indian Fern of small dimensions admirably adapted for a small basket, in which it grows very well, and where it is seen to the best advantage. The two classes of fronds are quite dissimilar, the barren ones being entire, ovate, and about 3 inches high,

while the fertile ones, also entire, are linear, contracted, and obtuse at their extremity; they also grow a little higher, sometimes attaining 4 inches high, with very conspicuous sori, large, and of a reddish brown colour. Although of a light green ground, they have a very peculiar appearance on account of both sides being squamose. Stove.

G. SQUAMATUM.—This is a singular and yet magnificent West Indian species, with bold long fronds, produced from underground creeping rhizomes, and measuring sometimes from 26 inches to 30 inches in length, and from 6 inches to 8 inches in width; they are lanceolate in shape, pinnate, the pinnæ being from 3 inches to 4 inches long, and covered, as well as the stalks, with large brown ciliated scales. It is altogether a highly ornamental species, and one that is easily cultivated provided the foliage is kept dry. Stove.

G. SUBAURICULATUM (*Polypodium Reinwardi*).—This is probably the best known and most extensively cultivated species of the whole genus. It is a very useful and decorative kind from the Malay Islands where it is plentiful. As a basket Fern for a warm house it has hardly any equal, its graceful fronds, which are produced in abundance from underground creeping rhizomes, generally attaining a length of from 8 feet to 10 feet. In the centre of a warm conservatory it makes a plant surpassing all others in elegance, and where there is plenty of height to allow the fronds space to droop down as they like, a specimen of it with fronds from 12 feet to 14 feet long is a sight not easily forgotten. The pinnæ are deeply cut, and in young plants rather dentate and broad, whereas in older fronds they are set further apart, are much narrower, and have smooth edges; indeed, the plant when old has a totally different character from any other basket Fern. The sori, as in several other species of the same genus, are sunk in the pinnæ, forming little protuberances on the upper surface. It is a Fern which can with great advantage be utilised for covering dead trunks of Tree Ferns; in such positions it makes a very beautiful object and grows apace, as it delights to send its roots and rhizomes into partly decayed vegetable matter. Is grown in a basket it will derive great benefit from a small portion of chopped Sphagnum being added to the mixture recommended for *Goniophlebium* in general, and it will stand a good amount of strong light. Stove.

G. SUBPETIOLATUM.—Another strong-growing and very ornamental species belonging to this genus; it is probably the most gigantic of them all, and has erect fronds, which often attain 4 feet in length. They are produced on stout fleshy rhizomes, which seldom make their way out of the ground; they are broadly lanceolate and gracefully arching, but not drooping; they are pinnate, the pinnæ being closely set, broad, and slightly auriculate at their base, pale velvety green, and of a peculiarly soft texture. It is a highly decorative plant, which likes a very moist situation, at least as far as its roots are concerned, but is partly deciduous. Greenhouse.

PELLÆA.

RECENT PLANT PORTRAITS.

CYPRIPEDIUM BARBATUM VAR. (*Belgique Horticole* for March).—A fine hybrid seedling variety of this well-known plant, with large, almost white upper petal deeply veined with carmine.

GUZMANNIA DEVANSAYANA (*Belgique Horticole* for April).—A double plate of this new Bromeliad from Ecuador, which bloomed for the first time in September, 1882, in the establishment of Messrs. Jacob-Makoy, of Liege, who raised it from seed sent to them from Molleturo, in the province of Cuenca, in above-named republic. It is, like most of its family, more curious than ornamental, with tall flower-scapes with orange-red involucre, and small pale yellow inconspicuous and ephemeral flowers.

VRIESIA HELICONIODES (*Illustration Horticole*, plate 490).—A handsome variety of these curious plants with dark green recurved foliage shaded brown underneath, and bright rose-coloured flower-stems, the floral involucre of

which have conspicuous green tips. This plant is better known in England under the name of *Vriesia Falkenbergii*.

DIPLADENIA PROFUSA (*Illustration Horticole*, plate 491).—A very beautiful and highly coloured, as well as most free blooming variety of this lovely family of stove trailers, said to be only a freer flowering variety of the older *D. splendens*.

PANAX FRUTICOSUM var. *DELAUEANUM* (*Illustration Horticole*, plate 492).—A pretty and distinct cut-leaved form of the well known *Panax* or *Aralia fruticosa*, likely to be useful as a decorative foliage plant for the warm conservatory.

DOUBLE BOUVARDIAS (*Revue de l'Horticulture Belge* for August).—The well-known white-flowered *Alfred Neuner* and the newer pink-flowered variety *President Garfield*.

LICUALA GRANDIS (*Botanical Magazine*, double plate 6704).—A fine tropical Palm from New Britain with rounded fan-shaped leaves, perhaps better known as *Pritchardia grandis*.

ALOE PRATENSIS (*Botanical Magazine*, plate 6705).—A low and tufty-growing variety from Cape of Good Hope, with prominent hooked spines on foliage, and a spike of orange and yellow tubular flowers.

DENDROBIUM REVOLUTUM (*Botanical Magazine*, plate 6706).—A native of the Malay Peninsula, with small whitish flowers.

ALLIUM MACLEANI (*Botanical Magazine*, plate 6707).—A fine new tall-stemmed many-flowered variety from Cabul, brought thence by Colonel Maclean to Mr. Wilson, of St. Andrew's, with whom it flowered for first time last summer. The flowers are purple-mauve.

NYMPHÆA ODORATA MINOR ROSEA (*Botanical Magazine*, plate 6708).—An exceedingly pretty little Water Lily from the Eastern States of North America, where it is met with from Newfoundland to Florida. The inner petals of the flower are pure white, while the outer ones, especially underneath, are of a clear deep pink shade. The plate is drawn from a plant sent to the Royal Gardens by Mr. Kennedy, where it flowered in the tank of the tropical Water Lily house during nearly the whole of last summer.

W. E. G.

HARDY PLANTS AT KIRKSTALL.

CISTUSES of various kinds, hitherto rare bloomers, have done rather better this summer than usual; *hirsutus*, *tauricus*, and *ladaniferus* have withstood frosts in dryish quarters.

LILIUM CAROLINIANUM proves to be one of the easier managed kinds, and a Lily so nearly related to *superbum* must be a valuable acquisition in the case of beginners in Lily culture. It has made capital progress in three years, being planted in a mixture of leaf-soil, sand, and loam on a rather dry plot.

ARNEBIA ECHINOIDES used to be considered difficult to propagate; I find it quite otherwise. In spring some rootless parts were given me; when the flowers were in their prime some of the half woody collars, about an inch long, were left attached to them. These were split downwards into as many pieces as could have an entire set of leaves; they were potted in sandy road scrapings, and put into a warm frame with some seeds; they rooted quickly, and are now healthy plants growing in the border. I tried more sent me only a week or two ago for the purpose; they were cut down in quarters right through the leafy crowns, just as one might cut up the black roots of *Alkanet*; they, too, were potted in road scrapings and plunged in fibre in the open. They are rooting finely, making independent crowns, and, like the *Pulmonarias*, are now making their large summer leaves; therefore, this scarce and handsome flower may soon become plentiful.

SIDALCEA CANDIDA is pretty in groups, and may be termed a miniature single white *Hollyhock*; but it is an over-praised plant, and as a decorative one not nearly, to my thinking, so fine as the white form of *Campanula grandis*, which it somewhat resembles.

SCABIOSA CAUCASICA CONNATA.—In this we have a truly valuable plant. The large flower-heads, from 2 inches to 4 inches across, and of a delicate blue, blend richly with the rarest tender flowers. Its shining foliage and fine habit stamp it as a border plant of the first order. I have seen some miserable things under the name, but if the right plant is tried, the radiant heads of bloom which are produced through the summer will prove highly serviceable where cut flowers are in request.

MECONOPSIS SIMPLICICAULIS is quaint and rich. Flowers reddish purple, nearly 2 inches across. The pendent cups are nearly filled with tassel-like clusters of bright golden anthers. They hang mostly in threes from short branchlets pushed from all the leaf axils on the upper part of the stout, straight stem, which with me is nearly 3 feet high. Before the flower-stem grows the rosetted tufts of yellowish green pinnate leaves, all densely furnished with long brown hairs, are exceedingly handsome. I fear it is only biennial, and so will require to be raised yearly from seed, of which I fancy it will ripen plenty.

TROPÆOLUM SPECIOSUM.—I do not think it matters so much after all about the character of the soil in which this most desirable climber is set so long as it is sweet; and as regards hardiness, I fancy it not only endures our worst frosts, but is often expected to do duty in situations too warm for it. The most important, but simple, part of the business of establishing it I take to be the observance of the proper time for dividing the roots; they ought, according to my experience, to be planted in pots about the end of the year, just when they are pushing, and should be newly dug-out tubers; they should be allowed to start naturally, plunged in moist sand in the shelter of a cold frame (no water should be given), and in April they may be set in their permanent quarters, a cool, half-shady corner, where winds cannot rend the runners, being best. In short, a cool situation, timely planting, and preservation from wet until growth begins have yielded satisfactory results.

RANUNCULUS AMPLEXICAULIS does not appear to be free in many gardens. It is a plant worth a large amount of care, were it needed. Under suitable conditions, easily afforded, it, however, grows and seeds like a weed. It certainly enjoys lime; this I never noted until I heard so many complain of it not doing well. Both in loam and vegetable soil mixed with lime it produces its large white buttercups for several weeks in spring, and the seed, which I never gather, comes up where it falls in quantities.

EPIGÆA REPENS, so happy here, has made such progress, and sent so many silky roots from the prostrate stems, that I am again trying to obtain young plants from it. Has anyone found out how to increase this plant? I understand the Americans do it well in its own country, but then they have some trouble with our common Ivy, a fact illustrative of the influences of climate.

POTENTILLA FRUTICOSA in rich earth is worth more than many more loudly praised flowering shrubs as a garden ornament; under such conditions the flowers are double the size of those seen in its wild state, and they are produced on neat bushes during the whole of the summer; growing near the Hypericums it certainly outshines some of them. Flowers over an inch across are produced singly on dense bushes 2 feet high.

GENTIANA PHLOGIFOLIA is in the way of cruciata, but smaller in all its parts, except the heads of bloom, which are larger. The foliage is a glistening dark green. A free bloomer apparently. *G. macrophylla* is in the same way, with leaves much longer—drawn out to longer points, and the colour is a greyish green. I had these sent me from Erfurt; they are interesting additions, and I fancy have been raised from the same batch of seed; others reached me from the same source, but as yet have not flowered. *G. ornata* is a lovely, prostrate kind, with stems and leaves only about twice the size of those of *G. bavarica*, but the flowers are grand long tubes, of a superb blue inside, and outside richly striped with green; it

is, moreover, a better grower than most other Gentians.

POLYGONUM FILIFORME VARIEGATUM.—This is a beautiful plant for sub-tropical, or, indeed, for other gardens; it is rich and distinct in form, and so hardy too, no amount of wind or rain or sun seems to damage its large drooping leaves.

DELPHINIUMS.—I never saw these finer in growth and colour than they have been this summer; stems 6 feet high in some cases, and spikes of bloom nearly 2 feet long. What a dainty plant is the double Siberian Larkspur (*D. grandiflorum*)! This is now very scarce; still there are many more and widely different sorts equally desirable. It is hard to get wrong with the new named varieties.

EULALIA JAPONICA ZEBRINA.—This handsome tall Grass is now, with me, just beginning to show its creamy white barred stains; this does not occur until the growth is nearly complete—that at least is what I have observed for three years now; here, too, this form proves more hardy than the type.

POLEMONIUM CONFERTUM, a lovely thing, said to be difficult to grow, has increased tenfold or more in a raised border of rich soil formerly used for growing Asparagus. In the same material the Iceland Poppy and Gaillardias are grand.

MUHLENBECKIA VARIANS.—This new form when seen at a little distance resembles what I imagine to be the parent form (*M. complexa*), but seen nearer the name is amply justified by the varying leaf forms, which for the most part are fiddle-shaped. These beautiful twining Knotweeds are highly decorative on rockwork or trellises. On the former they make diffuse specimens in a year or two's time, when the roots have become strong. They seldom flower in the open, though Mr. Moore told me that *complexa* used to do so at Glasnevin when the winters were not so severe. The fruits are of a charming wax-like transparency, swollen and berry-like. Usually the tops are killed off to near the ground, but four or five years ago they remained fresh through the winter.

OURISIA COCCINEA, which has again been fine in deep shade, is now a carpet of livid green foliage of the finest type.

GAULTHERIA NUMMULARIFOLIA, kindly sent to me by the late Mr. Sadler, is likely to become a favourite rock plant where it can have moisture and peat soil. Its foliage, which is very neat, is in the way indicated by its name, without, however, the herby look.

TRAUTVETTERIA PALMATA, an American name for what I take to be *Cimicifuga palmata*, is a tall showy plant in the way of *Thalictrums*, and well adapted to follow them, keeping up that desirable form of white bloom until late in the summer. The foliage and habit are good.

HELENIUM GRANDIFLORUM, an early summer flowering kind, is the best by far of the composites now in bloom. The dark orange ray and well-risen chocolate disc render it practically black and gold; the ray florets, too, from their being wedge-shaped, twisted, and notched, give a rich and fringe-like effect. Flowers such as these are produced in masses, and have been in beauty for quite a month.

SPIRÆA ELEGANS is easily grown and a fair bloomer, in the way of *palmata* and *venusta*, but without the good colour of either; in fact, something in the way of London Pride as regards colour, and to my thinking not worth a place in the flower garden.

SAXIFRAGA HIRCULUS MAJOR is the name under which a plant was sent to me a little more than a year ago. It is a good thing, larger in all its parts than the type; the stems are mostly three-flowered, and the large flowers, an inch or more across, having their petals notched at the apex. I wonder if this can be the variety *elata* of Eastern Siberia referred to by Don. It is a free, bright, and neat plant for a moist situation. The type also is finely in flower in the walk gutters.

CALCEOLARIA KELLYANA, with its pretty little gaping flowers (rich golden yellow freely spotted with brown), prospers in a sunken bed of blackish soil, and the manner in which the short hairy stems

are pushed from between the flattened leaves reminds one of the rosette Mullein. It is perfectly hardy, but I like to put a glass shelter over it as winter approaches, otherwise the hairy leaves would hardly ever get dry. *C. violacea* proves a thriving plant, but never blooms. I fear our summers are too short for this shrubby species, at least for out-door cultivation.

BRODIAEA COCCINEA, a shy bloomer, is worth some pains, in order to accommodate it. In a sunny aspect and rich leaf soil, a few bulbs have flowered. If the exquisite blend of crimson and green in the large tubular flowers could be seen, scarcely any amount of trouble would be deemed too great in order to possess them.

PHYTEUMA COMOSUM.—A strong plant of this two years established is now in flower. From its rarity it will doubtless be highly interesting, but I consider it a much over-praised plant; the flowers are insignificant, and, if not dull, they are not bright, and, moreover, they are short lived. Rare plants by all means let us have, but in their proper places; and if great pains are required to cultivate flowers for the pleasure garden, let us not forget that there are many whose beauties have never yet been realised under such conditions.

SEMPERVIVUM REGINÆ AMALÆ is now a picture of beauty. Its fat, ruddy brown leaves are in flat rosettes, and the flower-stems 6 inches or more high, closely furnished with nearly red leaves. The flowers are pale, but clear yellow; in the bud state they are arranged in compact, globular heads, the ruddy tips of the calices giving the whole a good effect. It is a fine subject for rockwork or pot culture, but should always be in the open air where the worse frosts have no injurious effect on it.

ERITRICHIUM FLORIBUNDUM sounds good, especially to those who have seen the lovely *nanum* form in flower. A plant under the name of *floribundum* was sent to me from Erfurt, and until the flower-stem began to ascend I was rather attentive to it. At last, at the height of 2 feet, it flowered, and—well, never mind, it is not worth one's time to describe it. Do not be tempted by the name, as I was, but keep it outside the garden wall, for it seeds dreadfully.

J. WOOD.
Woodville, Kirkstall, Leeds.

ROSE GARDEN.

THE ROSE SEASON.

WITH the exception of maidens and Teas, the only true perpetuals, this is at an end; not but there will be Roses in the garden for several months longer, but the feverish excitement of Rose growing and showing is over. Possibly we are still almost too near to the late glitter and glare to form a true judicial estimate of the flowers of the season. My own impression, after a rather wide survey of the field, is that the season was on the whole late, short, and somewhat under average quality. The first two will be generally accepted as truisms; and as to the third, perhaps I may be permitted to fortify my own view by an extract from your contemporary, the *Gardeners' Chronicle*. The reporter of the great National Rose Show at South Kensington on July 3 says of it that, "though equally representative, it was not so fine in all-round quality as last year's display, and adds, notwithstanding all that has been said to the contrary, Roses generally suffered much in the spring; the blooms coming now show it unmistakably and what with poor substance and the great heat the Rose season promises to be soon over." This corresponds exactly with my observation and experience. But the shortness of the season must not be supposed to include either maidens or Teas, and every year these two classes of Roses exert more of a disturbing and extending influence on the normal Rose season. Teas on walls and in warm nooks and corners anticipate the usual time of Roses by a month, or even two, for it is now possible to have *Maréchal Niel* and *Gloire de Dijon* Roses in bloom in the

open air towards the end of May. This is the more important, as June is becoming less and less the month for Roses every year. Throughout larger districts this season, for example, few or no good blooms were cut till July, and even the National Rose Show in London on the 3rd was far too early for many growers. And then

THE TEAS are not only early, but truly perpetual. They may be said to go on flowering for ever, till the cold chills and the frost freezes them into rest. This, however, hardly applies to Maréchal Niel, which seldom flowers twice on a wall in the open air, though it frequently does so as a standard—a mystery which I cannot unravel. But most of the other Teas go on growing and blooming throughout the growing season. True, the richest harvests may be reaped in June and July, at which season such superb Teas as Souvenir d'Elise, Marie Van Houtte, Catherine Mermet, &c., are seen at their best; but others, notably Homère—a most useful Rose—are far richer in colour and more perfect in shape in the autumnal months. Rosarians are also becoming more and more alive to the value and importance of Teas. Not only are they more generally grown as garden Roses and for cutting for vases and bouquets, but they are rapidly usurping the place of the Hybrid Perpetuals on the exhibition table. Only a few years ago hardly any Teas were thought good enough to hold their own side by side with these on the exhibition table. Now the Teas are rapidly superseding them, and the remark is constantly being heard after the award of the highest honours, "the Teas did it." Their graceful form, freshness, and delicacy of colouring not only add a new charm to the stands, but enhance the beauty of the Perpetuals by their contrasting merits. There has also been some grumbling on this score. Some contend that as the Teas have classes for themselves, they should be excluded from the Perpetuals. But this would be a mistake; and it is to be hoped that Teas may never be excluded from any class in which the finest Roses are shown. Teas have, doubtless, a great future before them, and the probability is that they will increase, and other families of the Rose decrease as time goes on. Their power of furnishing a continuous supply of Roses from June to November renders the culture of the finer Teas all but universal. No doubt new, and perhaps better, varieties may yet be raised; but it is earnestly to be hoped that the present type and form of Tea Roses will not be developed into fat and full Perpetuals; this would ruin the Teas and rob the Rose garden of its most delicate charm. Next to Teas,

MAIDENS are the most potential in extending the blooming season. Many maidens are so late this year, that it seems doubtful if some of them will bloom at all. The cold and wet together have sent them into fishing-rods instead of bloom-buds. It is no uncommon thing to find maidens on the Manetti this year between 5 feet and 6 feet high, and still now (July 31) they grow; but of course the majority of them have stopped growing, and are now in flower, or preparing to do so. To those, however, who depend chiefly on cut-backs it is rather mortifying to read in the papers of whole collections of Roses in full and glorious blossom in August. But so it is; and these are mostly maidens. The lesson is obvious. Everyone should grow maidens as well as cut-backs or established plants who aims at a continuous supply of Roses from June to November. The battle of the stocks, too, needs to be fought over again in regard to the vital question of long and continuous blooming. The effects of different stocks on growth is most marked, and may be stated thus: The Manetti yields the strongest growth; the Brier coming next; the seedling Brier on its own root, as a rule, least. But there are so many exceptions to these general rules, that some will doubtless deny the rules. Here and now I am less careful to prove these rules of growth or general laws than to enquire how far similar or other effects of the same or other stocks have been noted on floriferousness or continuity of bloom. One fact may be accepted as an axiom—the stocks that yield the most

wood will seldom prove the most floriferous. Again, gross growths flower, as a rule, but once a year, and not always that, while medium growths may bloom twice or oftener. Further, in the feverish pursuit of size of bloom, Roses seem at times fed out of flowering condition, and should they bloom at all, they bloom but sparsely, out of season, and but once a year.

D. T. FISH.

THE HILDESHEIM ROSE TREE.

A QUESTION has been raised with regard to the age of this Rose tree. As I was at Hildesheim a few years back, and made a very careful examination of the tree in question and the east end of the cathedral, perhaps you will allow me to give the conclusions at which I arrived. This celebrated Rose tree covers the whole of the great eastern apse of the cathedral, which is about 70 feet high and 30 feet wide. This apse forms the eastern extremity of the choir, beneath which is a very early Romanesque crypt. Now, the root of the Rose tree is evidently below the floor of this crypt, because the trunk, or main stem, grows through an aperture in the wall just below the level of the pavement of the crypt. The stem has, however, increased so greatly in bulk since the aperture was made, that the opening is overgrown and cannot be seen. I think, however, no one can doubt, from the position of the root and stem of the tree, that the tree was not only in existence when the crypt was built, but that the crypt was erected for the purpose of protecting the spot upon which this tree grew. My reasons for arriving at this conclusion are as follows: Firstly, the tree is exactly in the centre of the apse; secondly, that the altar of the crypt is placed exactly over the root of the tree; thirdly, that the aperture admitting the trunk of the tree to pass through the wall is exactly in the centre of the apse; fourthly, that the very ancient burial ground, with its Romanesque double cloisters, is arranged in a thoroughly symmetrical manner with regard to the tree. The question resolves itself into two issues—either the cathedral, with its crypt, were built over the Rose tree, or the Rose tree must have been planted for some special purpose in the position which it now occupies. The whole tradition of the place, and even ancient writings, agree that the cathedral was erected over the Rose tree, and common sense would also point to this conclusion. What reason could there be for planting a Rose tree under the altar of the crypt of a church? and what chance would there be of its growing in such a position? Whereas nothing is more likely than that a tree which had grown round the vessel containing the body of our Saviour, and by its branches and thorns had prevented His body from becoming, through man's neglect and forgetfulness, the food of wild beasts, should have become an object of special veneration in the "ages of faith," or that that veneration should have shown itself in the erection of a church upon the spot where this most touching miracle took place. Whether any portion of the present crypt dates from the time of Bishop Altfried, who commenced the cathedral in 872, may be doubted; probably it is a part of the rebuilding, under SS. Godehard and Bernward, at the commencement of the eleventh century. But I venture to think that there can be no doubt that the Rose tree was in existence before the crypt was erected.—H. W. BREWER, in *Tablet*.

Roses on trees.—Those who like to see Roses growing in wild luxuriance on trees should plant Aimée Vibert, which is a very strong, free kind that flowers abundantly in large clusters, the blooms being pink and white, and of very good form. The kinds of trees climbing Roses do best on are those that are spare-headed and thin, and do not root near the surface, the most friendly in these respects being old Oaks, up whose trunks and branches climbing Roses thread their way and clothe them with beauty. We have several here so draped, and very handsome they look all through the early summer months when the numerous blossoms are open. The point in planting

is to give the plants a good start, by breaking up the soil to a good depth and heavily manuring it, when the Roses should be planted properly in the autumn by having their roots spread out and the ground mulched after covering them in.—S. D.

GARDEN FLORA.

PLATE CD.

THE SCARLET LÆLIA.

(LÆLIA HARPOPHYLLA.)*

It is not so many years ago since this plant was well-nigh unique in Mr. Day's then wonderful collection at Tottenham, but now, thanks to the energy of importers and the industry of collectors, it is as generally distributed as are many if not most of the older species; in fact, it is now far more abundant in gardens generally than its immediate relatives, *L. cinnabarina* and *L. crispilabia* (sometimes known as *L. Lawrenceana*). *L. crispilabia* is well figured in Warner's "Select Orchidaceous Plants," 2nd series, t. 6, and is a plant well worth good culture. It is of the slender habit characteristic of this section of the genus, each young growth bearing a single leaf on what looks more like a long petiole rather than a pseudo-bulb; it produces a short semi-pendulous spike of from two to six or more purple blossoms. Like *L. harpophylla*, it comes to us from Brazil. *L. cinnabarina* is from Rio Janeiro, and, like the last-named species, it blooms during the late spring months. There are two or three forms differing merely in the hue and intensity of the cinnamon-red or orange-red colour of the sepals and petals. This plant used to be a great favourite with amateurs on account of its distinct colour, but, as previously indicated, the advent of the species now figured has to a great extent supplanted it in the estimation of modern cultivators. It has been figured several times, as in Lindley's "Sertum Orchidacearum," t. 28; *Botanical Magazine*, t. 4302; and in Paxton's *Magazine of Botany*, vol. vii., t. 193. The number of times a plant has been figured is often a kind of index either as to its being very variable, or it may prove that the plant is a beautiful one, and popular with growers. Taking two well-known old species of *Cattleya* as an example of this fact, we find *Cattleya crispa* has five portraits distributed through as many works on Orchids, while *Cattleya labiata* is represented by ten or twelve. We have at least one hybrid *Lælia* of this section raised in the Chelsea Nursery by Mr. Seden, and named *L. Chelsoni*. It was figured in the *Florist* some years ago, and has orange-yellow flowers, which are larger and much paler in colour than are those of its seed parent, *L. cinnabarina*. *L. Chelsoni*, or, as it is now called, *L. flammea*, was obtained by fertilising *L. cinnabarina* with pollen of *L. Pilcheri*, which latter plant is itself an hybrid raised by Mr. Dominy between *Cattleya* (*Lælia*) *crispa* and *C. Perrini*. *L. harpophylla* is a native of Brazil, and is so free and luxuriant in growth and profuse in its blossoming, that it has become quite a general favourite. Few other Orchids are, indeed, more brilliant in a collection. Sir Trevor Lawrence was one of the first to exhibit a well-grown specimen at South Kensington in 1876 or 1877, when it was much admired as contrasted with *Cymbidium eburneum*, bearing eighteen flowers, *Calanthe gigantea*, *Catasetum Scurra*, and other rare and beautiful Orchids never seen together in one group before or since.

* Drawn in Sir William Marriott's garden, The Down House, Blandford, in April last.



The coloured figure is sufficiently truthful in form, size, and colour to render any further verbal description quite unnecessary. The plant is of easy culture, growing freely in any warm, airy structure if placed near to the light. The specific name refers to the leaves, which have been by some supposed to be sickle-shaped. A compost of fibrous peat, Sphagnum, and nodules of charcoal suits its roots, but it is essential that the pot or pan be well drained, a very thin layer of compost over the crocks being all that is necessary. It should be deluged with water when making its growth about this season. F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

SEMPERVIVUMS.—A few years ago there was some danger of this class of plants ousting every other hardy kind that was being used as edgings, &c., in the flower garden; as the stock increased, so did the horrible "cockleshell" appearance of our gardens, and this artificiality soon made us dislike them, and by this means the danger was averted—still, in reasonable proportions and in appropriate positions several of the kinds are desirable. All the hardy sorts are in every way effective on rock and rootwork, and on dry banks and old walls, but the kinds to which we wish to allude now are those that best serve for edgings and groundwork to flower beds, and especially to succulent beds. The varieties that can be so used are *arachnoideum*, *calcareum* (*californicum*), *globiferum*, and *montanum*. The large growing kinds, such as *arborescens*, *variegatum*, *canariense*, *ciliatum*, *Haworthi*, *retusum*, and *uricum*, are desirable sorts for dotting about in dwarf foliage beds and for intermixing with allied species in succulent arrangements. We have several such beds here, and even amidst all the wealth of flower which we have at this time of year they stand out conspicuously in their quaint, yet chaste, beauty, and, what is of no small importance, wind or wet weather does not harm them.

ROCK GARDEN AND FERNERY.—The wet sunless weather now begins to tell unfavourably on plants in this department, and daily attention is necessary, particularly in the case of the rarer kinds. Cut away all seedling flowers and stems, and keep the whole free from weeds. The common *Spergula* is very troublesome, and this being its main seedling season, every effort must be made to clear out every particle of it from both rock-work and walks. Remove rusty fronds from Ferns, and curtail the growth of the ranker growers to prevent them from encroaching on the weaker and more choice varieties. If the weather should become dry, a syringing overhead at sunset will help to keep the plants in good health and free from spider.

MIXED BORDERS.—Herbaceous plants have seldom been gayer than this season, and they have certainly well repaid all the attention that has been bestowed on them, which has simply been a general look over weekly to see to the ties, picking off bad blossoms, and keeping the borders free from weeds, and strong growers mulched. At the present time *Phloxes* are making a grand show; the double *Geums*, *Campanulas*, *Potentillas*, and the perennial *Sunflower* are also very fine, and in order to keep them in that state we now have to water them twice a week. Whenever there is a blank place, seedling *Aquilegias*, *Canterbury Bells*, *Brompton Stocks*, and other perennials will be planted in it the first showery day, and meanwhile the places will be prepared by digging them with a hand-fork and manuring them with guano or some other fertiliser.

PROPAGATION.—If cuttings can be had without marring the appearance of the beds, *Pelargoniums* ought now to be propagated; the handiest way is to strike them in the open border. Any kind of light soil will do provided the cuttings are well firmed in it. To plant the cuttings in

boxes at once will save labour, but my experience is that they never do so well as those struck in the open border and potted up about the middle of September. A hotbed should be made up for the striking of *Ageratums*, *Petunias*, *Lobelias*, *Verbenas*, *Mesembryanthemums*, *Coleus*, *Iresines*, and *Alternantheras*; only sufficient of these should be propagated to ensure a good supply of cuttings in the spring, as spring-struck plants grow away much more freely than those struck in autumn. *Violas*, *Pansies*, *Pentstemons*, *Antirrhinums*, and all other hardy perennials usually propagated from cuttings may be put in now; a north or shady border upon sandy soil and handlights or frames are all that is needed to ensure a successful strike.

GENERAL WORK.—This will consist in watering shrubs, trees, and *Roses* moved in the spring, and the renewing of the mulching over their roots; also in picking off decayed flowers and foliage from the flower beds, and pegging, pinching, and tying up the plants according to the needs of each. The completion of shrub cutting, also the picking of seed vessels off choice *Rhododendrons* and *Azaleas*, at the same time tearing off suckers or shoots that spring from the stock, will now also need attention as well as hoeing shrubberies, clipping verges, and weeding walks if neatness is to be maintained, and it ought, for without it a garden can yield no real pleasure.

FLORAL DECORATIONS.

THOSE who may have grown any of the following kinds of ornamental Grasses should secure a good quantity for future use whilst they are in perfection. They will not be nearly so fine if allowed to remain on the plant after they are fully developed. A heavy downpour of rain will also spoil their beauty. Of the *Agrostis* we grow *A. pulchella* and *nebulosa*. The former is very pretty and useful for working into button-hole bouquets; the latter is most useful for floral decorations in general. *Briza gracilis* and *maxima* are both valuable kinds, the latter especially so for floral decorations of a somewhat bold character. *Lagurus ovatus* is always useful, especially when associated with *Liliaceous* subjects. It is very soon spoiled by rain, and should therefore be secured on the first favourable opportunity. *Hordeum jubatum* is another beautiful Grass that ought to be grown in the most limited collection. It thrives best in a moist situation, quickly feeling the effects of drought. *Paspalum elegans* is another good and distinct sort. We shall secure our winter stock of all these in a few days. After this is done each kind will be loosely arranged in glass bottles, such as have been used for pickles, &c. We then place them in a spare airy room not too near the light; no water of course is given them. In this manner we find them to keep their colour fairly well. Another very useful late kind of Grass is *Eragrostis elegans*; this is just beginning to unfold its spikes, and in the form of successive crops will continue to do good service till the early frosts spoil their colour. All of these and several other distinct kinds will be found valuable where extensive decorations are carried out during the winter months. Those who have not room to grow these can secure many pretty sorts from the fields, woods, and hedges, all of which will help to economise the use of Fern in winter, when there is frequently none too much to spare. Of annuals easily raised from seed, the following will now do good service in the shape of cut flowers, viz.: *Campanula Lorei* and *alba*, both extremely pretty when arranged with some spikes of the *Agrostis nebulosa* and *Sweet Sultan*; the yellow kind can be used in association with these also, likewise the various colours of the *Cornflowers*. *Salvia patens* is valuable for its colour; a spike or two used with white *Sweet Pea* will give a pleasing effect. For the want of anything better or closer to hand, a few *Carrot* leaves that are assuming their autumnal tints will be found not to be out of place. The different varieties of *Phlox Drummondii* are also extremely pretty, especially in small arrangements.

PROPAGATING.

No time must now be lost in putting in cuttings of all kinds of stove plants required, for if longer delayed the wood becomes too hard to root readily. We refer to such subjects as *Crotons*, *Ixoras*, *Dipladenias*, and *Francisneas*. *Ixoras* we find root best when a large proportion of peat is used in the soil, say two parts peat to one each of loam and sand. The whole must be sifted fine and pressed down firmly, leaving just enough space for a layer of sand on the top. Of course as good drainage is necessary, the pots will need to be filled within 2 inches of the top with broken crocks. Fern spores sown in spring will need attention in the way of pricking off, the aim being to get them as large as possible before winter. Of *Oleanders* there are now many beautiful varieties, the whole of which may be readily struck from cuttings during the summer months. The two principal points to be observed are first, not allowing the cuttings to become too hard before taking them off, and secondly, giving them plenty of water at all times; indeed they will emit roots freely in water alone, or, better still, in water-tight pans of wet sand, but in either of these cases care is necessary in potting them off, as the roots are so brittle that they are easily broken. Such being the case, the better way is to put them in pots of sandy soil, and keep them close and moist till rooted. Another common subject, but one that many fail to strike satisfactorily, is the Lemon-scented *Verbena* (*Aloysia citriodora*); the failures in this case generally result from using wood in too matured a condition. The best way is to take the succulent growths in the spring as soon as they are long enough, and treat them just as one would *Fuchsias*, *Verbenas*, and similar plants, when, with the exception of requiring a little additional care to guard against damp, they root as readily as the others just mentioned. Later in the summer, if cuttings are required, the better way is to put a plant in a close, warm house, when it will at once start afresh, and when of sufficient size use the young shoots as cuttings.

INDOOR PLANTS.

BOUGAINVILLEA GLABRA.—All the weak shoots at this time should be cut out of specimens of this plant that are grown in pots and have finished blooming, for, as these do not in the least promote the formation of fresh flowering wood, it is not well to allow any overcrowding of weak growths, as they are merely a strain on the energies of the plants for no purpose, for this *Bougainvillea* will only bloom profusely on shoots that have attained some strength. If the balls are very full of roots it will be found good practice to put about 1 inch of well-rotted manure on the surface, as the addition of new material of this description by encouraging the formation of fresh feeding fibres is a great assistance to the plants. Managed as above advised, this *Bougainvillea* can be had in bloom again about the end of September, and there will still be time enough after the flowering is over to get it sufficiently hardened off before the end of the year.

TILLANDSIA LINDENI.—This beautiful blue-flowered *Bromeliad* is most effective for decoration, and it looks best in the form of single crowns grown in little pots, in which size it can be dotted about better than when larger. It throws out suckers when its blooming is over, and when these have got big enough they ought to be taken off, removing a few of their lower leaves and putting them singly in small pots, being mindful not to over-water them till they have rooted, after which they will need more root space. The plants will push a second lot of suckers after the first have been removed; these in their turn when they have attained a proper size can be treated like those first taken off. Sandy peat answers well for it, draining the pots well and giving it a position where it will get a fair amount of light.

IPOMÆA HORSFALLIÆ.—From this time, on during the autumn, this plant should have every encouragement to make growth, for the quantity

of flower that may be looked for will be regulated by the strength and number of the shoots. It is not a long, rampant grower, nor likely to shade anything under it over much, and on this account where space is limited it may with advantage be trained over a path. In a position of this kind attention to training can easily be given.

ARISTOLOCHIAS.—These plants likewise are well suited for occupying a place over a path, and nowhere else are their remarkable flowers seen to better advantage. It is not yet too late to put in cuttings; any of the larger species will bloom freely next year. Young examples will in many cases be found better to manage than old plants, as these require a good deal of cutting back to prevent their getting beyond bounds. The medium sized side shoots that generally are to be met with at the lower part of the stem will strike readily if taken off with a heel, put in sand covered with a bell-glass, and kept in a brisk heat. When they have rooted they will need moving into 6-inch pots, and through the winter ought to be kept growing gently.

GARDENIAS.—Where a sufficient stock of these are grown, and they are managed in a way to flower in succession, there is no difficulty in having a supply of their fragrant blossoms for many months. If they are wanted over as long a season as possible, in addition to the older larger stock, it is a good plan to each spring propagate some. Young plants of this year's striking intended to flower in winter must have all requisite attention; they should at once receive a shift into the pots they are to bloom in; by doing this now they will have time to establish themselves well before the short days. The size of the pots ought to be regulated by the strength and size of the plants; from 8 in. to 11 in. or 12 in. will be big enough.

GESNERAS.—The winter blooming *G. exoniensis* must not be neglected, nor let to be overshadowed by other plants, or it will get drawn up, and unless the growth is stout and short it is useless to expect a satisfactory amount of bloom. The *Donckelaeri* and *Cooperi* section will flower a second time if encouraged by being kept in a good light position and supplied with manure water.

TOXICOPHLEA THUNBERGI.—Plants the flowers of which have a pleasing odour are always acceptable, and, if for no other reason than its perfume, this *Toxicophleæ* is worthy of a place; but in addition to this it has a compact habit, and in growth is not unlike a *Gardenia*. It blooms from the axils of the leaves and also from the points of the shoots; a few of its flowers, which are white in colour, and borne freely in corymbs, are sufficient to scent a house. It blooms well in a small state, and does not want a great amount of root room.

FERNS.—Such kinds as *Adiantum cuneatum* and *Pteris serrulata*, which are so serviceable for using in a cut state, are best, for this purpose when grown in comparatively small pots. If they have been well cared for, they will have made good growth, and should now be put where the requisite hardening can take place before winter. On this being properly done to a great extent depends the use they will be. Let them have a position where they will receive sufficient air and plenty of light, but if the atmosphere of the house they have been grown in has been moist, and a good deal of shade employed, do not let them have too much sun, or the colour of the fronds will be injured; they will also suffer similarly if they go short of water. Tree Ferns will by this time have got the main lot of fronds that they made in the spring matured, and it is a good plan to take advantage of this and give a good cleaning to those that are infested with scale. It will generally be confined to the older fronds; the largest insects ought to be removed with brush and sponge, laying the plants down on their sides afterwards, where this can be done, and dipping the affected parts in a solution of some or other of the various insecticides. Fowler's, at about 5 ounces to the gallon, will be found effectual in destroying most of the young insects, and by this means a good deal of labour is saved compared with the slower process of hand cleaning.

BERRY-BEARING SOLANUMS.—When the weather is dry any of these that are planted out must be well attended to with water, so as to enable them to keep in a healthy condition. It will also be well to see if there is any red spider on them, for though they are not so liable to be attacked by it when planted out as when grown in pots, still sometimes it will make its appearance, and soon do much harm to the leaves if not destroyed. A good dressing with Gishurst used at the rate of 2 ounces to the gallon of water will generally free them from this pest. Plants in pots affected by the insect can be dipped in this mixture.

MIGNONETTE.—Plants sown early to bloom in pots must not be allowed to get cramped at the roots. The size of pots necessary will, as a matter of course, be regulated by the strength of the plants and the size they are wanted to attain. Keep them tied in whatever shape is required. They look much the best when the form chosen is a more natural one than the pointed stiff style often seen. Plenty of air and abundance of light are essential to prevent their becoming drawn and weak, a condition that cannot be remedied if once they get into it. To keep the foliage green they must never be allowed to want for water.

FRUIT.

PEACH HOUSES.—Where it is the practice to start the early houses in November, the period extending over August and September is perhaps the best for exposing the trees to the full influence of the atmosphere, as the buds are well advanced and summer showers have a most beneficial effect on the foliage and surface roots. Another advantage which should not be lost sight of is the efficient way in which the lights can be thoroughly dried, repaired, and painted at times when outside work cannot be carried on. If any of the trees require an additional supply of soil or partial lifting, now is a good time to get the work done, as the roots will at once commence working in the new compost, and the trees will be in a fit state for starting at the usual time, and capable of carrying a full crop of fruit next year. Successful growers of Peaches know that a strong calcareous soil is indispensable, and where this cannot be obtained, light loams may be improved by the addition of marl and old lime rubble, which must be thoroughly mixed together when dry, and made as firm and resisting as possible by good solid ramming when the borders are being formed. If midseason houses cannot be stripped, all the ventilators must be left open; good daily syringing and an occasional washing with the garden engine will also be necessary, and last, but not least, borders from which that best of all elements, rain water, is excluded must be well mulched and thoroughly drenched with the hose, until the flower buds are made up and ripe, when less water will be needed, but on no account must Peaches at any time become what is termed dry at the roots. Where late houses have been systematically retarded through every stage, midseason kinds will be approaching ripeness, while late varieties, under liberal ventilation, will carry on the supply after many of the wall trees are over. The fruit in wall cases will now require full exposure to the influence of sun and light by being raised up on small pieces of lath placed on the trellis. As the Peaches are elevated, apex upwards, to insure colour, stop all strong growths and tie them down to the trellis, otherwise they will rob the fruit, and most likely upset the balance of the trees. Keep them well syringed until the fruit begins to soften for ripening. Give plenty of water to the roots, and expose or shut up so as to avoid having a glut of ripe fruit at any one time, particularly where there is a steady family demand.

FIGS.—When the flush of the second crop has been taken from the early forced trees encourage them to go gradually to a state of rest by running down all the lights, or by stripping the roof altogether; but guard against starving them into this condition by suddenly withholding water from the

roots, or by leaving off the daily bath from the syringe. If the weather continues fine, a great number of Figs of most delicious flavour will ripen after the house is thrown open; but where a good dish of fruit is indispensable in making up an early spring dessert, the strongest and best of trees should not be allowed to carry more than two crops in one season, and all half-swelled fruits should be rubbed off when the lights are removed from the house. Let the second crop of fruit in the second house be well thinned to ensure fair size, and feed copiously with good warm liquid and guano water as often as the roots can take it. Syringe well twice a day, close with sun heat, and carry on incessant war with the numerous insects which so often become troublesome about this time. The worst is mealy bug, then follow scale and red spider, which may be kept in check by good syringing and occasional sponging, and bug speedily melts away under a dressing of methylated spirits applied with a small brush if taken in hand before it extends from the shoots to the leaves and fruit. Where there is a constant demand for good Figs, and old-established trees occupy snug corners in the kitchen or fruit garden, such kinds as *Brown Turkey*, *White Marseilles*, and all the *Ischias* will soon pay for the cost of a glass covering, which, under judicious management, will give a supply of ripe fruit from the end of July until the middle or end of October, and that in good seasons without the aid of fire heat; but a heating apparatus should always be provided, as such structures are invaluable storehouses through the winter. To keep the trees in moderate growth and fruitful it is necessary to lift occasionally and replant in a mixture of good loam and lime rubble, resting on ample drainage for carrying off water, of which Fig trees under glass require a very liberal supply. Pruning or thinning should always be performed with a liberal hand before the trees are nailed to the wall in spring, ample room being provided for laying in the young growths without crowding the foliage or having to pinch the points, an operation altogether unsuited to the management of late houses, and often injudiciously practised in early ones.

MELONS.—Devote all possible attention to the last batch of plants recently put out, and encourage them to make a strong and quick growth of vine by full exposure to sun and light, and by closing in time for the house to run up to 90° with solar heat and plenty of moisture. As we have before stated, quick free kinds in 12-inch to 16-inch pots should be selected for late work, and the bottoms of the pots should be placed within the influence of the bottom-heat pipes when fire heat through the last stages becomes a necessity. Train each plant to a single stem, carefully preserve every old leaf from the base upwards, take out all laterals that start between the bed and the trellis as soon as they can be seen, and pinch the points out of the leaders when they have covered two-thirds of the trellis. Fertilise every female flower as it opens, select the most evenly balanced fruit for the crop, but defer stopping until the Melons have attained the size of Walnuts; then pinch at the first joint, and gradually remove all useless side shoots, laterals, and spray. When the time arrives for earthing up the plants the soil in the pots as well as the top dressing should be in a dry state and fit for ramming firmly without becoming adhesive, otherwise it will cake and crack, and water will pass away without permeating the whole of the ball.

LATE CROPS in pits and frames will require a steady bottom heat from fermenting material or hot-water pipes until the fruit is ripe, as anything approaching a check is sure to destroy the flavour if it does not prove fatal to the plants. Let every fruit be raised above the bed, but not quite clear of the foliage, as some kind of Melons are liable to turn brown when early airing is neglected on bright mornings. Place a few pieces of charcoal as a preventive about the stems, and apply quicklime and sulphur to the parts affected should canker set in. This troublesome disease may, however, easily be prevented by using a good, sound, but not over rich loam, by the careful preservation

of the stem leaves, and by stimulating at the proper time with tepid liquid or guano water in preference to top dressing with solid manure.

HARDY FRUIT.—As a rule, Peaches against south and west walls are carrying good crops of fruit, and the trees are healthy. Look over newly grafted trees, and if the ligatures require entire removal, secure the young growths from the scions by tying to sticks lashed to the stocks. Cut out all old Raspberry canes and secure the young growths by tying loosely to the stakes or trellis. Give autumn bearers an abundance of water over the mulching and support the young shoots well above the ground. The usual advice is to make new Strawberry beds in August, but when runners in small pots are not suffering the planting may, if necessary, be delayed for a short time. One of the main points in the preparation of Strawberry ground is deep trenching. Manure is of course a telling factor, and new virgin loam of a tenacious character should be obtained for planting in if possible. The balls should be wet at the time they are turned out, and a continuance of dry weather will necessitate mulching and constant watering. Where old beds have been infested with mildew, breaking up is recommended; but if they cannot be spared, abundance of water, frequent dressings with soot and quicklime will be found a good remedy.

ORCHIDS.

EAST INDIA HOUSE.—Our patience has been very much tried this season in striving to overcome thrips, which have been more difficult to eradicate than we ever remember them to have been, but as the whole garden seems to be alive with them outside the houses, this is not to be wondered at. They swarm on Phloxes, Carnations, Pinks, and other flowers, and we cannot hope to fight them effectually while these are in bloom. We are afraid to use tobacco smoke, as the leaves of many Orchids are injured by it, while they do not suffer by being dipped in soapy water, made more destructive by the addition of a little tobacco liquor. We find *Cattleya Leopoldi* to do well in this house; our plant has made two very strong growths, and is now flowering freely. This is a really good and distinct *Cattleya*, of easy growth and very moderate in price. It will produce a score of flowers on one spike. Also in flower at this time is *Cattleya superba*, a very richly coloured species, which flowers freely as soon as the growths are formed. It must be placed near the glass and receive as much light as possible. We have grown a plant of *Dendrochilum filiforme* in the cool end of this house for the last four or five years, and it has made very good growth, and has increased rapidly in size. It does not seem to be liable to the attacks of thrips, but red spider is its desperate enemy, and may do mischief before it is perceived. Its graceful spikes of bloom now form one of the most charming features of the house. We give it plenty of water at the roots while it is making its growth, and even when at rest it must not be allowed to become dry. Such plants as *Dendrobium Falconeri*, suspended near the roof in the coolest end of the house must, while growth is progressing, be freely syringed with water that has been standing in pots or small tanks where it is rather warmer than the temperature of the house. Some of the deciduous species of *Dendrobiums* have been taken out of this house, growth being completed; they are now in a house almost as cool as a greenhouse. If kept moist and warm after their growth is made, they start afresh from the base, and do not get sufficient rest. We maintain a night temperature of about 70°, rising about 10° in the daytime, or to 85° when the house is shut up in the afternoon.

CATTELEYA HOUSE.—Many species and varieties of Orchids are now making their growth in this compartment; such being the case, we maintain a temperature of about 65° at night with plenty of moisture. Reference was made (p. 76) to watering *Cattleyas*; nothing more, therefore, need be added now except to say that it is better not to water any of the plants until they really

want it. A large proportion of the roots will grow over the sides of the pots, and make exceedingly healthy development in the moist, warm atmosphere. To many growers the time when Orchids develop their sheaths is quite as interesting as the time when they flower, and they then require even more attention. If any plants are not in good condition, owing to the compost being sour, the sooner they are repotted the better; but if all right at the roots, and it may be thought they ought to be repotted, we would rather defer the operation until January or February than do it now. The same remark applies to such species of *Odontoglossum* as succeed best in this temperature. One of the most desirable of them is *O. hastilabium*, and it is one which seems to be very easy to grow. The treatment is much the same as that which *Cattleyas* receive, but the best time to pot this species is when the young growth starts from the base of the last-formed pseudo-bulb, and it will often do this even before the flowers fade. At present most of them are making their growth; when that is completed the flower-spikes will appear, and at that time, if care be not taken, they are very liable to be eaten by slugs or small snails. *O. vexillarium* is now making strong growth. This species may be repotted after flowering, or in winter. No advantage is gained by potting in summer, and usually there is more time to spare in winter for performing the operation. We have to watch the plants carefully, lest they be injured by thrips. *O. Phalaenopsis* succeeds best in this house placed near the glass. This species also likes a fair supply of water, and succeeds well if kept free from insect pests. *Sobralia macrantha* we tried in a warmer house, but we find it does best in the coolest part of the *Cattleya* house; it is now starting into growth, and wants a good supply of water. The *Sobralias* are often potted in peat, the surface being made level, as is usual in ordinary potting. We find they do best when potted much the same as *Cattleyas*; the growths usually start under the surface of the ground, and pushed downwards at first, the raised surface allowing them to come to the light sooner than they otherwise would do.

COOL HOUSE.—The temperature of this house both by day and night has been considerably warmer during the last few days than hitherto, and it is at such times that the anxiety of the cultivator for the safety of his cool Orchids is greatest. The plants during hot weather, and indeed for the rest of the season, succeed best in a house built against a north wall. A fault belonging to our house is that it cannot, owing to its position, be kept cool enough, being placed where the sun can shine upon it during the whole day. It might be thought by some that the plants at least would flower more freely in such a house than they would in a lean-to facing the north, but we do not find them to do so; in fact, if *Odontoglossums* of the *O. crispum* type can be induced to form large bulbs, it is certain they will produce spikes large in proportion, and they seldom fail to flower well whatever may be the circumstances under which they have been formed. We find that the daily attention which the plants require in exposed span-roofed houses is very much more than they need in lean-tos facing the north. During hot weather use the shading freely, but it is not desirable to open the ventilators to that extent, which would cause a rapid circulation of hot air amongst the plants. It is better rather to keep the ventilators close during the day, and to open them in the cool of the evening. See that all Orchids making their growths are kept sufficiently moist, and a moist atmosphere is a positive necessity. Keep down the temperature as much as possible.

Sweet Peas at Chiswick.—There is a large batch of these pretty sweet-scented summer flowers on trial at Chiswick this season, and when I saw them the other day, they were in full beauty and very attractive, but, with one exception, I could not say that any of them were better than kinds now generally cultivated. The exception to which I refer was Laxton's Carmine. It

was from 3 feet to 4 feet in height, and profusely covered with blossoms of the most lovely carmine colour imaginable.—J. MUIR.

NOTES FROM READING.

GLOXINIAS.—The cultivation of these used to be all but confined to named varieties, but so much improvement has been effected in them recently that seed of a good strain may now be depended on to give varieties equal to those that at one time would have been considered worth naming and propagating. Messrs. Sutton have for several years been engaged in selecting and crossing the best forms and most distinct colours, until the strain, as represented by the plants when in flower, may be described as unexceptionable in every way. Three houses, specially constructed to meet the requirements of these plants, are devoted to their cultivation, here they get plenty of light, so necessary to keep the growth from being drawn, a condition which is fatal to the appearance of Gloxinias. The stages are flat and covered with moisture-holding material on which the pots stand, in addition to this there are shallow tanks under the stages kept filled with water until the flowers are fertilised, after which the water and damp material are dispensed with, and the pots set on the bare stages. The moist atmosphere to which the plants are thus for a time subjected is to keep down thrips and red spider without the necessity of ever syringing overhead. The three distinct forms of flower—erect, horizontal, and drooping—are each kept separate, as also the most decided colours, such as the white and the blue self-coloured varieties. The essentials held to be requisite are a short, stout drooping habit of growth, so that the leaves cling to the sides of the pots, all but covering them, combined with large, well-marked flowers possessing plenty of substance, so that the limb of the flower when open is quite flat, not curled back as the petalite segments invariably do when thin in texture. Purity and depth of colour, and marking well defined, are looked on as of equal importance. All spotted varieties are discarded, the aim being to get pure white tubes with the colour—band or blotch—on the base of the segments clearly defined, with the outer margins white. In the self-coloured kinds pure bright distinct colours are sought, and amongst these some of the brightest scarlets have been obtained. Nothing could surpass the robust character of the plants with the depth and purity of the markings of their large flowers, some of which measured 4 inches across. All are grown in 3-inch pots; the seed was sown in February.

TUBEROUS BEGONIAS.—This fashionable section of Begonias is largely grown in this establishment, all the plants being the result of crossing and careful selection. Amongst the quantities in endless shades and colours of the large-growing forms, alike remarkable for the size of their flowers, close, compact habit, and freedom with which they bloom, there are several of the finest whites I have ever seen; some of these with broad rounded petals are as pure in colour and almost as large as an ordinary Christmas Rose, opening their flowers so wide that they look not unlike that beautiful winter flower. There are two or three houses specially devoted to a distinct race, which obtained by using *Begonia Pearcei* as the seed parent, crossed and intercrossed with the best marked forms of the larger flowered tuberous kinds. In this way have been obtained some thousands of plants of a beautiful character. They are dwarf in habit and cling close to the pots with the flower-stems rising erect above the foliage; the flowers are in all shades, from deep orange-yellow suffused with crimson to pale primrose and white. Their distinct character and the masses of bloom which these Begonias produce cannot fail to make them favourites. There is also a very distinct break, the result of crossing a small white flowered fibrous kind, known here under the name of *albaflora*, with the tuberous species *Davisi*, the latter being the seed parent. The seedlings

have small leaves, deep crimson underneath, bronzy green above, spotted with crimson like some of the Bertolonias; the flowers have the character of the true fibrous rooted kinds, and are produced freely in bunches, sanguine red in colour.

CARNATIONS.—Amongst hosts of things in the trial ground out-of-doors is a large piece occupied by Carnations that show well what can be had from good seed. They were sown twelve months ago last February, and more than 80 per cent. of



On the Fiume near Stabrogh

the flowers are double. Taking into account their robust growth and the quantity of flowers and buds coming on (some of the plants having from 400 to 500 each), they are preferable for ordinary garden use to the show kinds. Amongst them are self-coloured varieties in all shades, from pure white, light to dark pink, scarlet and crimson even deeper than that of the old Clove, with whites and yellows, edged and striped with red and crimson, many of them little behind the Clove as regards perfume. With a good bed of such seedlings, one might cut an armful and come again on the morrow and get more. Not the least part of their merit is the vigorous growth which these seedlings make.

OF SEEDLING HOLLYHOCKS many are in flower, and for ordinary purposes they are quite as effective as the show varieties. Near these is a large plot of seedling Petunias, single and double, than which few things are more effective, especially when seen as here with their various forms and colours intermixed, scarcely any two being alike. Phlox Drummondii is just beginning to show how beautiful it is, its colours ranging from the purest white to the deepest velvety maroon.

TOMATOES.—Three thousand plants consisting of all the known varieties are here on trial. Each plant is secured to a couple of stout sticks, and the shoots and laterals are stopped close in as soon as a good head of flowers is visible, treatment under which a free set of fruit is secured, without this stopping, in the open ground, there is always a disposition in the plants to keep on growing instead of bearing. The different varieties here grown vary much in their early or late formation of fruit in the open air, some being weeks in advance of others under similar conditions. T. BAINES.

A FRIEND tells me that *Stephanotis floribunda* has done very well with him out-of-doors for many years past without the slightest protection, and that the leaves are almost entirely hidden in summer by the masses of flowers. Now this is too absurd, unless I add that my friend's address is Madeira, and yet it is but a shade worse than when your correspondents write, saying that something or other stood the winter or produced fruit, &c., without telling us where. I presume most of these good people live far south (probably the Scilly Isles), for certainly most of the things named would be impossible on a cold clay soil. Would you suggest their adding the latitude and longitude, as they seem to object to naming their locality?—A. K., *Eastcott*.

BOOKS.

A ROYAL WARREN.*

THERE are books whose main merit lies in their suggestiveness, and this is one of them. Fresh from its perusal, a longing for fresh air, whether laden with the ozone of the sea or the perfume of the woods, comes over one, and the conviction is strong that a flannel shirt, a suit of ditto, and a pair of strong boots are the indispensable habili-

ments of the hour, and a ramble the as imperative duty. This volume has a charm, too, as well as a merit. This it finds in its subject—in the out-of-the-world sort of corner which it undertakes to describe. It lodges us down in the very heart of ancient Wessex, the most primitive tract of English soil. Within "the Isle of Purbeck" we get back among the centuries, and the glamour of the old Saxon days falls heavy upon us. Within this area we stand face to face with the nearest remains of that civilisation which was the first to take root in England, and which has stamped the national



Hundred House at Barmston

character of England ever since. Away, among these silent, remote, isolated Dorset hamlets, with their Saxon lineage and air and outline strong upon them, we can, in fancy, revive the days of the Hundred, of the Tithying, and of the Wittenagemote. There, beside the wood in "The Creech," which Mr. Robinson so pleasantly describes, in fancy, we can discern the long, low, rambling building—half farmhouse, half fortress—the residence of the Thane, while over

there in the wood, his grunting flock revealing his whereabouts, iron collar on neck and wattle in hand, stands, in all the vividness of Scott's limning, "Gurth, the born thrall of Cedric of Rotherwood!"

A book that arouses reveries like these must be pleasant reading, and the scenes that inspired it must be no less enjoyable. Following Mr. Robinson in his itinerary, we get down to Wareham, in Dorset, by train—a short run—and, crossing a notable bridge, we are at once in the Purbeck territory. From the time he enters it the Saxon era obtrudes itself upon the visitor; as Canning said of public opinion, "it is in the air." Keeping steadily with our guide, we stumble upon small towns and villages that bear the same name, and that to all visible or possible evidence are of the same importance to-day that they were in the days of Alfred and Edward the Confessor. This, as a fact, is unique, and testifies to a sort of vegetative localism—a stagnant, and at the same time permanent condition of sociology that certainly finds no parallel anywhere else in England. In all other places old names disappear, or become confounded or corrupted in new ones; communities vanish with the very sites that history associates with their existence, or they grow from insignificance to importance. Not so "the Isle of Purbeck." Here growth has no evidence, or change either. Time's footmarks, to use the simile of Longfellow, leaves no impress except in the sands of the churchyard, and the weathering of the gables—these evidences alone showing how the *status quo* has been handed over intact, to successive generations, along the centuries. Yet Purbeck has a trade, and a most interesting and productive one. Pervading almost its entire surface is a plastic clay of great excellence which is used in the manufacture of china and earthenware. A considerable commerce, through Wareham—the nearest outlying post on the borders of Dorset civilisation—is carried on in this product, which is, moreover, a monopoly, with Staffordshire, and even with the Continent. It is thus described: "When dry the

clay has a remarkably glossy appearance, free from any perceptible grit or impurity, but often slightly tinted, yellow or pink, or grey, by the presence of oxide of iron. It is not a new discovery by any means, as the numerous ancient workings testify. The Romans made pottery of it, the shards of which are still to be found. In later times it came into vogue for tobacco pipes, and even in 1760 the annual export was 10,000 tons. Now, it is more like five times that amount, a large proportion of which goes to Staffordshire." It is something new to learn that the best staple of the pottery districts is supplied by an obscure corner of Dorset.

* *A Royal Warren, or Picturesque Rambles in the Isle of Purbeck.* By C. E. Robinson, M.A., Barrister-at-Law. Etchings by Alfred Dawson. London: The Typographic Etching Company.

The etchings and illustrations are numerous, and include everything, from a ruin on the grandest style, such as Corfe Castle, down to a wayside cabin of the ugliest and commonest type. Indeed, they are, if anything, too numerous, and while all show artistic finish and appreciation, a large number might, without any great detriment to the work, be omitted. The first that arrests attention is Grange House, the seat of a local family of the name of Bolton. The front elevation shows a fair specimen of an Elizabethan residence of some pretensions, but not in any sense remarkable. The view from "The Creech," a very high hill, over 1000 feet above the level of the sea, must be very fine indeed in its neighbourhood. "To far sight," says our author, "on that clear air, Salisbury Plain itself is not quite out of scope. Weymouth and Portland, Worth and Wareham, Wimborne and Poole, Bournemouth and Swanage, besides a hundred villages, all lie in view at once. Then the spreading miles of purple heath, of green luxuriant pastures with atmosphere so fresh and keen!"—a charming prospect truly, reminding one strongly of that other view from the top of the Wrekin, in Shropshire, which brings the marvellous panorama of eight counties within view. The gateway of Corfe Castle gives us a Norman arch in ruin, with all the usual strongly marked features and accessories of such a structure. It is, however, for the domestic architecture, if at all, that the etchings claim notice, and among them Tyneham Manor House stands prominently and favourably. The house, with its square-headed windows, pointed dormers and porch, bears that stamp of "home" upon it which the Elizabethan style more effectively conveys than any other. The Manor House at Barmeston is a quaint one-storeyed group in which a large oriel diamond-paned window is the feature. Smedmore House, as seen through a group of trees, supplies nothing to arrest attention, except, perhaps, the clearness with which the lines in the etching of a very common-place stone house are made to come out. And so, from manor houses we pass in succession through a crowd of market-places, churches, bridges, graveyards, everything structural and topographical, almost, finding for our author and his artist some interest. It is scarcely to be expected that the ordinary traveller will be fired by a similar enthusiasm, but unquestionably "the Isle of Purbeck" has its attractions for the archaeologist without his discovering, as regards its whole surface like Mr. Robinson—

Tongues in trees, books in the running brooks,
Sermons in stones, and good in everything.

Among the etchings, a Celtic cross in Kimberidge Churchyard deserves more than passing attention—if ancient. In this case it would open up new historic and archaeological questions, for, out of Cornwall, if now even there, this peculiar specimen of antient ecclesiastical art is not met with in England.

The book is well printed on that luxury of luxuries—good hand-made English paper, with wide margins. Its object is said to be "to fix with pen and pencil sketches, in a rambling discursive kind of way, those quaint and picturesque features of Purbeck which the threatened railway may vulgarise or improve, but as to the existence of which county histories are silent and guide books inadequate and misleading." This unambitious purpose is fairly enough realised, but how far it was worth the doing, the rambles and accompanying etchings themselves must declare. If the style is stiff and in some parts affected, we have nice bits of historic lore interlarded from the county histories and other reference books, which make the reading smooth and the information full. Mr. Robinson, no doubt in keeping with his task, is discursive—is fond of digression. With the best material for itenary writing, it may, however, be remarked that it is hard to be otherwise, and so of late it is not much affected by travellers. To this day Johnson's "Journey to the Hebrides" and Brydon's "Tour in Sicily" are left undisputed models of this department of literature, just as Pepy's "Diary" is acknowledged to be at once the model and the monument of a

lost art—diary keeping having gone entirely out of fashion. For the rest, and as accounting for an unavoidable baldness of treatment, it may be said that "the Isle of Purbeck" presents in itself such a dead level of sameness, in aspect and incident, that no purely writing opportunity could arise out of its description. Mr. Robinson, however, has succeeded, and well succeeded, in convincing us that this remote and interesting region is a specially appropriate field for a holiday ramble. It furnishes claims on many sorts of men, and these the most opposite in calling and temperament. It would be strange if the man of business could not find something in its magnificent bed of plastic clay to fix his attention, or that the student, the historian, or the geologist should lack material amid the rich resources that it furnishes. But far and beyond all these has Purbeck enticements for him whose delight is in quaint gables, mouldiness, and moss—who can people ragged ruins and hold converse with the Archaic in some of its oldest, if humblest, forms. For him, indeed, the low-toned, solemn voice of the past, laden with memories—

Sounds sweetest here,
And draws the spirit most unto itself!

ATLAS DER ALPENFLORA.*

THIS atlas, now in course of publication by the central committee of the Austrian Alpine Club at Salzburg (Dr. Richter, president), is certainly the most important work of the kind that has yet been published. We still needed, in the collection of works on the Alps, and especially on the subject of the alpine flora, an illustrated publication rendering the alpine plants accurately, and offering to us these gems of Nature in the form of pictures with their botanical characteristics perfectly defined. We have already some works on the alpine flora—books excellent from a scientific descriptive point of view, and treating of the mode of culture of these plants—which have been published by different authors. But the chromo-lithographed works which have appeared up to the present time have never fulfilled the object now proposed; they seem rather to belong to the class of purely artistic works; for instance, the superb collection of chromo-lithographs by Madame E. Vougay, "Les Fleurs des Alpes," highly valued by amateurs of drawing, and giving proof of undoubted talent, cannot possibly be included in the class of botanical works, because their character is purely artistic. But in the Austrian "Atlas" we find a publication which united the two conditions essential to the success of an atlas—absolute exactness in the botanical characteristics of the species (these are generally detached and perfectly represented at the foot of the plate), and also a refined artistic taste which, in the majority of cases, leaves nothing to be desired. We have indeed remarked some trifling details which are not natural, but in general the drawing is very accurate. The shades of green, so difficult to render naturally in chromo-lithographs, and so rarely successful in publications of this kind, appear to us truthfully rendered; in general the colours are bright and true to Nature, especially of the flowers on which the authors have concentrated their attention. The "Atlas" is composed of 500 coloured plates, of which two-thirds are already published. These plates, drawn by Mr. Anton Hartinger, of Vienna (in the form of a small octavo), are single and detached, so that they may be classed in families and groups when the publication is complete. They consist of purely alpine flowers, and only those belonging to high altitudes are to be found in the plates. These correspond to a volume containing the text, which may be entitled "Flora of the Austrian Alps, with Description and Record of the Same," by Dr. K. Von Dalla Torre, of Innsbruck. This flora contains, besides the description of the 500 species illustrated in the "Atlas," an account of all the alpine plants composing the flora of the Austrian and German Alps, or, one may say, of Switzerland. It is a conscientious work admirably done, which enhances the

* The correct title is "Atlas der Alpenpflanzen."

value of the publication. The work recommends itself, and should be included in the library of every lover of plants.

H. CORREYON.

Curator of the Botanic Garden, Geneva.

The Hygeian Home Cook Book, by R. T. Trall, M.D. (F. Pitman, Paternoster Row).—An excellent and simple little book, which opens up a new view of cookery altogether, and tells people how to dispense with the grease, spice, butter, salt, and other such condiments which are the stock-in-trade of the common cook almost throughout the world. It is divided into little chapters, which treat of bread, "mashes," pies, puddings, sauces, soups, vegetables, fruits, whole grain, and seeds. It is sold at a very low price, and we advise food reformers and those in any doubt as to the wisdom of reducing all good things to the same dead level of monotony, and neutralising all natural flavour by spice, grease, and sugar, to have it by them for reference and encouragement.

TRIP TO THE SOUTHERN ALPS.

THIS expedition started from Christchurch with the view of collecting mountain Lilies and other rare alpine plants, Ferns, and seeds for transmission to England. After passing on its way the little white Gentians, which looked like Snowdrops in full bloom amongst the tussocks, Mount Torlesse loomed up in front, the highest peak standing out clear and distinct, with lines of snow glittering in the sun, the shingle slips looking as if the mountain had been gashed by the knife of a Titan. The Fagus bush bearded the rugged slopes half-way to the summit, which is now set down at about 7000 feet. A little mountain stream ripples down from the mount. On its banks were noticed many alpine plants, the seeds having been carried by the water. At the base of the pass Phormium Colensoi, the tihere of the natives, was growing in large patches; but it is a shy bloomer, as no flower-spikes were to be seen. Celmisias, principally spectabilis, Senecios, Gaultherias, Wahlenbergias, and a stray clump of Snowgrass began to appear as we ascended the pass. Ben More, on the left of the pass, stands, as if defying its opposite neighbour, Mount Torlesse. Over the pass the road runs through the centre of a basin between the last-named mountains, and the ground was thickly studded with the beautiful Celmisia Lyalli, Dracophyllums, Forget-me-nots, and a host of little alpenines which we could not stop to collect. On the banks of a creek were met with fine specimens of Aciphylla Colensoi, whose glaucous, branching leaves mark it as distinct from the prevailing form, A. Lyalli. Nearly a pound of seed was obtained from one flower-stalk, which was 6 feet high. On the shores of Lake Pearson, next reached, there were large patches of Pratia macrodon carpeting the ground with its purple berries, and many interesting aquatics were collected. No sooner had we stopped to camp for the night than the wekas seemed to spring from the ground in all directions to see what the row was about. The curiosity of this bird leads to its destruction, and as it is a "roag in grane," there are few scruples about bagging it, but it is an inglorious prize to the true sportsman, as it hops about a few yards from the gun like a domestic fowl. Some progress with garden cultivation has been made at Bealey, and Potatoes were shown which would put to shame those grown on the plains. The road continues up the narrow valley of the Bealey, crossing the river several times between ranges of considerable height, and clothed from base to summit with almost impenetrable Fagus forest, every tree bearing its load of beard-like lichens (Usnea and others). Under the trees are dense patches of Mosses, many beautiful species of Hypnum, Polytrichum, and Dicranum. Traveling some eight miles through the gorge, we arrived at the foot of

ARTHUR'S PASS, where we intended to form a permanent camp for the next three days. It was a picturesque spot. The waterfall known as the Devil's Punchbowl faced our camp on the north,

whilst the rocky peaks of Mount Rolleston, covered with snow, towered up on the south and west. The pass by moonlight—such a scene as Doré or Salvator Rosa loved to paint—snow-covered mountains bathed in moonlight, deep shadows, which the eye in vain endeavoured to pierce, in the throat of the gorge, whence strange sounds reached the ear, whilst fire-blackened trunks of *Dracophyllums* stood like spectres guarding the approach to the dark valley beyond. Every snow-clad peak was sharply outlined against the sky, the numerous waterfalls descending the shrubby sides like silver threads on a dark green robe. The Punchbowl Fall of 300 feet threw up clouds of spray, which, becoming frozen on the surrounding trees, formed large icicles glittering in the moonlight. Other trees draped with waving masses of hoary Lichen enhanced the weird beauty of the scene, Arthur's Pass has been truly termed the botanic garden of Canterbury. Owing to its peculiar position on the divided range of the island, and to its low elevation (3050 feet) the floras of the east and west sides of the Alps are combined, and thus a greater variety of plants is to be found within a limited area than in any other locality. The eastern side is rich in herbaceous and alpine plants, whilst the western teems with Ferns and the luxuriance of a sub-tropical vegetation. Botany is the science to sharpen the power of observation; every bank, rock, and tree bears its load of interesting objects, and the man who could travel from Dan to Beersheba—from Christchurch to Hokitika—and say all was barren, was no botanist. We started early on Monday morning for the Otira Gorge, noting the positions of rare plants to collect on our return, and many rare and beautiful varieties we saw. It is singular that our native plants should be so little prized by horticulturists generally, but this probably arises from the erroneous impression that they are difficult to grow and deficient in beauty. Never was greater mistake. We have perhaps no plant so gaudy as the Tulip, but for beauty, distinctive types of foliage, and elegance of flowers, our alpine plants cannot be surpassed; that colour is not wanting is testified by the Rata (*Metrosideros lucida*), which during several months clothes the whole western side of Arthur's Pass with a mantle of brilliant scarlet. The whole of the lower parts of the pass on both sides is covered with dense mixed forest, the evergreen Beeches (*Fagus Solandri* and *Fagus Cliffortioides*) largely predominating. On many of the old trees which adorn the slopes of Mount Rolleston we found several species of the native Mistletoe, known botanically by the name of *Loranthus*. These are the most interesting of parasites, their attractive red or yellow flowers being succeeded by white and orange berries, which form the food of many parakeets and mountain kakas. Sometimes the roots of the parasites may be traced to the base of the tree trunk, and when the tree is unable to supply the demand made on its sap it withers and dies. Examples of double parasitism—one kind of *Loranth* growing and living on another—were also numerous. Entering the dwarf forest, we were soon engaged in the business of the expedition. One of

THE MOST REMARKABLE PLANTS on the pass is the rare *Nei-Nei* (*Dracophyllum Traversi*), the largest known example of the natural order of *Epacrids*. It is a small tree, sometimes attaining the height of 30 feet, and 1 foot in diameter. It has a stout brown stem, with thin, papery bark; the leaves are like those of a Cabbage tree, but smaller, and grow in tufts at the points of the branches. The general appearance of the tree is like a huge candelabrum, the flowers being in dense short panicles in the centre of the tuft of leaves. Although there were hundreds of old trees, it was only after several hours' close searching that a patch of young plants fit for removal was hit upon. It is singular that such a fine hardy ornamental plant should still be confined to its native habitat. Thousands of gardeners in England would recognise its quaint beauty, and be glad to have it. Species of *Ake-ake*, or *Olearia*, were numerous, two of the largest trees being the fine-foliaged *O. ilicifolia*, sometimes called the New Zealand Holly, and *O. nitida*. *Olearia lacunosa* is a most peculiar

and beautiful shrub, with dark green narrow leaves, 1 foot long, which are covered with reddish brown hairs on the under side. We were unsuccessful in finding young plants of this species, and had to be content with shoots for grafting. Of the small-leaved section of the family *O. Haasti* and *O. nummularifolia* are handsome shrubs which will grow anywhere. The Ivy trees (*Panax*) are represented by three sorts. *P. Colensoi* is a most ornamental tree, with leaves like five-fingered Ivy, bearing black berries in large clusters. *P. simplex* is another handsome little tree, very charming in the young state. *P. lineare* is very plentiful, its dark foliage being a prominent feature in the landscape. One of the commonest shrubs is the fine-foliaged *Senecio elaeagnifolius*, which has leaves as handsome as a *Rhododendron*, although it belongs to the same family as the English Groundsel. A dwarf variety is named *S. Bidwilli*, after a celebrated botanical pioneer. Both these evergreen shrubs do well in gardens. The large genus *Coprosma* has numerous representatives here, from the little *C. acerosa*, with its rich blue berries, to the notorious *C. foetidissima*, forming dense thickets, which it is not pleasant to pass through on account of the disagreeable odour given off by the plants.

CONIFERS are to be found here, but owing to the elevation they do not assume the dimensions of large trees. The Celery Pine (*Phyllocladus alpinus*) is a singular shrub, or rather small tree, which has its branchlets flattened in the form of leaves. There is not a more beautiful conifer in cultivation than the kawaka of the Maoris (*Libocedrus Bidwilli*, or *Bidwill's Incense Cedar*). It is a conical tree, with bright green branchlets like an *Arbor-vitæ*, arranged horizontally in dense tiers, and bearing small round cones. Another beautiful conifer is *Dacrydium Colensoi*. The sturdy, bright green branches of this little tree render it particularly attractive, and it should find a prominent place in every collection. Many trees of the Mountain Totara (*Podocarpus nivalis*) were met with. The red, Yew-like berries of this tree were found acceptable by Green and his Swiss guides on their ascent of Mount Cook. Two more examples of sub-alpine conifers were seen—*Dacrydium Bidwilli* and *D. laxifolium*. The first is the smallest known representative of the order. It would be a good plant for carpet bedding, the exquisite blue tint of its foliage being unique in its way. The other sort is similar in form, but the colour is green, and the habit of the plant is not so compact.

OTHER FORMS OF VEGETATION in the Otira Gorge were next examined. The *Kamai* (*Weinmannia racemosa*) was abundant, and its relationship to the *Hydrangea* was perceptible at a glance. Shrubby forms of the great New Zealand family of *Speedwells* were common, though less numerous than in many other parts of Canterbury. Among those collected were *Veronica Armstrongi*, *V. canterburiensis*, *V. odora*, and *V. cupressoides*. *Aristotelia Colensoi*, the mountain Wineberry, and *A. fruticosa*, the mountain Currant, are handsome trees, and the fruit is worth a trial for wine or preserves. Almost all the New Zealand alpine shrubs are evergreen, but the Ribbonwood, *Plagianthus Lyalli*, is an exception, its foliage at this season being of a rich golden yellow, contrasting well with the dark green of the surrounding Beeches. Another deciduous shrub is the alpine form of our native *Fuchsia*, which had assumed its golden brown; and autumn tints are not wanting among Evergreens, as *Gaultheria rupestris* had already turned scarlet under the influence of frost. The handsome white and rose-coloured fruit of the other *Snowberry*, *Gaultheria antipoda*, was also conspicuous. The common Broad-leaf of the lowlands is here represented by an alpine form, remarkable for the vivid green of its foliage and the compact hardness of its timber. Many shrubs, with leaves like needles, were prevalent; they are known as native Heaths, and belong to *Dracophyllum*, the best being *D. longifolium*. Such is a brief sketch of the trees and shrubs which line the sides of the romantic glen formed by the Otira River on the western side of the pass.

ALPINE HERBACEOUS PLANTS, the gems of the colonial flora, were now the objects which we had in view, and an early start was made in quest of the Mountain Lily (*Ranunculus Lyalli*) and the Mountain Marigold (*Senecio Lyalli*). The first is a grand plant of the Buttercup family, which has become famous in the horticultural world as a fine thing, though rather difficult to grow. It thrives here among stones and rocks in pockets of peaty soil kept constantly moist by the trickling of snow water down the slopes. The difficulties experienced by cultivators have no doubt arisen from the erroneous impression that it is a bog plant. Such, however, is very far from being the case; the finest specimens were so jammed in between stones that we had some trouble in extricating them. The old bloom stems indicated that they had been 2 feet to 3 feet high, and had borne four or five flowers in a cluster. The immense leaves, like saucers, are very peculiar. Although most of the plants had died down for their winter rest, the Mountain Marigold was easier to obtain. It is a noble, semi-tuberous representative of the Groundsel family, with long narrow leaves arranged in a crown, and sending up large panicles of flowers like Marigolds, varying in colour from pale yellow to deep orange or pink, and sometimes measuring 3 inches across. It should prove an admirable border plant in rich deep soils, and it is so distinct in character from all plants in cultivation that it will be eagerly sought after in England. There is a small variety, called *scorzoneroides*, which, when out of bloom, might be mistaken for the common *Scorzonera* of the kitchen garden. Another variety of *Senecio*, but new to science, was discovered growing on moist, shady banks. It is a small herb with dark green oblong leaves, covered with white bristles, and producing numerous yellow flowers 1 inch across. The New Zealand Edelweiss (*Gnaphalium grandiceps*), as its German name implies, is truly a noble flower, and was found in considerable quantity, growing in loose, shingly *débris* at various altitudes from 3 feet to 7000 feet. The silvery tint of the neat foliage, and the peculiar felt-like flowers, which are as large as half-a-crown, must always win it admirers, apart from its quality as an everlasting. To the Swiss mountaineers who accompanied Green in his ascent of Mount Cook, this plant was like a glimpse of home from its resemblance to their native Edelweiss (*Gnaphalium Leontopodium*). There is another pretty little plant belonging to the same family—the mountain Everlasting—which bears a profusion of snow white blossoms. The native Hairbell (*Wahlenbergia saxicola*) covered the grassy slopes with its graceful bells, varying in colour from white to deep blue, and in size from a quarter to an inch in diameter.

NEW ZEALAND'S GREAT HERBACEOUS GENUS, the mountain Aster (*Celmisia*), is well represented about Arthur's Pass, ten or twelve fine species being secured. The finest of them is the so-called Cotton plant, *Celmisia coriacea*, with leaves 1 foot to 2 feet long and 1 inch to 2 inches wide, densely covered with a pellicle of white cotton, which some ingenious colonist once tried to work up into a fabric, but without success. The plant grows in large tufts, and is one of the most attractive both in bloom and foliage known to us. The twelve sorts found range in size from the one last mentioned down to the little *C. bellidioides* with its handsome patches of bright green daisy-like leaves covered with white flowers. Among the finest of the group are the brown-leaved *C. Monroi*, and the fringe-leaved *C. petiolata* with dark purple midribs. The hoary-leaved *C. incana* forms striking masses of grey foliage a few inches from the ground, and would be useful as an edging plant. These *Celmisias* are a fine group of alpinists, but they do not carry well, and it has been found difficult to introduce them to England alive. Seed of most of the varieties was collected, from which, it is hoped, plants will be raised. In the little bog at the top of the pass we found

TWO KINDS OF DROSERA, or Fly-catchers—*D. arcturi* and *D. spatulata*; both are interesting plants, and have their leaves clothed with the pe-

culiar irritable hairs common to this family which sparkling with dewdrops are singularly beautiful. These carnivorous plants are supposed to dine off the flies and other insects which become entangled in the hairs; the theory is ingenious, but the fact is doubtful. The *Ourisias* are another family of herbaceous plants of which New Zealand has many fine species. Three sorts were collected, the best of them, *O. macrocarpa*, forming extensive tufts of deep green polished leaves 4 inches to 6 inches long and 3 inches wide, with numerous panicles of snow-white flowers resembling *Lobelia fulgens* in form. *O. macrophylla* is smaller in every way, and the leaves are hairy. Both grow in moist peaty soil. The other variety, *O. cæspitosa*, is a little bright green creeping plant with large white flowers.

The native *Gentians* were very abundant, *Gentiana saxosa* and its variety *corymbosa* with their numerous white flowers being especially attractive. These are perennial, but the kinds observed are biennial only. In a bog the *Bladderwort* (*Utricularia monanthus*) was abundant, its purplish blossoms looking like those of a miniature *Orchid*. Two terrestrial *Orchids*, *Caladenia bifolia* and *Cyrtostylis oblonga*, were found on a bank of stones by the roadside. They are very curious, but not showy plants. The so-called *Bush Flax* (*Astelina*) was here represented by the grey-leaved *A. nervosa*, growing in handsome tufts on peaty soil. Those singular plants forming the genus *Aciphylla*, which have been named *Wild Spaniards*, are not without beauty; that they are not without sharp points the unwary traveller finds out to his cost. The most important result botanically was the discovery of a new species of this genus. Like *White*, of *Selborne*, when he took a *blatta* on the bishop's carriage, "it was new to us." The leaves are 3 feet to 4 feet long, rich, deep, polished green, the flower-stems, which rise to a height of 8 feet, resembling in bulk those of *Lilium giganteum*. It is certainly one of the finest plants yet discovered in the colony, and it has been appropriately named *grandis*. A pretty plant of the same family is *A. crenulata*, a low-growing, flaccid sort with crimson mid-ribs to the leaves. The bright green *A. Monroi* (named after its discoverer, Sir David Monro) was very abundant on rocky mounds, so closely resembling a little *Palm*, that it gave a distinctive feature to the landscape. The *Ligusticums*, *Haasti* and *piliferum*, were plentiful; they are worth growing for their foliage. The little *Nerteras*, with their red and orange berries, grew in patches; *depressa* is a favourite in England, but *cæspitosa*, a better thing, is not so well known. If space permitted, many other plants collected could be described; the *Cotulas*, *Violets* with white or purple-streaked flowers, the little mountain *Tutu*, two kinds of the valuable *Forstera*, and several fine varieties of *Raoulia*.

Ferns were not numerous on the pass, but several sorts were found which are rare in the lowlands. The prevailing Fern was the well-known *Lomaria alpina*, which grows everywhere. *Hymenophyllum villosum* was also abundant, growing in large masses on rocks and trees, and frequently frozen hard. That curious little Fern *H. Armstrongi* was found in a cave on Mount Rolleston, covering the rock with a dense mat like a carpet. Only one patch was found, although a close search was made in the locality. *Polystichum vestitum* in its nonindusiate form was plentiful. The *Grove Fern* (*Alsophila*) was found in the forest, its trunk extending several yards underground. It is a noble Fern, and very hardy. *Hypolepis millefolium* and *Histiopteris incisa* were widely distributed, and grew to a large size, and the same may be said of *Lomaria minor* and *Ornithopteris scaberula*. Two varieties of *Asplenium* of the flaccidum type were collected—one of them likely to prove useful as a pot plant from its compact habit and lively green colour. In Lake Pearson we obtained the *Mountain Quillwort* (*Isoetes alpinus*) and the *Pillwort* (*Pilularia globulifera*), the common *Water Pepper* of England, which has been erected into a distinct species here, but does not differ from the British plant.

P. G. ADAMS.

FRUIT GARDEN.

SMALL-FLOWERED PEACHES OUTDOORS.

MR. E. HOBDAY refers to Peaches bearing small flowers, and gives it as his opinion that they have more vigour and hardiness than the large blossomed kinds, while another writer some time back averred that they set better; my experience is that neither statement is borne out by trees under cultivation, for what sorts can be more hardy or robust than *Hardwick Seedling*, *Lord Napier*, *Humboldt*, *Rivers' Orange*, and *Pitmaston Nectarines*, or *Barrington*, *Dr. Hogg*, *Lord Palmerston*, and *Noblesse Peaches*, all of which are not only good growers, but free setters both indoors or out? As to protection, there can be no question that heavy thick coverings left on by day do harm, but no one who uses them would think of allowing them to remain on unless for a day or so in very exceptional weather; and as the only object in having them is to ward off frost, the more elaborate and thick they are, the better they answer the purpose. What I and most others who have to deal with Peaches and Nectarines on walls would like, is a glass coping about 2 feet wide, from the front of which thick canvas or other screens could be hung, behind and under which shelter trees would be almost as well favoured as in a house. Mr. Hobday goes on to remark that we want a hardy race of Peaches with small flowers that will bear a low temperature, and which under good treatment, such as spreading out the branches and keeping down insects, will ripen their wood and bear strong blossoms, but we also want them to set. Well, a hardy race of Peaches that would bear a low temperature might be acceptable, but I cannot see that it would matter much whether they had large flowers or small ones. It would seem, however, from Mr. Hobday's further remarks that Peaches are already hardy enough for our climate, as he states that he looks upon the Peach as harder than the Apricot, and that if the trees were kept clean and the wood thin, the Peach would not often fail to bear. If this be so, few will be able to understand why a hardier race is needed. Keeping them clean and thin we all know will do much towards that desirable end, but so long as Peaches have the early habit of blooming which they now have and we get spring frosts, so long will they need protection while they are in flower, and just so long will the crop be uncertain. This, I think, will be the conclusion at which most will arrive, and if our hardy Apples and Pears bloomed at the same time as Apricots and Peaches, there would be very few seasons in which we should get any fruit.

S. D.

DERIVATION OF THE WORD APRICOT.

THERE is no notice in the classical writers which would seem with certainty to point to the Apricot, which we may, therefore, assume not to have been introduced into the west until the time of the later empire. The Quince, the Fig, and the Pomegranate are all mentioned, but not the Apricot. The Apricot was probably brought into Europe by the Latins in the imperial age, but afterwards chiefly acclimatised in the eastern or Byzantine half of the empire. The reason for believing this is that the original word which survives in modern English as Apricot is unquestionably *præcoquum*, or the fruit that becomes early, or, as it were, prematurely ripe. This post-classical word, like many Latin terms which penetrated eastward, was afterwards expressed in Greek characters—not translated into Greek—in the corrupted form *Prikokion*. In its turn *Prikokion* appeared at least as early as Shakespeare's time in the word *Apricock*. We find the word at least twice in Shakespeare's plays. One instance is in the "Midsummer Night's Dream," where the words occur, "Feed him with Apricocks." Finally, *Apricock* has, by the well-known philological law of the interchange of "k" and "t," become the Apricot of to-day. By way of comment on the foregoing, though adding nothing to it in the way of elucidation, Mr. O. H. Howarth, dating from the Salisbury Club, writes: "I may observe that there is reason to think the form *Apricock* is

not yet obsolete in parts of the country. Ten years ago I could have shown a gardener within 50 miles of London who, in the early ripening season, would observe, 'Fine weather for the Cocks, sir!' by which, on inquiry, he would be found to signify the Apricocks. This authority, however, was not a classical scholar, and on further inquiry ascribed the derivation to 'April-cocks'—an etymology perhaps more phonetic than relevant."

How to raise good Peaches.—Mr. J. B. Goodrich, originator of the early Goodrich Peach, relates how he was led to adopt his method of raising seedlings by noting the gardener's practice of choosing seeds of Parsnips, Carrots, Beets, Turnips, &c., from the main branches. He selected seventy-eight Peaches of the finest from the tops of central limbs of healthy and prolific trees, and all of the seedlings except eight bore excellent and valuable fruit.

Curl leaf disease.—Prof. Comstock states that the attacks of plant-lice cause the foliage of Peach trees to assume an appearance similar to "curl leaf," but that disease, especially prevalent in California, is independent of the presence of any insect, and nothing is yet known of cause or remedy. Dr. Sturtevant says it seems likely to do great damage this year at the State Experiment Station by destroying the crop of fruit, as well as weakening the trees and retarding growth.

Growing Strawberries in pits and frames.—In reference to this subject, "J. C. C." has made me say the opposite of what I did say by omitting the words at p. 4, "It is the preparation of the plants and the time of planting them with which I find fault." I repeat that it is too late to plant out Strawberries in pits from the open ground on the 1st of March. They ought to be planted where they are to fruit as soon as they are established in the pots in which they are layered. I also object to the trouble of filling up a deep pit "with any refuse that comes to hand that is not likely to sink."—J. DOUGLAS.

Champion Black Currant.—Last year this new variety was submitted by Messrs. Carter to the fruit committee of the Royal Horticultural Society and was unhesitatingly awarded a first-class certificate on account of its productiveness and the large size both of bunches and berries, the latter being as large as outdoor Grapes. The other day we had an opportunity of seeing bushes of it in Mr. Dunnett's garden at Dedham, where it originated some years ago as a chance seedling. These bushes, which include the original one, are at present literally loaded with fruit, every branch being fairly borne down by its weight, and the bunches and berries are even finer than those shown at South Kensington last year. It will no doubt in time supersede the ordinary Black Currant not only in gardens, but also for market purposes.

African Melons.—We have growing here what is thought by many to be a novelty in the way of a Melon, the seeds of which were brought from Cape St. Alpine by General Sir Drury Lowe, and sent to me for trial. I have just measured one of the fruit from them; it is 49 inches long, 35 inches in circumference, beautifully netted, and very heavy. I am not a believer in large Melons as a rule, but I shall have ripe at the same time Dr. Hogg and Colston Bassett, two varieties I have grown in the same house for years, and will be able to compare the three. The two last I think are a little crossed, and I fancy in both cases a little improved. Indeed, I consider them as good in flavour as any Melons at present in cultivation. The new one when cut weighed 34 lb. 2 oz., and its flavour is excellent. I have just cut two more the united weights of which are 40 lb.

—F. RUTLAND, *Goodwood*.

5028.—**Grapes shanking.**—I believe shanking to be caused through poorness of soil. I advise your correspondent before he starts his viney again to give the border a good watering with manure water; then put a layer of good farmyard manure on the surface from 6 inches to 8 inches thick—treatment which must be repeated every year.—D. M.

Hale's Early Peach.—It is to be regretted that this fine Peach is only second-rate in flavour, for in other respects it has every good quality; the tree grows freely, and is an abundant and regular bearer. It is also the most distinct early Peach we have. I am aware that some find no fault with it in respect to flavour, but I speak of it as we find it here. We grow it on the back wall of an unheated house, where it never disap-

ment it. It comes in when most others are over, or at least past their best. It is also a first-rate bearer. In colour it is a most beautiful crimson, medium as regards size, and acid in flavour, which is very acceptable during the hot days which we generally get at the end of July. There may be other good kinds, but I have found none to answer the general requirements of a private establishment so well as the four sorts just named. To

rately in tissue paper, packed tightly in a shallow box, with dry, short Grass from the lawn. Each bunch of Grapes, which was of the Frontignan section, was wrapped up in tissue paper and packed with the same material. Doubtless these were three days on the road, but nevertheless they arrived in the best possible condition. In those days flavour rather than size was the object sought for. The varieties of Grapes grown were black and white Constantia, Grizzly Frontignan, Black Hamburgs, and white Muscats. As regards flavour, I may add that Grapes have gone back, but Melons have certainly improved since the time of the Cantaloupes, the chief merit of which was their size.—RICHARD GILBERT, *Burghley, Stamford.*

—It is quite true that Peaches are sent to market in a firm, half-ripe condition, and that is the state in which salesmen give the highest price for them. If anyone sent ripe Peaches to London for sale, the salesman's invoice would most likely be marked "over ripe, and sold at a very low figure;" but if, on the other hand, fruits from the same tree, firm in flesh, but richly coloured, were sent, the highest price would in all likelihood be obtained for them. Such, at least, is my experience. Moreover, it is not necessary to send ripe fruit to market, for the Peach ripens perfectly well off the tree; and as it has to be sold, and in many cases resold, after being sent to market, it follows that fruiterers could not keep other shops supplied if the fruits were ripe enough for consumption when received. Many of the finest Peaches sent to London from the provinces are repacked and sent to the country again. It is simply a question of what fruit fetches the highest price—ripe or unripe—that determines the stage at which they should be sent, and in the case of Peaches I adhere to the statement that half-ripe Peaches can be sent in perfect condition, but not fully ripe ones such as anyone would select for their own eating. No one questions the propriety of salesmen giving better returns for Rose-buds than for fully-blown Roses, yet the Rose-bud is in about the same condition for packing as the half-ripe Peach is, the one travelling with ordinary care, the other requiring more gentle handling than glass. In this locality fruiterers in ordering Peaches almost invariably state that they do not want them fully ripe.—J. GROOM, *Gosport.*



Tynham Manor House (see p. 121).

points us. This season we have plenty of its fruit 7 inches in circumference, highly coloured, and in every other respect except flavour all that can be desired. It may be we are fastidious in our choice of early Peaches, for we have discarded Early Beatrice and several others for the same fault; but as Hale's Early is quite three weeks earlier in ripening than Early Grosse Mignonne, it extends the season so much that we would not willingly be without it. In some favoured situations I have seen this variety bearing very well on open walls. In point of hardness I consider it to be superior to Princess Beatrice and in other respects quite its equal.—J. C. C.

5028.—**Grapes shanking.**—Apply $\frac{1}{2}$ lb. of pulverised saltpetre (nitrate of potash) to each square yard of the Vine border, and then give the border a good watering to enable the salt to penetrate to the roots of the Vines. This season a friend came to me in great distress for my advice, stating that his Grapes had commenced to shank badly at a very early stage of their growth. I recommended the treatment just described. About a fortnight afterwards he informed me that the dose had effectually cured the disease, the shanking had stopped immediately after the application, and the growth of the Vines had greatly improved. The shanking was, in fact, a symptom of starvation, the border not containing sufficient potash to support the crop.—EDMUND TONKS.

The best Strawberries.—As the time has now arrived for making new plantations, allow me to make a few remarks on kinds which I have found to answer best for all purposes. Everyone, for example, should grow Garibaldi. If young plants of it are planted every three or four years, it is a first-rate cropper. Though its fruit is rather small individually, its colour is excellent, and for preserving no other kind is, perhaps, so good. President is, according to my opinion, the best Strawberry of the present day, and no garden, however small, should be without it. It is most prolific, handsome, and good flavoured, and for forcing it has no equal. Although not quite so early as some, the deficiency is more than counterbalanced by the heavy crops of fine fruit which it produces in April and May. Sir Charles Napier is another that should find a place in every garden. It is a most abundant bearer, and the brisk acid flavour which its fruits possess is generally liked by everyone. Elton Pine has lateness to recom-

mend it. It comes in when most others are over, or at least past their best. It is also a first-rate bearer. In colour it is a most beautiful crimson, medium as regards size, and acid in flavour, which is very acceptable during the hot days which we generally get at the end of July. There may be other good kinds, but I have found none to answer the general requirements of a private establishment so well as the four sorts just named. To

Packing fruit.—There appears to be at present a great fuss about packing fruit. Perhaps it



Smedmore (see p. 121).

may interest your readers to know how it was packed forty years ago. I well remember when at Worksop Manor an order coming from Dunrobin Castle by the then proprietor of Worksop Manor, the Earl of Surrey, to the then gardener, Mr. John Wilson, to send at once there Grapes, Peaches, Nectarines, and Pine-apples. The Peaches were selected very carefully, sending those only which were scarcely ripe. Each was wrapped up sepa-

Market fruits.—Some exception has been taken to the remark made by me that good fruit could often be purchased cheaper than it could be grown. I had in my mind our own experience at Loxford Hall, where loam good enough to grow Grapes in cost us 25s. a yard, delivered at our garden gate. We had also to contend ultimately with an impure atmosphere, which two years ago destroyed all the Muscat blossoms, and

lost us a crop for that season. I need not say that under such conditions it was cheaper to purchase Grapes than to grow them. Again, there are amateurs who have a greenhouse or two, and they grow flowers well, but after a time they also attempt the growth of fruit as well, in order to place the productions of their own gardens on their tables. Vines are planted in the greenhouse; but both Grapes and plants cannot be grown of first-rate quality in one house. I therefore maintain that it would be better for such people to purchase their Grapes and reserve the greenhouse for flowers. In the country, where loam costs little or nothing, where taxes are light and labour cheap, I have no doubt it is cheaper to grow fruit than it is to purchase it. "Peregrine" stated that "the worst kinds of Grapes badly ripened" were those with which our markets were supplied. I pointed out that the principal Grapes at present in the market were Black Hamburg and Muscat of Alexandria. "Peregrine" now states that these two sorts will rank second in value when Gros Colmar comes in. That is another matter. If Muscats and Hamburgs can be purchased at the same time, who are the losers? Not the public surely; if they choose to pay more for Gros Colmar than they do for other Grapes, they are the best judges of what they want. Alicante and Lady Downes are plentiful at the same time as Gros Colmar; the public can therefore choose which they will have.—JAS. DOUGLAS.

THE PLUM CROP.

Of late years Plums have become quite a catch crop, similar to Peaches and the finest varieties of dessert Pears; and even when we do get a good crop of them the heavy rainfall which we often have when they are ripening causes them to split, a large percentage of them being thus rendered useless for dessert, and the few which remain whole are deficient in flavour. A Plum house, then, has become quite as much one of the necessities of a garden as a Peach house, for Plums are much more in demand for dessert than they were a few years ago. Large quantities of them are grown in orchard houses planted out, and also in pots with other stone fruits until set and the fruit begins to swell, when they are turned out-of-doors to ripen; but Plums thus treated are not equal to those grown on trees or trellises near the glass. On an ordinary Peach-house trellis they become highly coloured and of the finest flavour possible. The following varieties I grow most of in the Plum house, each of which is carrying heavy crops, viz., Greengage, Jefferson's, Coe's Golden Drop and Purple and Transparent Gage. The two latter, when left to shrivel a little on the trees, become a perfect sweetmeat. For this purpose they should have small muslin bags put over them. Where there is room, the following do well in houses, viz., Reine Claude de Bayay, Victoria, Prince Engelbert, Kirke's, Blue Impératrice, Angelina Burdett, and Violette de Galopin. Plum trees take longer to get into good fruiting condition than Peaches or Nectarines, but they well repay both time and outlay. For an immediate supply some fruiting standards can be planted as supernumeraries between the permanent trees, also some pyramids underneath the trellises, planted out or grown in pots until the permanent trees get up to shade them, and by that time they will be yielding a little fruit.

Lythe Hill.

A. EVANS.

Downing's Mulberry.—The Rev. Henry Ward Beecher, who has exceptionally intelligent appreciation of the good things of garden and field, thinks more of Downing's Mulberry than of any other fruit, and now the *Orange County Farmer* draws attention anew to the same much-neglected, but "delicious dessert." The tree, the editor says, will flourish in almost any soil, is a thrifty grower, entirely hardy, handsome enough for the lawn, comes early into bearing, is annually productive and for a long time each season, and "the berries are large, black as jet, very sweet, and delicious." So I read. Can anyone tell me what Downing's Mulberry is? I suppose it to be a variety of the common one.—J. H.

Lefort's Mastic for graft wounds.—The composition of this was a mystery for many years, while it gained extensive use and large export, to the great profit of the makers. It is as easily spread on a flat, and even a moist surface, with a thin, straight "paddle," as jelly, and if thinned by adding alcohol, it may be brushed on graft wounds as readily as paint or varnish. The outer film of it quickly dries and hardens by the evaporation of the alcohol, leaving all beneath unchanged and secure. The only care requisite in its application around grafts is that of securely covering every incised part. It is cheaply made, as follows: Melt one pound of good light-coloured resin slowly; add to it one ounce of beef tallow and stir well. When cooled a little, stir in a tablespoonful of spirits of turpentine; then pour in with one hand while stirring rapidly with the other seven ounces of 95 per cent. alcohol. If this cools it too rapidly to allow of thorough mixing, warm it again, stirring constantly until the mass has the consistency of honey. Keep it in a tightly-covered, wide-mouthed can or bottle to retain the alcohol and for easy access. While in use this can be suspended to the waist.

NOTES AND READINGS.

PARCELS POST.—As a late correspondent of THE GARDEN states, the new parcels post may prove to be a great convenience to gardeners of all kinds. To gardeners in private places it will be a boon in various ways so far as the transmission of fruits and flowers is concerned. But the query which suggests itself is, what about "smashing?" Will "parcels" be treated like letters and postal packages which have hitherto been hammered by the "stamps" with a force sufficient to break or destroy anything not enclosed in wood or iron? The railway companies will carry and deliver anything in good condition, subject to their bye-laws or pay value, and their charges barely exceed those of the parcels post, but the latter declines the same responsibilities, and already there are complaints of smashing and rough usage of postal parcels, for which either the senders or the receivers have had to pay. This appears to be the only problem to be solved.

THE FRUIT CROPS.—Why, in the midst of good crops of other things, are stone fruits a failure this season, as the reports say, for we do not regard the few cases of good outdoor crops of Peaches as an exception? Apricots, Plums, and Cherries are a failure, and the failure cannot be attributed to the weather in spring, for it is general under all conditions. Yet the trees were well ripened, the buds were plump and mature, and there never was a better prospect of crops of these fruits before they began to drop after the setting period during the most favourable weather we have experienced this year. The *Chronicle* sagely observes that the failure of the Cherries and Plums, &c., "must be attributed to purely climatic causes"—a perfectly safe assertion, if not quite intelligible; but the question is, what are the climatic causes that have done the mischief? Was it last year's or this year's weather that caused the crop to fail? and what was it that was wanting to promote the stoning of the fruit? There are people who think that the weather was too favourable—too warm and growing when Cherries were in bloom, and that they failed to set properly for similar reasons to those put forward by Lindley for abortive Strawberry blooms when nursed under glass too carefully. At present, the failure of the stone fruit crop is inexplicable, and we ought to confess it.

SWEET WILLIAMS.—These are now gay, and a very noticeable difference is seen to exist between the double and single forms. In the latter we have the perfect flower in shape and colour; in the double form confusion—no other word expresses the difference. The shape and contrasts are all but lost in the last; the petals are confused and distorted, but they last longer, and

are, for certain purposes, useful. Some of the Sweet Williams are extremely vivid in colour, and others soft and pleasing. Much may be done by selection.

SINGLE AND DOUBLE PINKS.—How is it that the single forms of these bloom earliest? As a rule, the doubles just succeed the single kinds. Talking of double Pinks, I daresay florists have long since noticed that, as a rule, the double form produces the fewest flowers. Looking on a batch of single Pinks the other day, I could not help being struck with their profusion of flowers—making up by abundance what they lacked in size of bloom and number of petals, and making a wonderfully pretty display on the border. A cluster of such flowers makes a neat and perfect button-hole, and they are excellent for bouquets.

IVY EDGINGS.—About this season those who have the opportunity should contrast these with Box edging, and notice how much fresher, greener, and prettier they are. Shorn down in spring, they are soon clothed with fresh green foliage such as Ivy only can produce when so treated, and at this season, when the fresh growth of Box edgings is being cut off with the shears at much cost and labour, leaving the edging brown and rusty-looking for the next six or eight months, the Ivy is just at its best, and green, luxuriant, and visible, which an edging ought to be.

SIZE v. FLAVOUR.—The leading note in last week's GARDEN on large v. good Strawberries drives at the foundation of sensational fruit culture, which is not a good thing. In the production of both fruit and flowers fair size is necessary, and will always be insisted upon, but mere hugeness is no advantage. A Strawberry of the size of an average Keen's Seedling should please anyone, and excellent flavour and good colour with that size are all one wants. As a rule, large-fruited varieties are less prolific than small ones; hence size is no real gain. In some other fruits it is, however, different. Probably there are no richer or more delicately flavoured Grapes than some of the Chas-selas and Frontignans, or the Duchess of Buccleuch, but the smallness of their berries tells against them, and, grow them as well as one may, one never can get the same weight of fruit from them as from many other varieties only a little inferior in other respects, but far better croppers. The greatest exaggerations in size exist, however, among vegetables, and, although the writer of THE GARDEN note asks us to "imagine anyone growing a French Bean because it was large"—as if the idea was preposterous—it is a fact that the largest Kidney Beans will mostly always get the prize at a show, and so as a rule will Broad Beans and Peas and many other things. Cottagers know, for example, that it is hardly any use entering the lists in the Cabbage class unless it be with the old Drumhead variety, be it Cabbage or Savoy, which are sown the previous autumn and grown all the following summer, and what the cottager does with his Cabbage the gardener does with other subjects.

THE DOUBLE DEUTZIA (D. crenata fl. pl.).—Gardeners are beginning to realise the value of this shrub for forcing purposes, but it is as an outdoor summer flowering bush that it will get to be most valued and grown. It seems to grow anywhere and fast, and can be compared to no other subject we know for profusion of flower but Paul's Scarlet Thorn when it does well. The specimens of it we have seen have all been young, but large, and were literally bowed down with the weight of bloom they carried. It must be classed among the favourites of the very first rank of ornamental shrubs, and should be extensively planted. Forced specimens are handsome, but they afford but little idea of the true character of the bush grown out of doors in any good open situation.

FLORISTS AND THEIR FOIBLES.—May I just inform the Rev. F. Tymons that I neither charged him with the "serious" offence he complains of

(p. 62), nor intended to convey anything of the kind by what I said, and had the editor detected the same meaning in my words that Mr. Tymons professes to do, I feel sure he would never have passed them? I do not complain of your correspondent "condensing" my statements to the infinitesimal extent he did, but it was not necessary for him to alter both the words and the meaning for that purpose, and he did both. It was just as easy to quote my own words as to invent others, and I presume Mr. Tymons knows well enough that the first is the right and usual course in controversial matters. It is certain that the alteration he made in my words made his question possible. I am sorry anything I have said, having a reference more to things than to persons, should have caused him to drop the playful tone of banter of his opening letter for one so acrimonious as that in his last.

PEREGRINE.

A GARDEN OF THE RENAISSANCE.

ON a fine afternoon last April it was my happy lot to visit Careggi. "It lies," says Herr Von Reumont in his delightful history of Lorenzo dei Medici, "little more than two miles to the north-west of Florence, on the last southern spur of the Uccellatojo, of which the 'Divina Commedia' asserts that it surpasses the view of Rome from Monte Mario. The name once Campus Regis is in harmony with the fertility and beauty of the neighbourhood; for here the spectator overlooking the whole valley of the Arno, from the gently sinking slopes, sees villa join villa, and splendid gardens in a thousand flowery colours stretch before him, besides vineyard and Olive plantations. The Medicean villa private property for more than a century preserves the form given to it about the year 1450 (or a little later)—an immense cube which more resembles a fortress than a country house, with jutting battlements, and a quadrangular inner court. In the present day, an intelligent owner—no Tuscan, but full of warm love for his second home—has called up afresh the remembrances of ancient days, and again summoned hither the arts once native here. We can easily transport ourselves to the times of Cosimo and Lorenzo, so rich in intellectual creations, and feel inspired by the breath of Platonic Symposia and the statesmanlike consultations which guided Italy at a memorable epoch." Mr. Sloane, however, died about ten years ago, and Careggi is now inhabited by his widow. It seems to be little altered since the days of the Medici, if we may judge from the accounts left us of that distinguished family. The house is kept in admirable order. Some curious old carved oak furniture still remains, as well as tapestry—these seemed quite in keeping with the mediæval dwelling. The housekeeper showed us the room in which Lorenzo died; the bed is said to have been his. It reminded me of similar pieces of antique furniture at Hardwick, in Nottinghamshire. But it is of

THE GARDEN that I would chiefly speak. Entering the villa by the large gate, you pass through a paved and covered court, where there is a deep open well. A grim tradition relates that the physician, Pietro Lione, of Spoleto, the most famous of that day in Italy, was summoned to the bedside of Lorenzo as he lay ill of a mortal sickness. In despair at the failure of his efforts to give relief, he threw himself into this well. Guicciardini hints that he was thrown in. This story is, however, incorrect as to the place where the suicide or murder (which ever it was) was committed. The unsuccessful physician did not perish at Careggi, but at a residence belonging to Francesco Martelli, at San Gervasio. At the back of the villa is a large greenhouse, which in April was full of flowering shrubs, small Palms, and Dracænas. There was nothing of particular interest in the garden (which, however, was gay with Camellias, Roses, Carnations, Mignonette, and Lilies of the Valley) beyond a fine collection of Pines and Cedars. These grew thickly on grassy slopes, and formed a delightful shade for the neatly-

kept walks. Beyond the garden's enclosure Olive groves and vineyards stretch out far across the valley, but it struck me that there was little to recall the vast pleasure ground as it existed in the days of the Medici. Careggi was their favourite abode, though they possessed a villa at Fiesole, and also one at Caffagiolo. Careggi was purchased by Cosimo, improved by his son Piero, and finally perfected by the tasteful hand of Lorenzo. From its walls his father and his grandfather had been borne to their proud rest in the stately church they had founded. And when disease overtook Lorenzo himself in the prime of his manhood, he in like manner retired to Careggi to die. The garden of his time has been eulogised over and over again by the poets and writers who composed his learned circle. It was, perhaps, one of the earliest collections of plants in Europe which deserves the name of a botanical garden. Sabbati indeed tells us that a celebrated collection of plants was formed in Rome during the pontificate of Nicholas V. about 1450. Dr. Smith, the eminent botanist, gives the priority to that of Padua.

LORENZO'S GARDEN may therefore have been among the earliest of that description in Italy. "It was provided," says Roscoe, "with every vegetable either for ornament or use, which the most diligent research could supply." Alessandro Braccio, in a Latin poem addressed to Bernardo Bembo (the father of Cardinal Pietro Bembo), still preserved in the Laurentian library, compares it with the Hesperides and to the pensile garden of the "brave Semiramis." He is, of course, full of classical allusions, the fashion of the day—

Here stands the Oak, the chosen tree of Jove,
And here the Myrtle sacred to young love;
Here grows the Bay with ever verdant boughs
Wherever the poets crown their learned brows.
Minerva's glossy Olives here abound,
And Plane trees cast a grateful shade around.

He then goes on to enumerate the Ilex, the Cork tree, several varieties of the Oak, the solemn Cypress, the Pitch Pine, the Larch, the Beech, Elms, Willows, the gay Broom, the weird Elder, the Juniper, and the graceful Pepper tree—

The loveliest plants which clothe the fragrant field,
And all the spoils which wood and forests yield.

Strawberries, Apples, "which famed Lucullus gave to Rome," the crimson Mulberry, the Walnut, Filberts, Peaches and Quinces, Cherries, Figs from Signa, Pomegranates, and varieties of Plums, scarce to be numbered. Peas, Millet, Beans, and Lentils; several kinds of Corn, besides the Cucumber, the Apple-shaped Melon, Gourds, the Poppy, Garlic, Onions, Leeks and Radishes, with Cabbage. All sorts of herbs, Horehound, wild Thyme, rock Parsley, Beet, Chicory, Mint and Rue. The vineyards contained every known variety of Grapes for wine making or for the table. The poet finishes with a lengthy description of the flowers which grew in this favoured spot. Roses, Violets, Myrtles, all the plants which, as Bacon says, "Do best perfume the air." Such was

A GARDEN OF THE RENAISSANCE. It reminds us of what Chaucer wrote nearly a hundred years before, as he describes an ideal garden, where, after he had enumerated every known tree, which

Peaches, Coines, and Apples here,
Medlers, Plummes, Peeres, Chesteinis,
Cherise, of many one faine is
Notes, aleis and bolas,
With many high Laurer and Pine,
Was ranged cleue all that gardine
With Cipres and with Oliveris,

he goes on to tell that in this "garden delectable"

There sprange the Violet all new
And fresh Pervinke rich of hew
And flowers yellow, white, and rede
Such plenty grew there never in mede.

As we read of Careggi we are carried back in thought to the Florence of that time, situated in a part of the earth on which Nature seems to have lavished her richest gifts. The hills stand round about her as they did about Jerusalem of

old, with her fertile plain traversed by a noble river, whose course lays through "flowery meadows, watered by brooks descending from sunny hillsides." The grand cathedral, the Baptistery, Santa Croce, Santa Maria Novella, Giotto's Campanile, that poem in marble, were there in those Renaissance days. The Laurentian Library and that of San Marco had been recently founded by the munificence of the Medicis. The Arno was spanned by numerous bridges, of which the Ponte Vecchio remains still unchanged. San Lorenzo had been rebuilt. From the pulpit of his monastery Savonarola was thundering his anathemas on the luxury of the gay city, and foretelling "Judgment to come." Michael Angelo was receiving an art education in Lorenzo's palace. The revival of learning had reached Florence; professors had been summoned from Constantinople to teach Greek in the restored university. The classical reaction had set in; learned men emulated the sages of old. Plato was translated into Italian, and Marsilio Ficino, Poliziano, Pico della Mirandola, Landino, and many others with Lorenzo at their head formed themselves into a Platonic academy. They found in their host a Mæcenas. Many of their meetings were held at Careggi. This lovely spot is indissolubly connected with their memories. Perhaps I cannot better conclude than by quoting a short poem on this subject by Francesco Camerlini which has thus been Englished—

With feeble pen and faltering tongue I fain would tell

Of famed Careggi, where the charming graces dwell:

Cosmo the Great, the father of his country, planned

And laid out this his vast estate with liberal hand.

After him, Piero, a not unworthy son,

Essayed to beautify all that his sire had done.

To thee, Lorenzo—mightier than the other two,

Thou hast completed all—to thee the praise is due;

Thine is the work, and thine this fair domain,

Where Genius finds a home, and all the Muses reign.

Nature and Art have here their loveliest charms displayed,

Philosophers and poets seek this sylvan shade,

Where fountains rise and fall, thick groves obscure the day.

Fit spot for Fauns and Nymphs to fleet the hours away.

MARK NESFIELD.

KITCHEN GARDEN.

AUTUMN-SOWN CABBAGES.

THE time has now arrived for sowing Cabbage seed to produce plants, which will be put out in the main quarters two months or so hence to grow on throughout the winter, and supply tender and delicious heads, so much valued in April and May. With plenty of Peas, Kidney Beans, and other choice vegetables in season just now, Cabbages, however good, do not find much favour, but there is nothing more appreciated in early spring, and it is well worth anyone's while to do the best that can be done to secure a choice and abundant supply at that season. Now, as I have said, is the time to begin, and if the few directions about to be given respecting the crop are carried out, the object in view will be readily attained. In some cases seed is sown too early, but in the majority of instances the reverse of this happens, as it is not sown until the very end of August or early in September, and then, unless the autumn is an exceptionally good one, and the winter favourable, the plants are too late to head in the early days of spring. In our own case we have plants now 2 inches high, but they do not represent all our stock, as we will sow again at once, and from each of these sowings will have many strong plants by the end of September, which will do well in established quarters before winter sets in, and there is no danger of their failing to do right in spring. Of the many

VARIETIES tried for coming in at the time of which I speak Webb's Emperor is one of the best. It is hardy in constitution, dwarf, and excellent as regards flavour. In choosing a spot for sowing the seed now excessive richness is not wanted, as

this is too forcing; a moderately rich soil is best. Good plants may be raised by sowing broadcast, but equally fine ones may be had from rows, and this is how we prefer raising them. The seed should be sown thinly in drills 2 inches deep and 1 foot apart. When the soil is dry at the time of sowing it should be drawn over the seed, and then each drill should be firmly trodden down and the surface raked level. When the young plants come up and the rows can be seen the Dutch hoe should be run between them to loosen the surface and destroy weeds. Where birds are troublesome it may be necessary to put a net over the rows until the plants produce the first rough leaves, and a sharp outlook must be kept at all times for slugs and snails. Some of the plants will take the lead of the others, and it is the most forward ones which should be drawn out first and planted for a crop. This may be done two or three times during the autumn, and the first lot should be used in this way when they are about 3 inches high, as removing them then will give the remaining plants a good chance of becoming large and useful for successional planting. In many gardens

AUTUMN CABBAGE SEED is sown three times, viz., once about the end of July, again the second week in August, and lastly about the end of August, and useful plants may sometimes be had from all of these sowings, but very often the first are a little too early, and the last are apt to be too late; plants from the middle sowing now advised to be made seldom fail to be right. Some may say they buy their autumn Cabbage plants, and do not trouble about raising them, but there is little trouble connected with such work, and home-grown plants are always convenient; they are never deteriorated through being long out of the ground, and this much cannot be said in the case of market plants. An ounce of Cabbage seed will produce some hundreds of plants, which will almost keep up the supply in a reasonable sized garden all the year round, as while the largest only are planted out in autumn, the smallest may be allowed to remain in the seed rows, and after the winter is over, they can be planted out to succeed those put out in autumn. J. MUIR.

WINTER CUCUMBERS.

As the question of sowing Cucumbers for winter work will shortly have to be considered, I may venture to offer the following remarks on the subject. Given a small house, say from 20 feet to 30 feet long, with four rows of 4-inch pipe for winter work, and a three or four-light frame or pit, Cucumbers may be had every day in the year, the house furnishing them from the latter end of September until the end of April, the frame or pit doing the rest. Practically, there is no need for the frame, except to enable one to give the house a thorough cleansing, as plants in good health have often continued in bearing nine months, and there is no reason why this time should not be extended.

With a little careful attention plants now in bearing in a structure of the description just named may be safely kept in their present quarters and run on until April next, by which time the cuttings struck in January, and planted in an ordinary frame the following month, will be ready. The old plants in the house may then be cut down, the house receive a thorough cleansing, and planted again in July with well-established cuttings. As to varieties, we find nothing better than Tender and True. It has given us on the average three dozen good fruit per week in a house 40 feet long, commencing from the 20th of March last, and the plants are now so clean and vigorous that we shall not attempt to remove them, but keep them going through the autumn and winter, and, if possible, until next April. It is a wonderfully productive variety, producing four, five, and six fruit at a joint, and, what is more to the point, swelling off two and occasionally three of these fit for table. To those, then, who thought of cutting down and replanting, I would say run your old plants on instead. The first point is to keep these perfectly clean. Fumigate carefully for fly or thrips,

and prevent mildew from making its appearance by judicious watering and careful ventilation. If it should come, a slight dust of sulphur on the foliage is the safest remedy. Avoid the use of the syringe as much as practicable as the nights grow longer, and also extremes of temperature. A maximum of from 70° to 75°, and a minimum of from 60° to 65° are safe figures for Cucumber growing from September to March, with 5° lower at each end should the weather prove exceptionally severe. Thus if your house has stood at 10 p.m. at 65°, rising to 75° at 12 a.m., you may drop to 60° and 70° with a corresponding fall outside. In the matter of training I should recommend rather more wood than is usually left; too much cutting and trimming when there is plenty of root action, with rather a low temperature, are apt to lead to many evils, notably gumming and an imperfect swelling off. One more point to which it may be well to direct attention during the autumn and winter months is to do your stopping at intervals. Do not go over your plants when they are growing satisfactorily and nip out all the growth at once; on the contrary, let them always be moving away at some part. E. B.

POTATOES.

REPORTS from all quarters concerning Potatoes are more favourable than for many years past, and if my memory serves me, Potatoes are better than they have been since the disease first made its appearance. They have been singularly free from it this season, but though this is the case, it behoves all who have to do with them to be on the watch, so as to be ready to snatch them up should the dread spot show itself, for immediately this is seen, the tubers become affected and they quickly begin to rot, after which there is no stopping its spread. Early sorts are all quite ready for digging, as not only are the skins set, but the tops are dying from natural ripening off, and therefore there is nothing now to be gained by leaving them in the ground, where, should the weather set in dry and hot, they run some risk from sprouting, which spoils them both for use and for seed. Those required for the latter purpose may be left lying out for some days after lifting, as the exposure, unless the sun is very hot, does them good by more firmly setting the skins and assisting the maturing of the tubers, which always keep better after parting with some of their moisture instead of sweating it out when together. Potatoes for cooking cannot well be got under cover too soon after they are out of the ground, as when they are exposed for more than a few hours they begin to discolour or turn green, which not only spoils their appearance, but affects their flavour, by making them eat strong. The best place for storing Potatoes for eating is in a cool, dry, dark, airy cellar, where they keep much sounder than anywhere else, as there the temperature is more uniform, and there is no occasion to cover them with anything, as must be done if they were put away in any light shed. In cases where it is necessary to cover them, it is always advisable to use straw, which, while giving the requisite darkness, lets the air through, and thus prevents any growing, which soon spoils the tubers. Some pit their Potatoes, but that is about the worst way of keeping them, as they are too much excluded from the air, and soon generate heat, which causes them to sprout and lose much of their virtue, and even if they do not grow they are never so good from a clamp, as they always taste earthy and rank.

Seed Potatoes cannot well have too light a place, and should be spread out thin and kept as cool as possible, the object with them being to retard sprouting to a late period and keep the shoots strong. Kidney sorts require great care, and should only be in single layers on shelves or the floor of a loft, as on no account ought the first sprout to be injured or lost, but kept short, stout, and strong, which can only be done by having them thin. S. D.

Lettuces at Chiswick.—Amongst the many good, bad, and indifferent vegetables on

trial this season at Chiswick, Lettuces are particularly noteworthy on account of the great merit possessed by some of the varieties. Some of the Cos kinds are really fine, and the Cabbage sorts wonderfully so. The kind named White Chavigny is the best Cabbage Lettuce I have seen this season. It is most compact in growth, smooth, and dark green in the leaf, and very large as regards the size of its hard blanched heads. Grand Admiral or Cyrus and Turkish or Butter Lettuces were other extra good sorts.—J. MUIR, *Margam*.

Bean aphid (*Alpha*).—Your Beans are attacked by the Bean aphid, collier, or black fly (*Aphis rumicis*), which very frequently attacks Broad Beans, and sometimes infests a crop in such extraordinary numbers as to quite blacken the plants. Keep a look-out for these insects next year, and, as soon as they make their appearance, cut off the infested parts and burn or crush them, and thoroughly wet the plants with one pound of soft soap dissolved in five gallons of water, to which add the juice of two ounces of tobacco. These methods may be adopted even now with advantage. Keep the neighbouring ground free from weeds, particularly Docks, on which these insects feed, and push the plants into vigorous growth by good cultivation.—G. S. S.

Celery fly has proved to be very destructive in the allotment gardens here; it has even attacked the Parsnip beds and completely destroyed the leaves. Space does not admit of much Celery being grown, but where it is grown it is much attacked, but not so severely as the Parsnip. I have just met with a remedy, or rather a preventive, suggested twenty years ago by Mr. Nathan Cole, which, as he observes, cannot fail to make it so unpleasant for the fly that it will not deposit its larvæ on the leaves. Make up a mixture comprising a pailful of soap-suds, one handful of lime, the same of flowers of sulphur, and one of soot. It was at one time the fashion to smear a string with bird-lime and stretch it along the Celery trench, and in this way many of the flies were caught.—R. DEAN, *Ealing*.

QUESTIONS.

5042.—**Coburgia incarnata.**—Will some one kindly tell me whether or not this bulbous plant is hardy enough to be grown in the open air in the Channel Islands?—J. S.

5043.—**Seed growing.**—Will any of the readers of THE GARDEN kindly inform me which is the best work on seed growing (flower, vegetable, and farm seeds), comprising the management from the time of sowing to marketing?—ENQUIRER.

5044.—**Flies and insects in Mushroom beds.**—Will someone kindly inform me of a method to prevent flies and insects from eating away Mushrooms? I have tried sprinkling the beds with sawdust.—R. B. O.

5045.—**Iris sinensis.**—Will some of your correspondents kindly give us some account of their successful treatment of this beautiful little Iris, which I brought from the south of France, where it blooms freely every year, and which I have not as yet succeeded in getting to flower?—J. T. Poë, *Riverston*.

5046.—**Preserving bulbs from rooks.**—Can I dress Crocuses, Tulips, and other bulbs with any solution that will keep jackdaws and rooks from them? Would tar or any preparation of it injure the bulbs? Shooting near the mansion is objectionable; traps cannot be used, nor scare-crows of any kind; the beds are also too numerous to protect with netting. I plant some thousands of bulbs, and from October till April or May the garden has to be watched from daylight till dusk. If a man leaves them for half an hour another has to take his place. The enemy is ever on the alert, and on the slightest chance commences in the most systematic way imaginable to destroy my labours. Crocuses for edgings are about 2 inches apart, well covered in out of sight, about 2 inches deep, or less; nevertheless, with singular cunning they know where each one is, and lift them out with mathematical precision. Revenge would be sweet; but I cannot take it. Perhaps some of your readers who have been similarly annoyed can suggest a preventive. Crocuses they like best; then Tulips. Hyacinths do not seem good enough for them, but get pulled out and distributed about the lawn.—F. K.

ENGLISH PLANT NAMES.

THE propriety of having and generally using English names for all garden flowers has often been discussed in THE GARDEN, and in last week's number we find the plan advocated warmly by a writer signing himself "G." He intimates that the habitual use of the Latin names in speaking and writing is a piece of pedantic tyranny to which the public can no longer submit, and thinks it as unreasonable as if some arbitrary tyrant were to try to enforce the use of silly and long dog Latin compounds for the commonest objects of domestic life. It is unnecessary to point out the obvious unfairness of this comparison, and I deny that it is the habit of scientific gardeners to use in common conversation the Latin names of plants for which there are English names in everyday use. Therefore, the pedantic tyranny against which the public is preparing to rebel consists either in neglecting to coin English names for the plants of which they speak, or to use old names which have become ambiguous or obsolete, or to adopt new names which the arbitrary caprice of others tries to force upon them. The first question is, whose business is it to give to new plants English names?

"G." suggests that it ought to be done by the savants by which perhaps he means the same men who give the Latin names; but a great number of these names are given by men whose native language is French, or Italian, or German, or Russian, and they can hardly be expected to supply English names, but as regards botanical works published by Englishmen, the experiment of reforming or authorising English names has been tried by a very distinguished savant, Mr. Bentham, President of the Linnean Society. In his "Handbook of the British Flora," published more than twenty years ago, he has added an English name to the scientific name of every plant described, and finding that the English names before used were many of them either ambiguous, or of mere local use, he adopted in most instances the plan of repeating the Latin name slightly altered into an English form. Thus, *Astragalus* becomes "Astragal," *Doronicum* "Doronic," *Medicago denticulata* "the denticulate Medick," and so on. If that portion of the public which is meditating rebellion against Latin names is contented with these the matter is very easily settled, but in twenty years very little progress has been made towards their general adoption.

Another thing to be observed is that many good old English names which were used by Gerard and Parkinson have been deliberately neglected by the general gardening public, and the scientific name preferred. The cultivation of British Ferns has long been fashionable and common, and yet we find, for instance, that the Fern called the Scale Fern, or Scaly Hart's-tongue, is far more commonly spoken of by its scientific name of *Ceterach*—a name in itself so pedantic, that no one knows from what it is derived or to what language it properly belongs. The same may be said of the *Hepatica*, the *Geranium*, the *Anemone*, the *Iris*, the *Gladiolus*, and many others; they all have old English names, but the public both know and like the Latin names better. Other English names are, as was before said, ambiguous, and their Latin names are preferred on that account by many who are neither very scientific nor pedantic. I lately remarked to a lady that I thought the Bluebell the prettiest English wild flower. She at once asked whether I meant *Campanula rotundifolia* or *Scilla nutans*. Perhaps I ought to have

called the flower the Harebell, but then I have known it all my life as the Bluebell.

Some scientific names have been discredited and ordered by authority to be disused in English on account of some sentimental dislike to their sound or the associations they suggest. *Funkia* seems to be one of these persecuted names, and it is rather hard upon the botanist Funk, a name written, and spelt, and pronounced at least as easily as those of Dahl or Fuchs, and yet there are a hundred such names as *Dahlia*, *Fuchsia*, *Camellia*, *Linnaea*, safely domiciled in English, to which no one ever objects. Is not this rather capricious and tyrannical? The name *Funkia*, I suppose, savours of schoolboy slang, and is suggestive of fear and unmelodious, so must be changed for the sake of euphemism and euphony, as the Romans changed the name of the town which meant Ilcome to the equivalent of *Welcome*, and as within my memory the inhabitants of a Cheshire village bearing the good old English name of *Bullock Smithy* succeeded by persistent efforts in getting it changed to *Hazel Grove*. Other old English plant names seem to sensitive minds somewhat wanting in refinement and are avoided on that account. A lady who avowed a preference for English names, after enumerating in a gardening journal the names of several popular spring flowers, spoke of *Omphalodes* (1) as a plant with a name impossible for her to write in English. We are inclined to think the lady was right, and we should certainly prefer to find the pale-blue species called, after Bentham's fashion, *Lucilia's Omphalode*, rather than hear so pretty a feminine name followed by the homely English surname: but the English name is ambiguous also, being applied indifferently to *Omphalodes* and *Cotyledon*. Perhaps for similar reasons we must find new English names for *Pedicularis*, *Lapsana*, and *Scabiosa succisa*. Even the innocent name of *Saxifrage*, if considered in its original application as a medical term, may be thought not quite free from objection; but these sentimental fancies may easily be carried too far. *Honi soit qui mal y pense*.

There would be some difficulty in finding distinctive English names for every member of a large genus. The *Campanulas* would, of course, have the elegant name of Bell-flower, but could we satisfactorily distinguish with equal neatness all the hundred kinds in cultivation? *C. alliariaefolia*, for instance, might be the Garlic-hedge-Mustard-leaved *Campanula* (2). Plant-label makers might gain by the addition of such a name, but we doubt whether the general public would. Again, if the name Bell-flower is to be assigned to the *Campanulas*, what will the genus *Adenophora*, *Platycodon*, *Nolana*, and *Codonopsis* be called in English? for each of them has by nature as much right to be a Bell-flower as a *Campanula* has. These last four names contain two Latin and one Greek word all utilised to denote "bell," but the English language contains only one such word.

Enough has, I hope, been said to show that the charge of "pedantic tyranny" is hardly deserved by botanists, because, in speaking of plants, many of which have no common English name, they use those names which are best known and most convenient to them, and neglect to invent others, and that the unscientific public is arbitrary in its adoption of names which it takes up or drops

(1) There is a good name for this plant, viz., the *Creeping Forget-me-not*. (2) Translations of Latin names are not desirable.—ED.

according to the caprice of fashion. Those who clamour for English plant names may rest assured of this, that whenever a plant has become sufficiently popular for the want of a common English name to be generally felt, such a name will certainly be supplied and will become a recognised word in the English language, but language is not subject to arbitrary rules, and no decrees will alter the natural laws which regulate it. New names will be adopted, old ones dropped or revived, and no pedantic tyranny will prevent fashion calling things by the names that please it, or force it to retain names which it does not like; but as Horace found it to be in Latin, so it will be in English as long as it continues to be a living language.

Man's work must perish: how should words evade

The general doom, and flourish undecayed?

Yes! names long faded may again revive,

And names may fade, now blooming and alive,

If usage wills it so, to whom belongs

The rule, the law, the government of tongues.*

Edge Hall.

C. WOLLEY DOD.

Trees on the Thames Embankment.

—These have grown well, but are in want of thinning. Every second tree should be taken away, and it is not too late, with careful removal, to use the redundant trees elsewhere in the streets or parks. The Plane is a stately and wide-spreading tree in London, and it is a mistake to allow the trees to approach each other. Cutting in the individual trees to restrict them is wrong, and by this practice fine trees cannot be grown. The noble trees in the squares of London show well what may be done with us as regards the Plane.

Spiders (*G. S. W.*).—The leaf on which the spider's nest is that of *Berberis Aquifolium*. The spider is *Theridion lineatum*.—*G. S. S.*

Fungus (*M. S. Dimsdale*).—The name of your fungus is *Marasmius rotula*, a notable species. The specimens sent are unusually fine. —*W. G. S.*

Solanum sisymbriifolium (p. 16).—This is probably quite hardy. It has stood well at Kew trained against a wall. It is the *S. Balbisi* of the *Botanical Magazine*, 2568. It strikes easily from cuttings. —*H. N. ELLACOMBE, Bilton.*

Anacyclus radiatus.—At p. 77 "R. C." describes this plant. I should very much like to see a specimen of it, and if he will kindly forward one to me by post, showing the foliage, buds, and flowers, I should be greatly obliged. —*LEO W. GRINDON, 20, Cecil Street, Greenheys, Manchester.*

Naming plants.—Four plants, fruits, or flowers only can be named at one time, and this only when good specimens are sent. Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of plants.—*M. F.*—*Bartonia aurea*.—*T. R. Smith*.—*Cattleia Eldorado*.—*G. F.*—We do not undertake to name varieties of *Coleus*; besides it would be impossible to name them accurately from such scraps as you send. —*Cornubia*.—1, *Veronica longifolia*; 3, *Spiraea callosa*; 4, *S. lobata*; 5, *Campanula persicifolia* fl. pl. alba. Our rule is to name but four plants at a time. —*Delta*.—*Lilium pardalinum*; yellow is probably *Celsia Arcturus*, but the specimen is poor; the white is a species of *Gypsophila*, also a bad specimen. —*A. Elder*.—1, *Polygonum amplexicaule*; 2, *Funkia subcordata marmorata*; 3, *Ononis arvensis*; 4, *Chelidonium majus laciniatum*. —*J. Tallack*. —A mountain form of *Campanula rotundifolia*. —*S. T.*—Apparently *Dianthus Armeria*. —*F. T. Gadd*.—*Leptosyne maritima*.

CATALOGUES RECEIVED.

Dicksons & Co.'s (Waterloo Place, Edinburgh) Flower Roots and Spring Flowering Plants.

Haage & Schmidt's (Erfurt) Bulbs and other Plants.

Little and Ballantyne's (Carlisle) Roses and Clematises.

C. W. Mietzsch's (Dresden) Roses and other Plants.

* Horace's "Art of Poetry," line 68, &c., Conington's Translation.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

VARIETIES OF THE WHITE LILY.

By common consent the white Lily is one of the most universally beloved of all flowers. Indeed, a large number of plant lovers would not hesitate to place it above the Rose—perhaps the only flower which could dispute its sovereignty—as the queen of flowers. In the rude old times it was largely grown, and it has always played an important part both in an artistic and in a symbolical sense. The Rev. Canon Ellacombe, in "Plant Lore of Shakespeare" (originally published in *THE GARDEN*), sums up the merits of the white Lily in a few eloquent sentences. He says, "It was certainly largely grown in Europe in the Middle Ages, and was universally acknowledged by artists, sculptors, and architects as the emblem of female elegance and purity, and none of us would dispute its claim to such a position. There is no other Lily which can surpass it, when well grown, in stateliness and elegance, with flowers of the purest white and most graceful shape, and sweet-scented, and crowning the top of the long, leafy stem with such a coronal as no other plant can show." But it is not intended here to discourse on the rare beauties and excellences of this Lily, as a volume would not suffice to give even a fair selection of abstracts that might be made concerning it from ancient and modern writers. Since the bedding-out craze has to a very considerable extent abated (thanks to the persistent efforts of *THE GARDEN*), the gardening public has returned to a better sense of the fitness of things, and the white Lily has been restored to a position which it should never even have partially lost. The object of this communication is to call attention to the varieties of the white Lily which have existed or are now existing in gardens, and to induce cultivators to record the whereabouts of these and give their experience concerning them so that collectors of herbaceous plants may have the opportunity of procuring welcome additions for their borders. In *THE GARDEN* of August 4 (p. 84) a correspondent signing herself "G. J." briefly describes a form from Algiers. There seems hardly a doubt that this is

LILIUM PEREGRINUM, of Linnaeus, a plant which a few years ago must have been very rare, as Mr. Baker, in his "Classified List of all Known Lilies," published in the *Journal of the Royal Horticultural Society*, gave it as his opinion that it was "now apparently lost from cultivation in this country at any rate." This form was well known to Miller (not to mention older writers), who considered it a distinct species, and in the same sense a characteristic figure of the plant is given by Sweet in his "British Flower Garden." Baker, Elwes, and some other subsequent authorities only regard *L. peregrinum* as a variety of *L. candidum*; the purplish stems, the differences in form of flower and habit of plant make, however, the former perfectly distinct from a garden point of view, and render it a decided acquisition, although it must be confessed that if only one Lily could be grown, the choice would doubtless fall on the common one. We recently saw *L. peregrinum* for the first time growing and flowering

freely in the collection of Mr. Joseph Stevens at Grasmere, Byfleet, in company with a host of neglected or long-forgotten herbaceous plants. Its native country is not known. A couple of centuries ago it was largely grown on the Continent under the name of Sultan Zambach, and it is said to have come from Constantinople. Leonard Rauwolf, a German botanist and traveller of the sixteenth century, met with it in Syria.

L. VAR. STRIATUM.—In this form the flowers are striped or blotched with purple. According to Miller, this was in English gardens long before 1729. He adds, "it has now become common, but the purple stain giving the flowers a dull colour, the common white is generally preferred."

L. VAR. VARIEGATUM has variegated or striped foliage, sometimes the yellow colour being confined to a border round the margin of the leaf. Miller knew this well, too, and apparently appreciated it. In his "Dictionary" he says: "Chiefly valued for its appearance in winter and spring, for the leaves, coming out early in the autumn, spreading themselves flat on the ground, and being finely edged with a broad yellow band, make a pretty appearance during the winter and spring months." It flowers earlier than the plain sort.

L. VAR. FLORE-PLENO.—The double-flowered form is more curious than pretty, and perhaps is hardly worth growing. The flowers rarely open well, and the rich odour of the single one is almost lacking.

L. VAR. SPICATUM.—In this form, the most remarkable of all, although more strange and curious than handsome, the flowers are abortive, and are replaced by white petaloid bracts. Is this variety still in existence? and if so, where? G. N.

PHYSIANTHUS ALBENS.

WE were delighted to receive the other day some glorious wreaths of this by no means common plant from Sir George Macleay's garden, at Pendell Court, Bletchingley, where Mr. Green has succeeded in growing it to perfection. To those who do not know this pretty South American climber it may be best compared with *Stephanotis*, the foliage being somewhat similar, though smaller, and the blossoms, which are borne in clusters, equally pure white and deliciously scented. It is very remarkable that such a beautiful plant should be almost unknown in gardens; it is seldom, indeed, that one meets with it, though it is almost if not perfectly hardy and easily managed. Mr. Green has kindly favoured us with a few remarks respecting his mode of treating this plant, which he describes as an "old acquaintance in English gardens." "If planted," he says, "in a cool, airy conservatory fully exposed to the sun, it makes a very fine object, running some 20 feet up the rafters with the side flowering branches gracefully hanging down some 6 feet or 8 feet, completely covered with its white sweet-scented flowers. It is also an interesting plant when in fruit. When grown in this way this plant seems to be trying to imitate the *Stephanotis*, and it is in general a much cleaner plant. In books I find *P. albens* mentioned as a stove plant—treatment which it does not in the least seem to want. I grew it many years ago in the late Mr. Borrer's garden, at Henfield, treated as a cool greenhouse climber both planted out and in pots. The planting-out system I very much prefer. It insures free, vigorous growth, and when managed in that way I have never seen the least sign of red spider or mealy bug, to which this class

of plants are often subject if checked in their growth in pots. The plant here is growing in a rich, well-drained border of turfy loam, mixed with sand, and about 3 feet deep. Thus treated, at all times allowing plenty of air, liberal supplies of water while in active growth, and keeping it moderately dry and cool in winter, we have but few white flowering climbers that deserve to be grown in preference to it. All long growths are cut away—after flowering—near to the main stems, which are trained up the roof of the house and the flowering growth allowed to hang down. I am of opinion that this plant would succeed out of doors in Devonshire or the Isle of Wight. The temperature of the house in which it is growing here often falls considerably below 40° in winter."

We hope by-and-by to give a coloured illustration of this plant, so well does it deserve being made better known.

NOTES FROM HECKFIELD.

WHY DO GRAPES CRACK?—A very natural question for me to ask, troubled as I am just now with the affection, but only in the case of that variety which is peculiarly liable to crack, namely, Madresfield Court; and how to prevent it is quite a puzzler, as all the remedies recommended, such as keeping the border and the atmosphere dry, allowing the laterals to run at random, and partially severing the fruiting shoots, have been tried, but still the berries crack. Will someone come to the rescue, and tell me exactly what to do? I am disposed to think that soil has all to do with the matter, and my reasons for so thinking are that at the place of this Grape's birth, Madresfield, though given no special treatment, it does not crack. Mr. Crump, the successor of the late Mr. Cox at Madresfield, informs me that it is growing there in an outside and very wet border, and also in an inside border which he has purposely kept rather dry, and there is no cracking in either case. Again, Messrs. Roberts and Hudson, of Gunnersbury, near neighbours, both having presumably their soil from the same locality, have grown and shown this Grape finer than anybody else, and they seldom have a cracked berry, though both of them, I know, keep their borders on the dry side as to moisture as the Grape approaches maturity. Should anyone else be able to name localities in which the cracking of this Grape does not take place, I think my theory as to peculiarity of soil may be considered to be well founded. At all events, it is a subject deserving investigation, as it would indeed be a boon could the Madresfield Court be as generally and as successfully cultivated as the Black Hamburg. I have formed a very decided opinion that root moisture, as regards Grapes, is less mischievous by far than atmospheric moisture. The amount of humidity that we think excessive for Hamburgs that are colouring (and everybody knows that is little) with us causes Madresfield to crack wholesale, even though the border be dry.

GRAPE, PEARSON'S GOLDEN QUEEN.—If these notes were anonymous, I should be apt to do a bit of boasting as to how good we have this Grape, but as they are not, I must simply say, come and see. It is quite true to its name—perfectly golden—not dingy brown, as so often seen. I can give no reason for its being so good unless it be that, like all the rest of the kinds we grow, we give it the most liberal treatment possible, and it is more grateful for our attention than the Madresfield Court. In quality I will not class it in the forefront, but it is one of the most piquant and refreshing Grapes I know, and to those who want a variety as handsome as the Muscat of Alexandria, easy to grow, and of vigorous constitution, and good in quality, I can recommend this kind. We have it on its own roots, and also grafted on the Buckland Sweetwater. On this latter stock the berries are longer, and the flesh less crackling, and it does not put on the same golden colour as it does growing on its own roots,

PEGGING DOWN DAHLIAS.—My modesty, Mr. Editor, compels me again to say, come and see, but this time the invite must be particularly addressed to your correspondent at page 86, who writes as follows: "It seems to me to be a most unnatural way of growing Dahlias to peg them down; such treatment ought to be stopped at once." Well, certainly there is nothing like pinching evil in the bud; but, alas, as regards one individual, at all events, in this case it is too late. "Such treatment" will not be stopped, and I will not be so ill-natured as your correspondent, and not give a reason why, or a reason so vague as is conveyed by the word "unnatural." My first reason is that the pegging down is done, the beds are on view, and people who ought to know speak of the effect as excellent. Another reason is that it is a treat to get out of well-worn ruts; we have had broom-stick training and bunching up long enough; why should we always be running in our great grandfathers' tracks? Yet another reason, and I think the best of all, is that for certain positions, such as the outer lines of circular beds, places exposed to wind, and, in fact, any position where it is desirable to keep the plants dwarf, pegging down is the best way to treat them, not to mention the unique effect produced by the commingling of the various coloured flowers. I readily admit that tying up the plants is the more natural way, but then we must adapt our practice to circumstances, and my contention is that in doing this with Dahlias I have lost nothing and have gained effectiveness.

A PLEASING COMBINATION.—"Extremes meet" in the terrace garden here—Heckfield Place, Winchfield, Hants (this is special information for "X. Y. Z."). We have in close combination the severely formal and what I may term the natural, or semi-wild, and that too in the same bed, and yet this close connection of the two forms does not—as many would surmise unless they saw it—appear to the eye in the least objectionable. This plan of arrangement has been gradually and, if I may so put it, almost unconsciously developed by the aim to reduce the number of tender bedding plants, first with a view of lessening labour and gaining space in the houses for other plants, and, secondly, by the desire to maintain a furnished appearance of the beds both winter and summer; hence a number of hardy plants have been pressed into service, but with all this a principal consideration has been to so treat a formal garden as that its true character should not be marred; this difficulty has been surmounted by what I shall call the informal planting of the middles of the beds, and the outer portions in formal, or, as some would call it, carpet patterns. In some of the beds the harder plants occupy the middle, and the tender the outside, this order in other instances being reversed. In the combination in question the central portion of the bed, an oblong, 14 feet by 6 feet, consists of a middle line of standard Fuchsias, 2 feet to 3 feet in height, the under-growth being *Ageratum* Cupid, *Agathæa cœlestis* (Blue Marguerite), and variegated *Pelargonium* May Queen. The enclosing band consists of the white foliaged *Veronica incana*; this completes the middle portion of the bed, and as the undergrowth plants are not pegged, and the Fuchsias are tied to keep them in an upright position, there is not the smallest appearance of formality. The outer margin of the bed is bordered in geometrical form, the pattern being formed with *Herniaria glabra*, and *Sedum acre elegans*, *Spergula aurea* being the other hardy plant used for filling in of the pattern; and for central dot plants (which we always use) there are the white and green Thistles, *Chamaepeuce diacantha* and *C. Casabonæ*. Thus we have not only a brilliant summer effect, but the outer half of the bed is already planted for the winter, and the inner will be but little trouble, as it will be filled in with small shrubs. W. WILDSMITH.

African Melons.—Mr. Rutland's interesting statement about African Melons points again to a fact that we have long known. The Melons, or at least some of them, grown in North Africa are

far better in flavour than the Melons sent out year after year by our own raisers. Anybody who thinks that the numerous seedling Melons sent out with new names have any advance in flavour (the only point worth considering in the matter) makes a great mistake. For the most part our Melon raising has resulted in a race of worthless hybrids, and not only are these North African Melons better in flavour, but they are much larger. The moment, however, they are crossed with any of our own Melons, they become the poor mawkish things of which we have so many. Mr. Rutland should continue to get the seed from the place whence he got it before, as probably that ripened in his own garden will not be worth much. Such was the case with Mr. Groom at Henham. The fruits raised from African seed were almost different in kind from an ordinary Melon, so good was their flavour. It would be well worth while to import some seed of these fine Melons, that no doubt are a fixed race grown by the natives for ages. Their large oval forms are handsome, and greatly enhance their value for a large party.

PLANTS AND TREES IN THE ISLE OF MAN.

At Onchan gardens, overlooking Douglas Bay, there grows an unrecorded specimen of an *Araucaria*, which is regarded, I am told, by some who have seen it as the finest in the British Islands. It is not so tall as the *Droopmore* specimen, being between 40 feet and 50 feet high, but it is as old, only the nodes or annual growths are shorter, which accounts for the difference. As a specimen the tree is, however, almost perfect, the branches being healthy and luxuriant down to Grass, and very long and strong, the diameter of the tree at the Grass being over 30 feet, and the circumference of the trunk at the base 6 feet 4½ inches. It is the finest *Araucaria* I have ever seen. Besides it there is a *Wellingtonia* with a trunk 9 feet round the base, but its branches are now suffering from the sea breezes, which the *Araucaria* seems to enjoy. The *Deutzia crenata* fl.-pl. has been planted in several gardens in the island, and forms a grand shrub about 9 feet high, and is fairly smothered by flowers in July. The mildness of the climate is indicated by the Fuchsias, which are of enormous size, contending with the Furze on the cliffs about Derby Castle, where the masses are 50 feet across or more, with spreading limbs as thick as one's leg. I saw also a mass of the well-known *Salvia patens*, growing rank and strong, and in fine flower, in the garden of a cottager, who did not know its name, but said it had been there ever since he came to the house some years before; it appeared to be quite naturalised. In another front garden, in a very exposed place, I saw a *Dracæna australis* 12 feet high that had grown up where it was, and had a fine top and a thicket of suckers at its base. The Royal Fern (*Osmunda regalis*) is not now so common as it was in the island, so much of it having been carried away; but I met an Irishman on the quay who brings quantities of fine specimens of it over from Kildare, I understood him to say, to sell to visitors during the season, and he appeared to be doing a good trade. He had some very tall plants packed flat in long, shallow boxes, and he said he could find me specimens 9 feet high, and I bargained with him to send me one, but I have doubts about him being able to find fronds that length. I never saw it above 6 feet, and few that height, out of doors. The climate of the Isle of Man is peculiar. It is as mild as the Isle of Wight, and it is drier than the mainland. For several weeks during July there was hardly a drop of rain, and the dust was deep on the roads; while on the Lancashire coast opposite the papers and visitors recorded unusual storms of wind and rain and a low temperature all the time. J. S.

Top-dressing Primroses.—I am just potting my Primroses to be ready for moving, as the cool rainy weather has started them into growth, which in ordinary seasons would not have taken place for a month yet. I would like to show you how thoroughly their perennial character depends

on their receiving a top-dressing of an inch or more of fresh material of some kind annually. The separate crowns rise as the leaves follow each other in succession, and when growth starts again after the hot weather it may be seen how the new roots, in order to support the next season's growth, spring from among the remains of the old leaves. If these roots find nothing to grow into on their own level they seek it downwards, their upper parts are exposed and parched, and the plants do not do so well. That is what so many complain of, viz., their plants rising out of the ground. The old crown seems to be gradually absorbed when growing properly. On dividing them in my last garden, which was light and long-cultivated soil, I never found the fleshy mass which forms here above the fibrous roots. The root fibres always spread away from immediately under the leaves. In unsuitable material that fleshy mass forms, and if no top-dressing is given the new roots do not do their duty and the old roots remain. A whole lot of little crowns spring from the fleshy mass, which are weak and overcrowded, and the plants die unless divided. In such places as shrub beries in the parks such things must take care of themselves, with no attention but weeding, and I question whether any woodland plant would do with that without Nature's cultivation. That wretched tidying up and chopping and digging everywhere is the curse of gardening.—J. DUNDAS.

TREES AND SHRUBS.

HELICHRYSUM ROSMARINIFOLIUM.

THE species figured herewith is one of the few shrubby members of the enormous genus *Helichrysum*. It succeeds well in the open air, at any rate in the south of England—perhaps, to be quite correct, I should say one of the very few which, to my knowledge, has flourished outside without protection in southern gardens for some years. A well-grown specimen used to be one of the ornaments in the wonderful garden of the late Mr. G. C. Joad, at Oakfield, Wimbledon, and this very plant found its way to Kew with a large miscellaneous collection after that gentleman's death. A glance at the accompanying illustration, which represents a slender branchlet, will give a better idea of the appearance of the species than a column of dry description; suffice it to say that the plant in question is a thoroughly worthy companion to the beautiful New Zealand *Olearia Haasti*, the golden-leaved *Cassinia fulvida* (*Diplopappus chrysophyllus* of gardens), and some others of the handsome southern hemisphere composites which in comparatively recent years have been introduced to this country. The little white starry flower-heads are produced in the greatest profusion, but do not last, either on the bush or in water, so long as the larger ones of the *Olearia Haasti*. The foliage is deep green and, as might be inferred from the specific name, very like that of the common Rosemary. The form here figured is the *Ozothamnus thyrsoides* of De Candolle, but as that is sunk by Bentham, in the "*Flora Australiensis*," as a variety under *H. rosmarinifolium*, and as our plant is known in gardens under the latter name, it is undesirable to attempt to alter existing nomenclature. In a wild state the typical form, which we have not seen in cultivation, is much more common; it differs principally in its somewhat stouter branches being terminated by large, dense corymbs. On the Australian Alps (Victoria), where it ascends to an elevation of from 4000 feet to 6000 feet above sea level, and on the banks of the streams in the northern part of Tasmania it forms a handsome bush from 6 feet to 9 feet in height. To the scientifically inclined, who like, for purposes of identification, to have exact data, we may say that under the name we have adopted it will be found fully described in Bentham's "*Flora Australiensis*," vol. iii., p. 631, and under the name of *Ozothamnus rosmarinifolius* in De Candolle's "*Prodromus*," vol. vi., p. 165, and in Hooker's "*Flora of Tasmania*," vol. i., p. 205. G. N.

NOTES ON SHRUBS IN FLOWER.

BERBERIS ARISTATA.—This is a very free-growing species of the vulgaris type, valuable owing to the season at which it blooms. Some bushes of it are now in full beauty. I say some, as individuals vary a good deal in this respect, and when raised from seed there is a great difference not only in the time of flowering, but also in the colour and in the profusion in which the blooms are borne. It is a native of Nepal, thoroughly hardy, and when a good variety is obtained a very desirable shrub.

ESCALLONIA PHILIPPIANA.—At first sight this would scarcely be recognised as an Escallonia, differing at it does so much in general appearance from all others; indeed, at a distance of a few yards a plant of it in bloom might be mistaken for a *Leptospermum*, the branches being slender and the leaves small and dense, while the whole plant is thickly studded with white flowers like some of the *Leptospermums*. It is a native of the mountainous parts of South America, whence it was introduced a few years ago by Messrs. Veitch,



Flowering spray of *Helichrysum rosmarinifolium*.

and appears to be about the hardiest of the genus. Compared with such kinds as *macrantha* and *rubra*, this is in all respects a smaller plant; nevertheless, it is a very beautiful one.

CEANOTHUS GLOIRE DE VERSAILLES.—Garden varieties of *Ceanothus* are now almost unlimited, most of them being of Continental origin, a source from which the kind herein mentioned was derived, and though many have been put into commerce since this particular one was distributed, it is doubtful if any equals it, and certainly none surpasses it in this climate as a flowering shrub in the open ground. In many places around London it has withstood the severe winters of late years without protection, and if cut back somewhat recovers so quickly as to soon form a large bush. The flowers are of a beautiful shade of pale blue, borne in large plume-like clusters in such profusion that the plant is quite a mass of flowers, and either standing singly or associated with other subjects, it is really charming. There is now a great variety of *Ceanothuses* to choose from, but few of them are as hardy as this one.

SPANISH BROOM (*Spartium junceum*).—This is frequently passed over, being thought to be too common for ornamental planting, yet some specimens of it in a border, planted so as to form a belt or screen, are just now the showiest shrubs in the garden. They were placed at intervals along the border, and from their rapid growth they have overtopped the others, and now present the ap-

pearance of large golden masses standing above a bank of foliage, there being little else in bloom.

LIGUSTRUM FORTUNEI.—This is just opening its light, open panicles of flowers. This Privet is really grand when in a thriving condition; and as to soil or situation, it seems, like the common kind, to be one of the most accommodating of shrubs. Its leaves are arranged more regularly along the shoots than in the other species, while the smaller branches push forth almost horizontally from the main stems. The white, feathery flowers are very sweet scented—too much so, in fact, for use in a cut state. Another name by which this Privet is often known is *Ligustrum sinense*.

MAGNOLIA GLAUCA.—On a damp spot a bush of this *Magnolia* is very attractive, both as regards sight and smell, being thickly studded with flowers, the fragrance of which, especially when the sun shines, is perceptible at some distance off. This *Magnolia* does not require such a large space in which to develop itself as the other North American kinds; it throws up

decoration when grown in pots, a condition under which they bloom just as plentifully as in the open ground.

DEUTZIA CRENATA FL.-PL.—Of this there appears to be two distinct varieties, in one of which the bark of the young shoots is reddish and the flowers on the outside suffused with rose; in the other the young shoots are green and the flowers almost, if not quite, white. They are both beautiful shrubs, although, in my opinion, the palm must be awarded to the pink-tinged one. The flowers are valuable in a cut state, as they last for some time in water, and are borne in large showy spikes. I counted nearly forty flowers on a spike, and each bloom consisted of about thirty petals; some idea may therefore be formed of the beauty of my plant—a young thriving specimen. The single form is a pretty shrub, but the blossoms are shed much quicker than those of the double kind. I never before noticed so much bloom on *D. gracilis* when grown in the open ground as there has been this year. It has been literally a little beauty.

MOCK ORANGES.—Among the different kinds of Mock Orange, *Philadelphus grandiflorus* is the best, and a grand sight it is now. In order to keep it in good condition all dead wood and useless spray should be removed at pruning time.

SPIREA SORBIFOLIA.—This pinnate-leaved species is now in full flower, and very pretty it is, but the variety *alpina*, *Pallasi*, *grandiflora*, or *Foxi*, as it is variously called, is much superior to it, as the blossoms of *sorbifolia* are of a greenish tint, while in the variety they are pure white. The individual blooms are also larger and more showy.

PERIPLOCA GRÆCA.—Against a sunny wall this curious climber is now flowering freely, and is, when observed closely, very interesting, if not showy. The leaves, which are deep green, are from 3 inches to 4 inches long, and firm in texture, while the blossoms are about 1 inch in diameter, five-rayed, and of a purplish crimson colour, with the reverse of the petals greenish yellow. They are borne in clusters of about a dozen together. Such quaint colouring is very uncommon among hardy climbing plants.

THE JERUSALEM SAGE (*Phlomis fruticosa*), with its large greyish rugose leaves and whorls of yellow flowers, is very conspicuous when seen against a background of darker foliaged subjects, which show it off to advantage. This shrub succeeds well in dry sandy places where little else will thrive; therefore in this respect alone it deserves to be more frequently seen in gardens than it is. Young thriving plants of it make the best display, as after a few years they get scrubby and exhausted.

GAULTHERIA SHALLON.—There is scarcely anything better for covering the ground under the shade of trees than this, especially if the upper portion of the soil consists, as it frequently does, of decayed vegetable matter; in this the roots of the *Gaultheria* run with great freedom. The pretty pink-tinged, bell-shaped flowers are produced in great numbers, and last a long time; some clumps of it have been profusely studded with blossoms, and there are still many more to open.

ALPHA.

Autumn v. spring planting.—The time for planting trees being nearly at hand, it would be interesting and useful to compare notes as regards the results of autumn and spring planting during the past season. On the whole, a more trying time as regards new plantations has rarely occurred. In the early part there was a continuous rain, which left the land saturated; then a dry time set in, and an almost constantly prevailing east wind, which continued, at least in this locality, and from accounts seemed to be general, till the end of April, yet with us the early autumn-planted trees did best; the latest worst. Here the climate and soil are unfavourable, the rainfall is excessive, and generally accompanied by strong easterly or westerly winds. There may be situations and soils where spring planting is to be preferred, but such is the exception; early autumn

several stems from the base, and forms a large shrub, which is seen to the best advantage when about 10 feet or 12 feet high. The flowers are borne on the points of the shoots and are pure white. They do not expand all at once; indeed, a continued succession is kept up for some time. The leaves are small and none too plentifully produced, but their silvery undersides form an attractive feature when moved by the wind.

AMORPHA FRUTICOSA.—This, the Bastard Indigo of the United States, is an open growing shrub of 6 feet or 8 feet high with pinnate leaves and long spikes of beautiful bluish purple flowers. The spikes are borne on the points of the shoots, generally in clusters consisting of one long and three or four short ones, all of which are densely packed with bloom. The anthers protrude slightly from the mouth of the flowers, and being of a bright yellow colour appear like spots of gold on a purple ground. It is one of those plants the beauty of which can only be seen on close inspection, for to a superficial observer the flowers appear dull and uninteresting.

INDIGOFERA FLORIBUNDA, against a wall, is now a mass of rich rosy blossoms, and from its beauty well repays the slight protection afforded it by the wall during winter. The white-flowered variety is, though less conspicuous, very pretty. These *Indigoferas* from their freedom of flowering make fine objects for greenhouse or conservatory

planting on the whole will be found, I apprehend, most successful.—J. J. G., *Preston*.

***Genista sagittalis*.**—This pretty little shrub, owing to its procumbent habit, is well fitted for a sunny spot on rockwork. It reaches a height of about 6 inches; its branches are procumbent, bright green in colour, and furnished on opposite sides with a wing or membrane extending from joint to joint. The leaves, which are small, are few in number and in no way conspicuous; the broad winged stems apparently take their place, so that although deciduous the plant is much the same at all seasons except when in flower, in which latter state it has been with me for six weeks till the few hot days we have had drove it out of bloom. On an exposed part of the rockwork it has formed a fine mass, and when in flower every branchlet is tipped with golden clusters of blossoms.—ALPHA.

ORCHIDS.

ST. ALBANS ORCHID NURSERIES.

ONE of the most remarkable incidents that have occurred of late years in connection with gardening is the impetus given to the wholesale importation of Orchids. But a very few years ago it was a rare occurrence for a thousand imported Orchids to be sold by auction at one time; now they are imported by the cargo, and enormous quantities are sold in London almost daily. Among our chief Orchid importers are Messrs. Sander & Co., of St. Albans, who during the past dozen years have imported Orchids to an unparalleled extent. Every region almost has been scoured by their collectors, who have discovered and sent home prodigious quantities of Orchids, among them being many new and beautiful species and varieties, some often being quite new even to botanists. The Orchid importing department of this firm has grown so enormously of late years, that the old nursery in the town is now quite inadequate to accommodate the large importations; consequently they have had to form a new nursery specially set apart for Orchid culture, and as the houses of this new department are built on a carefully studied plan, a description of them may interest our readers.

THIS NURSERY is almost within a stone's throw of the Midland Railway Station at St. Albans. It occupies a well-chosen site, lying high and dry on a gravelly soil, and fully exposed on every side, so that the houses have the fullest amount possible of air and sunshine. There is likewise no fear of the houses being flooded in winter, although several of them are sunk considerably below the general surface of the ground. The houses, as well as the sheds and offices, are evidently constructed upon a carefully considered plan, each structure being designed with regard to the particular purpose for which it is intended. The glass houses, therefore, vary considerably in design, according to the class of Orchids to be grown in them; for instance, the houses set apart for Cattleyas are entirely different as regards details of construction from those devoted to cool Orchids. There is, however, a general plan for the whole set of houses, which number about a dozen. All are span-roofed, and all run parallel to each other almost due south and north. The north ends of the houses are in a line, and these open into a long corridor communicating with the packing and potting sheds—an excellent plan, as the whole may be inspected without going into the open, and, moreover, the plan does away with the evil effects of cold draughts caused by opening and shutting doors communicating directly with the outside air. Every house is made to fall several feet from north to south in a longitudinal direction, and as the boilers are placed at the southern extremities, the opposite ends, which are nearest the packing and potting sheds, though farthest away from the boilers, are the hottest. Imported plants are therefore placed in the north or warmest ends, and as vitality increases they are gradually shifted to the cooler southern end. It is surprising to find what a wide difference there is in the temperature of the extremities of these houses, arising from their longitudinal fall, though there is no partition throughout

their entire length, viz., from 200 feet to 300 feet. One might almost grow east Indian Orchids at one end and cool house kinds at the other. Of course the difference would not be so perceptible in a small house, but still there must naturally be a difference, and the plan ought not to be overlooked in the building of Orchid and other plant houses. The importance of an abundant supply of rain water for watering has been fully recognised by Mr. Sander, for he has made provision for an ample supply throughout the year. Every drop of water that falls on the roofs of the houses and sheds is stored in capacious tanks constructed in the houses. There is, however, a conspicuous absence of shallow tanks, such as are commonly seen beneath the stages of Orchid houses for the purpose of giving off evaporation. This practice is strongly objected to by Mr. Sander, and apparently on good grounds. His argument is this, that water in a body gives off evaporation very slowly, unless the temperature is raised considerably, and then it takes the form of steam, which does more harm than good in an Orchid house, for, being of a higher temperature than the plants and roof it condenses, and consequently causes injury. His practice is to have nothing in the house beneath the stages but the natural soil of the place, provided, of course, it be well drained. From such a surface water is quickly evaporated, and tends to promote a healthy growing atmosphere, and most evaporation takes place in the hottest part of day, when the plants most require it, whereas in the case of tanks heated by hot pipes running through them, as is commonly the case, the evaporation is slow and perpetual, and tends to cause a stagnant atmosphere overlaid with moisture. This principle of surface evaporation is carried out in every detail in this nursery; for instance, the interior walls of the houses are built of concrete instead of bricks, the rough concrete surfaces being more capable of absorbing moisture to be given off by rapid evaporation than bricks. The paths, too, are paved with grooved tiles, so that though water may lodge in the grooves, the projections are nevertheless dry for the feet.

CATTELEYA HOUSE.—This is a capacious structure specially adapted for Cattleyas. It is upwards of 230 feet in length by 30 feet in breadth, and is capable of accommodating several thousands of plants, for there is no waste room in any part. The pitch of the span roof is rather low, being only about 35°, an angle considered by Mr. Sander to be a suitable one for a Cattleya house. The roof is of Pitch Pine wood, about the most durable for Orchid houses, and the rafters are stouter than usual, so as to give strength, but there being a good width between them there is no obstruction of light. The roof is supported by four rows of upright columns of 2-inch iron tubing, so that the house is held well together, and, moreover, its interior has a light appearance. A 3-foot path runs round the broad central stage, which is tiered, so as to bring the plants as near the roof as possible. Along the top of the central stage is a 3-foot pathway with a 6-foot headway, so that the plants on either side may be easily examined and watered, an arrangement that should be carried out in all large span-roofed houses where there is a broad central stage. The roof ventilation of this house is effected by a row of lights, about 4 feet by 3 feet, placed on the north side of the house, the reason for this being that any on the south side would interfere with the shading. The bottom ventilation is by small hinged openings at the base of the side walls, which open directly opposite the hot-water pipes, so that the incoming air is warmed before reaching the atmosphere of the house. The heating of this spacious house is effected by four rows of 4-inch pipes beneath the side stages, and flow and return laid flat beneath each side of the centre stage. There is also a 2-inch pipe running along just below the eaves of the house and above the side stages, the use of which is to send up a volume of heated air immediately beneath the roof, thereby drying up in a great measure condensed moisture, which is so detrimental to Orchids. An ample supply of rain water is stored in capacious tanks beneath the side

stages, and is warmed by the pipes passing through it. The other houses designed for Cattleyas are built much upon the same principle as this one, as are also those intended for Dendrobiums and other genera of that class. Underneath the stages in the centre of these houses runs an inch gas pipe, into which at intervals of a foot small holes are bored; by turning on the water at the upper end these small holes eject it over the entire surface of the houses, according to requirement. This, if we may so call it, "whole house fountain" is turned on for one or more hours during the day.

The greatest number of houses are devoted to cool Orchids, as these are grown in enormous quantities by this firm. These houses differ materially from the others, and every device has apparently been resorted to in order to secure in the houses a cool, moist, and well ventilated atmosphere, which are the primary conditions of the successful culture of cool Orchids. Most of the houses have sunken paths, so that the plant stages rest almost on the surface of the soil, which, as we before remarked, is preferred to anything else for giving off a rapid evaporation. All the interior walls are made of rough concrete, so that their surfaces may harbour moisture. On a hot July day the atmosphere of one of these houses was delightfully cool and moist—just the temperature that *Odontoglossums*, *Masdevallias*, and such like Orchids revel in. Great importance is attached to the ventilation of these houses, and so impressed is Mr. Sander as to the importance of thorough ventilation, that he has had permanently open ventilators made in the side walls. This permanent ventilation is effected in this way: a hot-water pipe rests on the top of the brickwork of the side wall and the outside course of bricks, which are on a level with the pipe. At every brick's length an aperture the size of half a brick is left, so that the influx of air through these holes must pass on and around the pipes before it reaches the interior of the house. There is, of course, the ordinary top ventilation besides.

THE SHADING of the houses is effected by what is known as French shading, which is considered to be the best, particularly for the houses occupied by cool Orchids, the successful culture of which so much depends upon a good system of shading. This French shading consists of thin and narrow strips of wood, some 4 feet or 5 feet in length, held together by wire, so that the lengths which run the whole width of the roof may be rolled up to the ridge plate. It is an excellent shading material and very durable, lasting for many years, but of course it is expensive at the outset. On a hot summer's day the houses shaded by this material are kept delightfully cool, yet the light is not much obstructed. All the new houses will be fitted with this French shading—a plain proof that it is considered the best. It is painted dark green, a wrong colour, in our opinion, for shading material.

THE BOILERS that heat this enormous area of glass are five in number. All are of the patent wedge saddle pattern, which is thought very highly of here, and is considered the best of all boilers. It may be best described as an ordinary saddle with a wedge-shaped portion dipping down into the middle of the furnace within a few inches of the bars. Besides this it has a set of five or seven tubes, some 4 inches in diameter, running lengthwise in the upper jacket, and at the top of the boiler and at the sides there is a closed hot-air chamber which much facilitates the rapid working of the boiler. Hence it is clear that this boiler possesses the advantages of the quick working which characterises tubular boilers, combined with the power of the ordinary saddle. The vertical wedge interferes in no way with the stoking, as on either side of it there are ample spaces for the fuel, and the base of the furnace is inclined for about 18 inches at the entrance, so as to hold a great body of fuel. This boiler is unquestionably a most efficient one, and it has been tested by this firm for ten years, the inventor of it being a resident of St. Albans. Till lately, however, it has not been much known, but

wherever employed it invariably gives satisfaction.

Most of these houses are already filled to overflowing with imported Orchids, which almost daily arrive in vast quantities from the numerous collectors in different parts of the Tropics. On the day of our visit some dozens of cases arrived containing one kind of Cattleya, which was said to be in excellent condition. The bulbs of the plants were plump, and the foliage green; in short, one would scarcely credit that the plants had been subjected to such rough treatment as they necessarily must have been. We measured one of the masses of this importation which we believe consisted entirely of the new and beautiful Cattleya Gaskelliana, and found it to be 3 feet by 4 feet, an enormous mass, one of the largest that has ever been brought home alive. Judging by this particular consignment, one would consider that Orchid importing is not a very risky affair after all, but a prodigious heap of dead and rotted plants close by pointed plainly to the fact that there is a dark side to the business as well as a bright one. Frequently, Mr. Sander informed us, scores of cases arrive all the way from South America or the Eastern Archipelago with not a vestige of a live plant in the whole lot. But the contents of the houses are sufficient to show to what an enormous extent the collecting and sending home of Orchids is carried out by this firm. Never before had we seen such an assemblage of imported Orchids, particularly of

ODONTOGLOSSUM CRISPUM (Alexandrae), undoubtedly the most popular of all Orchids at the present day. This Orchid is a great speciality here, and we passed through house after house filled with nothing but crispum, amounting to upwards of 100,000 plants. In some of the houses the imported plants were bedded out in layers of soil placed on broad, flat stages on either side of the path—a capital plan for economising space. When the plants have become well rooted they are lifted and potted, to make room for other importations. Throughout the whole of the housefuls of *O. crispum* the healthy green foliage and plump bulbs are sufficient to show how thoroughly their culture is understood here, the first principles being an abundance of ventilation and cool atmosphere, and plenty of moisture in the growing season. In order to maintain a moist atmosphere and promote healthy growth the plants are syringed overhead, a practice considered by some cultivators to be detrimental, but the healthiness of the plants here in all respects is sufficient to show how beneficial it is. The other species of *Odontoglossum* of which there were large importations were *O. Pescatorei*, *cirrhosum*, *Rossi majus*, and *citrosimum*, the last being particularly remarkable, as so little of it has been imported of late years. *O. Roezli*, *Phalaenopsis*, and the queenly *veixillarium* are of course constantly imported in quantities, and of the latter there was a goodly number of the late flowering variety *Klabochianum*, remarkable for the intensely deep colour of the small blossoms. During spring these *Odontoglossum* houses must present a glorious sight with the thickets of spikes that are then produced. At the date of our visit the flowering season was almost past, but there was a good sprinkling of bloom quite sufficient to show that Messrs. Sander's collectors have hit upon the right localities for the best types of crispums, which are characterised by the flowers having petals broad enough to make a symmetrical bloom just the reverse of the starry kinds of flowers which characterise the inferior types of this species. Some of the expanded flowers were between 3 inches and 4 inches across, being produced from very small bulbs. The day has come when only such fine forms as these are in demand.

CATTELYAS, like *Odontoglossums*, are a great feature, there being enormous quantities of them, more particularly of the newer kinds that Messrs. Sander have introduced of late years, such, for instance, as the much-criticised *C. Percivaliana*, of which there is a great stock, including quantities of selected masses, which, we were assured, would

eventually yield some startling varieties, eclipsing every one that has yet been flowered in this country. Among others were *C. Sanderiana*, the new variety of the *gigas* race; *Gaskelliana*, also new; while of such well-known species as *Trianae*, *Mendeli*, *gigas*, *Mossiae*, there are housefuls of plants. We noticed that in the compost used for the Cattleyas there was a large admixture of burnt clay nobbles, evidently a capital material for keeping the potting compost free and open, and the roots seem to be fond of them.

THE OLD NURSERY in the town is now occupied chiefly by the general collection of Orchids—a very full one, for besides those of the ordinary stamp it abounds with new or rare species. In passing through the congeries of houses, which, by the way, are, as regards construction, very old-fashioned compared with those of the new nursery, we made note of the following good things: Among the East Indian kinds was the new *Vanda Sanderiana*, the flowers of which surpass those of every known species in size and beauty. There were some fine plants of it, which bore the appearance of being thoroughly established and making good sound growth. A plant of the rare and beautiful *planilabris* variety of *V. tricolor* was a conspicuous object, and among other *Vandas* was a fine recent importation of *V. cœrulea*, producing numerous healthy roots in a close, warm, and moist case. Among East Indians were two new *Aerides*—*A. Leoni* and *Emerici*, both good garden plants. Among the choicer *Cypripediums* were the new *C. ciliolare*, a handsome species in the way of *C. Argus*, and the very rare and extremely fine *C. villosum aureum*, a golden-flowered variety with flowers almost twice the ordinary size. *Epidendrum Endresi* was pointed out specially as being something choice, likewise a variety of *Cattleya guttata* named *phœnicoptera*, which was indeed a superb plant. There were several choice *Phalaenopsids* in flower, notably *P. violacea*, a fine species, and *P. Reichenbachii*, not a great beauty. *Dendrobium Draconis*, a new and very handsome species in the way of *D. eburneum* was noteworthy among the numerous collections of *Dendrobies*. In the crowded *Masdevallia* house, which contained besides the showier species, such as *Harryana*, *Veitchi*, *Lindeni*, and others, a number of varieties less attractive, among others were the new *M. marginella*, best described as a white *M. Reichenbachii*; *M. maculata lutea*, distinct, but not beautiful; *Veitchi grandiflora*, a superb variety, the finest form we had seen; a host of the pretty *Shuttleworthii* and of the charming little *Armini*; there was also a remarkable variety of *Harryana* named *lutea*, the flowers of which were of a decided yellow. In the culture of *Masdevallias* and other small-growing Orchids small suspended pans are largely used, as they are found to suit the requirements of the plants better than anything else. These pans vary from 2 inches to 6 inches and 8 inches in diameter, but all are comparatively shallow so as to aerate the roots as much as possible. All the pans are fitted with Mr. Sander's new suspenders, of which we gave an illustration a short time since. It is an excellent contrivance, as it is not only better for the plants, but saves a deal of labour.

Cattleya Gaskelliana.—A splendid flower of this new Cattleya has been sent to us by Messrs. Thomson, of Clovenfords, Galashiels, who rightly esteem it highly. It is one of the best forms of it we have seen, being even as fine as that shown by Messrs. Thomson at South Kensington some time since. The flower is about the size of a large *Trianae*; and is somewhat similar in form, particularly in the labellum, the lobe of which is of circular outline and beautifully frilled at the margin. The colour of the lip is a splendid rich amethyst in the lower part, merging into citron yellow in the throat, which is pencilled with amethyst. The unfolding part of the lip, together with the broad petals, are of a rich deep mauve. It is, in short, a lovely Orchid, and one distinct from other Cattleyas. Some, however, contend that it is in close affinity to *C. Mendeli*, but the alliance is not very apparent; besides, *Gaskelliana* makes its

growth and throws up its flowers at once, while the sheaths of *Mendeli* do not unfold their flowers till the following spring; as a rule *C. Gaskelliana* is, moreover, valuable, as flowering when most other Cattleyas are past.

Laelia elegans prasiata.—This is really a very fine variety, and some good blooms of it have been sent to us by Messrs. Thomson from their nursery at Clovenfords, Galashiels. It is the deepest coloured form that has yet come under our notice. The flowers are larger than those of the ordinary form; the sepals and petals (the latter being distinctly undulated) are of a bright vinous purple. The upper portion of the labellum is white, faintly pencilled and washed with magenta, while the lowermost lobe—the chief point of beauty in the flower—is $1\frac{1}{2}$ inches across, and of a resplendent carmine-crimson overlaid with a satiny lustre similar to that seen in some of the best varieties of *Masdevallia Harryana*. The perfume is strong, partaking somewhat of Nutmegs. Such a splendid Orchid as this in full beauty in August is a real and rare treasure.

NEWBATTLE ABBEY,

ONE of the residences of the Marquis of Lothian, is situated about seven miles south-east of Edinburgh, near Dalkeith Park, and, like that, open every week day from eight a.m. to six p.m., thus enabling outsiders to enjoy delights in the way of sylvan beauty otherwise unknown to them. Would that more of our aristocracy would be equally generous! Complaints as to damage are but few, and even then the trifling injury committed is more "from want of thought than from want of feeling." Sheets of white bloom on the closely cropped turf show us that here at any rate the Gowans will not be kept down. The woods are very picturesque. Immense Plane trees and Beeches, now in all their summer beauty, stretch their great arms across the greensward, whilst in quiet sunny corners clumps of varied *Rhododendrons* add colour and brilliancy to the prevailing shades of green. One giant *Sycamore* was quite 16 yards in circumference.

In front of the mansion stands a Beech which surely deserves to be named "the Pride of the Lothians." It has a circumference of branches of 140 yards, and at 8 feet up the bole the girth is 20 feet. In 1798 this tree was measured and found at the same height (8 feet) from the ground to be 16 feet in circumference.

The edges of walks under trees are planted with *Sedums*, *Saxifrages*, and *Aubrietias*, which, being allowed to grow pretty much as they please, have an effect unobtainable in any other way. One walk 120 yards in length is bordered with perennials on each side, and approached by a trellised bower of *Honeysuckles* and *Roses*. Another border consists entirely of a small *Sedum* and *Golden Thyme*, both of them hardy and pleasing in all seasons. Even the labourers in the gardens have their cottages overgrown with *Cotoneasters* and *Ivy*. Further on are three beds of white and red *Carnations*, and, judging by the size of these beds, one can easily guess that this charming plant is a favourite. Hardy spring flowers are cultivated assiduously here, and in the principal gardens fronting the residence, what beds were gay a short time since with bulbs, from *Tulip* to *Chionodoxa*, are now (June 9) filled with purple *Aubrietia* and *Mosses*; *Violas*, purple and golden; and the *Myosotis dissitiflora*. A novel effect is here produced by covering walks at each sweep of a curve with silver sand and red shale alternately, the adjoining beds containing masses of *Erica carnea* and *alba*. This unnatural effect is counterbalanced by a background of beds filled with *Rhododendrons*, *Pansies*, *Irises*, and *Saxifrages*, supported by scarlet Thorns and white Broom. In the

ORCHID HOUSES are fine specimens, amongst which I noted the following, viz., *Epidendrum vitellinum majus*, *Maxillaria tennifolia*, *Masdevallia Harryana*, *M. Chimæra*, *M. Roezli*, with its dark, but handsome, sepals and pink lip; the singular *M. coriacea*; *Sobralia macrantha nana*; *Cypripedium Veitchi* and *C. Parishii*; *Cattleya Mossiae*;

and *Phalanopsis Schilleriana*, bearing leaves 15 inches long. *Vandas*, *Aerides*, *Calanthes*, and *Dendrobiums* were also plentiful. *D. luteiflorum* having some 200 blooms on it. Under the Orchid house staging floors *Selaginella* is used with good effect. *Bertolonia Van Houttei*, with iridescent leaves and lined with crimson; *B. marmorea superba*, white, through pale green to olive; *B. superbissima*, bronze-green and pink spotted, occupy an indoor close frame. I also noticed a frame full of hardy Orchids, consisting of *Cypripedium spectabile*, *C. Calceolus*, and a variety from Mentone, all of which were in a thriving condition. British Orchises are appreciated and well grown here, as are also Pinks, to which a large space is devoted.

In one of the fruit houses is a fine specimen Fig tree (*Negro Largo*), full of fruit in spite of vigorous wood growth, for it has a stem girth of 18 inches at four years of age. Amongst Vines four varieties are preferred above all others—the Black Hamburg, Muscat of Alexandria, Gros Colmar, and Lady Downes. Amongst Peaches were fine, rosy fruit (4 inches in diameter) of Hale's Early and also of Royal George and Stirling Castle; and a perfect bank, 42 feet by 14 feet, is covered with Early York and Lord Napier Nectarines, the latter bearing hundreds of fruits. The Cape Gooseberry and Guavas are here treated Tomato fashion by being grown up the inner walls of the vineries.

On the central supports of the Camellia house, a lofty building, are trained with charming effect specimens of *Cantua dependens*, and the side pillars are clothed with *Clematis indivisa*, *Habrothamnus fasciculatus elegans*, and *Maréchal Niel* Roses, these latter hanging in graceful festoons from the rafters; on the end wall is *Acacia verticillata*, flanked by white Banksian Rose and *Rhynchospermum jasminoides*. In the Palm house were two *Latania*s 24 feet high, surrounded by Bananas—not in unsightly tubs or pots, but placed on a raised bank completely covered by the foliage of *Begonias*, *Tradescantias*, *Fittionias*, and *Adiantums*; plants of these also hide the iron piping under the stages. On the rafters above were in bloom fine plants of *Bougainvilleas*, *Hibiscus rosa sinensis*, and *Clerodendrons*, and two specimens of *Anthurium crystallinum* guarded the entrance. Pendent plants, such as *Tacsonia mollissima* and *exoniensis*, amidst hanging *Fuchsia* branches and blooms, formed a fitting entrance to a grotto-like house, lighted from the roof. Several square stone supporting pillars have been wire-netted and are completely clothed with *Selaginella*. *Ficus repens* crawls all over the place, Nature hiding art; whilst at the end, from rock to rock, drips water, splashing over Ferns, Mosses, *Begonias*, &c., into a pool beneath. The side of the grotto is sharply banked up, and in it are planted fine specimens of *Dicksonia antarctica*, *Asophila australis*, and *Lomarias* bearing beautifully tinted young fronds. On all coigns of vantage, even under the drip of water, self-sown seedlings of *Adiantum Capillus-veneris* *Moritzianum* are springing up and luxuriating.

Horsforth, near Leeds.

R. A. H. G.

I find no difficulty in setting, the bunches being literally crammed with berries, needing much thinning, and such is the extent of this exudation that two brushes per day are necessary to go over the lot, as one gets too wet to do the whole work.—D. P. BELL, *Clive House, Alnwick*.

ROSE GARDEN.

BUDDING DWARF ROSES.

NOTWITHSTANDING all that has been written on this subject, the mode, time, and place of budding dwarf Roses is still very imperfectly understood, and but indifferently practised by amateurs. As to place, the ground-line or an inch or two above it is obviously the best. As far as the Rose is concerned, the ground-line is preferable; but as it is difficult to make a tie on the level of the ground, an inch or two above it may be chosen. There are at least two obvious reasons for this low budding of dwarfs. One is to reduce the area of sucker production to the very lowest limits. By budding at the ground line, scarcely any of the stock is left after the establishment of the Rose. Those who have suffered from the pest of suckers on standard and other Briers will appreciate the privilege of being thus delivered from them by low or ground-line budding. But another great point secured by low budding is the independent rooting of the scion above the stock. Possibly I may incur reproof from not a few rosarians by stating that the advantages of super-rooting have probably been greatly exaggerated. Stocks of most sorts have been chosen as being harder, freer rooting, or more readily propagated than the Rose; and having established Roses on these by budding or grafting, it is by no means very obvious why the roots of the stock should forthwith be superseded by those of the Rose mounted on its crown. Besides, as a matter of fact, it is not often found that the two sets of roots run very kindly together. Either the Manetti, or Brier, or Rose roots mostly have the lead, and the leaders in such matters have a tendency to suppress those that follow after. Or, supposing both sets of roots to live and thrive, it is not easy to see what better a Rose is to be for two sets of roots, one above and the other below the union of scion and stock. Quality of root is perhaps of more importance than mere numbers, though it seems to have been all too readily accepted as a sort of axiom that the more roots the better for the Rose. Assuredly if this plan of earthing up worked Roses above the bud or graft will result in the starving of the foster root, it deserves to be adopted, as the more Roses on their own roots the better. The earthing up of worked Roses also appears to impart more strength to the young shoots, as well as to support them from being so readily blown out or off by the wind. But the popular idea is that the earthing up of worked Roses also imparts more strength to the shoots independently of the support the earth affords to the stems. There is yet

ANOTHER BENEFIT of budding low and covering the union between the scion and stock afterwards. The soil is useful in protecting the plant at its most vulnerable point. More Roses will be found to give way at the budding or grafting points than at all other places put together. By moulding the union over with an inch or two of soil, this susceptible part of the Rose is mostly rendered frost proof, and generally the low budding of dwarf Roses and subsequent earthing over of the point of union is held to be the soundest and safest practice. In regard to the time of budding, in average seasons the best time will be that included between the last week of June and the first week of August. Premature budding is to be condemned; the immaturity of bark as well as of buds invite failure. Neither do the wounds in the bark heal so well when cuts are made too early. The healing power of the sap increases with its age within certain limits. In general terms, early sap is thin and watery; later sap is not only thicker, but also more nourishing as well as more healing. Some seem to think that a free rise of the bark is all

that is needful to success. But the bark will run freely long before it will heal well, and the latter is the quality that takes the bud on, and makes it an integral part of the stock. A certain semi-maturity of bud is also indispensable to enable it to support itself until it is united to the stock. Not only this, but buds possessing the requisite stamina for use become active rather than passive agents in effecting the union. Instead of waiting, as it were, to be taken in and done for, such buds meet the stocks half way in forming a speedy union between the two. Of course this would be impossible were the buds not already powerful centres of life, so richly and fully stored with organisable matter or growing force, as to be able to spare a part of it for the purpose of accelerating or cementing their union with the stock. From all which it appears that we should do

BUDDING ACCORDING TO CONDITION, not by time, though, as a rule, buds and stocks alike will be found in the most suitable condition within the limits of the period here stated. As to the mode of budding, nothing can well be more simple to experts nor embarrassing to amateurs. The former always stoop over their plants, and their motions are so rapid that one can hardly see the process. Novices, on the contrary, kneel, and sometimes even recline among their plants—no easy task among *Manettis* from a yard to two high. Experts, again, seldom do their own tying, which simplifies matters very much as well as expedites them. The *modus operandi* is mostly as follows: With a bundle of trimmed branchlets containing the buds in hand, one is whipped out with the knife, and the next instant the operator stoops down, rubs the soil off the base of the stock with finger and thumb, makes the cross-cut and slice, inserts the bud, and shortens its bark to the line of the cross-cut, and the bud is in in less time than two words of these instructions are written. The expert, whose tyer follows him, is already off to another stock, and has inserted another, and yet another bud, and so on throughout the day for weeks together. The tyer follows with his short lengths of soft wool or lamp-wick—still the most popular of all ties in the trade. Of course, the amateur ties his own buds, as a slip or a strangle in the tying is as fatal to success as bad budding. Neither can he expect to keep pace with the expert, nor is it needful; still, it is well to copy his example as far as may be, for in nothing is expertness and confidence more essential to success than in the delightful art of budding Roses. While the bungler dawdles the vital juices and fluids dry up, and render a union impossible. Hence, each bud should be put in as rapidly as possible, whether the number to be budded be five or 5000. Those who find the budding of dwarf Roses back-aching and tiresome work can rest between the plants, but not linger over the process, or failure will be almost sure to follow. Two great faults are conspicuous in the

BUDDING OF AMATEURS. These are excessive manipulation and over-tying. One clean cut to remove the bud, a touch to extract the wood from under the bark, a cross-cut in the stock, a vertical slit down the stock with the handle or blade of the budding knife, the raising of the bark on either side, and the insertion of the bud, and the work is finished. And as to tying, about two turns below the bud and two or three above it are all that is needful. Over-tightness as well as excess of material must also be avoided. The bud must be held firmly in position, the opening in the bark as nearly closed as may be. But to accomplish this it is not needful to hold the former as in a vice or cut into or half through the latter with the tightness or excess of our ligatures. In budding, as well as in all other operations on living tissues, the less interference beyond what is absolutely needful, the greater our success and *vice versa*. Excessive tying is one of the most fruitful sources of failure. There are some budders who should really be ticketed winders, their operations being apparently a perpetual winding motion. For one minute devoted to insertion ten are spent in tying, and the ties seem interminable—huge masses of

Sterility of plants.—In THE GARDEN of the 30th of June you give an extract of a lecture by Dr. Matthews Duncan on this subject, in which he quotes the authority of my friend Mr. Thomson, of Clovenfords, on the setting of the Alnwick Seedling Grape on rich and poor soils. Were it a matter of opinion based on scientific experiment, I would shrink from placing my own in opposition to his generally sound and correct conclusions. Facts, however, are stubborn things, and what I feel called upon to say is, that they go directly in the teeth of what he asserts is the cause of failure in rich soils. My soil is naturally rich and upon a fine clay subsoil, annually enriched by heavy dressings of cow manure, and during the growing period frequently fed with liquid manure of various kinds, removing it as far as possible from what might be called poor soil; indeed, the richness of the soil is such that in Mr. Thomson's opinion it causes dewdrop and prevents setting; this, however, is not my experience, for while on every bunch when in flower I find the dewdrop present,

matting at times in which the bud is suffocated and its vital power strangled. As the art of budding extends it also improves, and these monstrous ties are less common than they were. The whole art of success in Rose budding may be concentrated into a single sentence, thus: simple manipulation, rapid execution, and soft—I had almost added scant—tying. D. T. FISH.

INDOOR GARDEN.

CRINUM BRACHYNEMA

A SHORT time since Dr. Wallace sent us from the New Plant and Bulb Company's nursery, Colchester, a flower-spike of this rare bulbous plant which, being distinct from most of the cultivated species, we thought it desirable to give an illus-

tration for a dense, bushy habit; to further encourage this they ought to be kept close to the roof glass, and receive air every day through the growing season when the weather is fit to admit it. They do not require any shade from the sun, unless the glass actually burns the leaves; the more sun they get the finer coloured they usually are. They should be freely syringed daily, except in the dead of winter, as they are liable to red spider and a minute yellow thrips that often attacks them, and which can only be kept down by a constant application of water to the leaves. As the branches are produced they should be tied out, otherwise if this is not attended to they get into too stiff an erect position to admit of their afterwards bending. The result of this is that they in course of time become denuded of leaves about the bottom, which makes them unsightly. These plants should always present a close mass of healthy leaves fully clothing the wood, without which they and similar things grown for the beauty of their foliage are deficient in the first essential to make them attractive.

CROTONS.

FEW amongst the different kinds of fine-leaved subjects have been so extensively cultivated as Crotons, and there is no family of plants known to cultivators which gives so much variety in the way of form and colour. All the variegated kinds (and these only are favourites with plant growers)

SOIL.—Crotons will grow in almost any description of soil, and, like most other plants, make the most progress in peat, but they rarely have their leaves so finely coloured in it as when grown in good loam. They also like manure water, which, when other things connected with their successful cultivation are present, causes the leaves to come yellower. The treatment from a young state up to the largest specimens, which may be 6 feet or 7 feet through by as much in height, is of a routine character, such as already detailed, giving additional pot-room as they require it. When the plants get at all straggling they may be cut back or even headed down to within 18 inches of the collar, after which they will make specimens quite equal to young plants. If wanted in a small state for decoration, Crotons look much the best confined to a single stem, as when they have side branches they are not so elegant in appearance. When required for use in this way young stock should be struck yearly. The long, narrow-leaved kinds, such as *C. angustifolius*—still one of the handsomest for all purposes—are most suitable. There is an immense number of sorts now in cultivation, very many of which are so far inferior to others as to make their growth unnecessary. The following are all distinct and handsome:—

C. ANGUSTIFOLIUS has narrow, drooping, yellow and green leaves, 12 inches to 24 inches long when well managed, and still unsurpassed for elegant appearance. India.

C. JOHANNIS.—A larger leaved variety than the preceding, the yellow colour usually darker. A fine kind from the South Sea Islands.

C. MAJESTICUS.—This is also a narrow drooping-leaved sort; the foliage whilst young is deep green and yellow. As it gets matured the ground colour changes to a very dark olive, and the yellow portions become deep crimson. A very fine sort from the South Sea Islands.

C. WEISMANNI possesses a close, dense habit of growth; the leaves are narrow, about a foot in length, ground colour bright green, mottled and striped with bright yellow. Also a native of the South Sea Islands.

C. PICTURATUS is a most singular-habited variety from the New Hebrides; the form of the leaves is extremely variable, some having the base almost heart-shaped, with a continuation of the mid-rib for several inches, from which again grows another narrow portion of leaf more or less lengthened, often being in all from 15 in. to 18 in. long; the mid-rib is red, the rest green blotched with yellow, turning to red when matured.

C. DISRAELI.—One of the trilobed forms; it has wedge-shaped leaves that grow broader outward, dividing into two opposite equal lobes, ground colour green, the mid-rib yellow, which, together with the considerable portion of the leaves that come blotched with yellow, turn crimson as they get older. From the South Sea Islands.

C. UNULATUS.—A very distinct and handsome kind, with leaves of medium length, elegantly undulated in the edges, deep green ground colour,



Portion of flower-spike of *Crinum brachynema* (colour, white).

tration of it. Dr. Wallace writes as follows in reference to it: "Through the kindness of Messrs. Van Houtte I am able to furnish you with the following particulars about this plant. *C. brachynema* is a native of Bombay, and flowered in May, 1871, at Kew, from a bulb sent in 1870 by Mr. Woodrow, of the Botanic Gardens, Poonah. If the name *brachynema* is correct, then it is no novelty, but a re-introduction, which was formerly imported from Bombay by Messrs. Loddiges, and flowered in Dean Herbert's collection at Spofforth in 1842." The flowers are white and the stamens deeply set in the flower, not protruding as in most *Crinums*. It is a pretty plant and well worthy of re-introduction.

Anemotheca cruenta.—There are very few bulbous plants that reach the flowering stage when grown from seed so quickly as this pretty little African. Seeds ripened last summer were sown directly they were gathered, and without being disturbed in any way they have been quite a mass of flower this season, and very useful for greenhouse decoration, being in general characters

come from hot countries, and require a high stove temperature to grow them to anything like the condition of which they admit.

PROPAGATION.—These plants are very easily propagated, and quite as easily grown, provided sufficient care is bestowed upon them. Cuttings will root quickly at any time of the year, but spring is the best season for putting them in. Small pieces of the shoots should be selected, always choosing those that have their leaves well variegated. This is necessary, as if shoots that are too green are struck they almost invariably are afterwards deficient in variegation. They should be put singly in pots just large enough to hold them, half filled with sand and loam, the upper portion all sand. Kept warm, moist, with the air confined, and shaded, they will root in a few weeks; then gradually dispense with the propagating glasses; they form roots quickly, and will soon require larger pots; these should be drained and filled with good loam, liberally mixed with sand. If intended for large specimens, as soon as growth has commenced the points of the shoots should be pinched out to lay the founda-

the mid-rib and much of the surface yellow whilst young, turning bright crimson when fully matured. A native of the South Sea Islands.

C. QUEEN VICTORIA.—Leaves of medium length; when well grown they get about 12 inches long; the greater part of the leaves is of the richest golden yellow, the mid-rib and principal veins magenta, ultimately becoming crimson; the combined shades are very beautiful.

C. WILLIAMS has large, bold foliage, undulated on the edges; ground colour bright green, the greater portion of the surface yellow, whilst the leaves are young, turning red with age; mid-rib red.

C. WARRENT.—Leaves 2 feet to 2½ feet long by an inch broad, drooping gracefully, deep green in colour, profusely mottled with yellow and red; one of the best. A native of the South Sea Islands.

C. HAWKERI.—A very distinct kind, with medium-sized leaves, more pointed than *C. variegatus*; three-fourths of the central portion of the leaves yellow, edged with green.

C. EVANSIANUS.—Another distinct sort; the leaves are lobed as in *C. Disraeli*; the young ones pale green, heavily marked with yellow, as also the stalks; the ground colour becomes much darker as the leaves get older.

C. PRINCESS OF WALES.—A drooping-leaved kind, leaves about 2 feet long, ground colour pale green, heavily and evenly variegated with pale yellow. A native of the New Hebrides.

C. ROSEO-PICTUS.—A hybrid variety of close, compact habit; leaves smaller than *C. variegatus*, ground colour green, mid-rib and nerves banded with yellow; a very bright sort.

C. CROWN PRINCE.—Leaves a foot long, erect, bright green ground colour, central rib and nerves yellow. A bright and regularly variegated kind.

C. VOLUTUS.—A very distinct kind, the leaves all rolled back, as its name implies; ground colour green, mid-rib and nerves yellow, variegation constant and distinct.

INSECTS.—The smaller species, such as thrips and red spider, already alluded to, will not give much trouble if the syringing recommended is carried out. Mealy bug and scale both affect them; these can be destroyed by dipping in or syringing with a strong solution of insecticide.

T. B.

MIGNONETTE INDOORS.

FOR greenhouse and conservatory decoration this is always a favourite both summer and winter, and by sowing at different times a constant supply for cutting may be had during the greater part of the year. The soil most suitable for Mignonette is a compost consisting of rich yellow loam, put through a half-inch sieve, one-third rotten leaf-mould, and if at hand some powdered charcoal, mixing all well together. The charcoal keeps the soil open and sweet, and a good portion of sharp silver or river sand may also be used. The pots must be perfectly clean, and plenty of drainage must be used, covered with a thin layer of Moss. Fill the pots nearly full with soil, gently pressing it down, and sow a few seeds in each, varying the number according to their size. Cover the seeds with some sifted soil to about their own bulk in depth. For the earliest sowing fill some 6-inch pots with the compost just alluded to, and sow a few seeds over the surface, pressing them gently down and covering them with some fine sandy soil. Water through a fine rose, and place them in a temperature of about 60°; place the pots as close to the glass as possible. If the surface of the pots is shaded until the young plants appear, so much the better, but after they are up they should have as much light as possible in order to keep them dwarf and stocky. As soon as they are large enough to handle thin them out, leaving six of the strongest in each pot. Tie each plant to a thin neat stake, repeating the tying until they come into bloom, when they will be ready for conservatory or house decoration. Use either liquid or some artificial manure to keep them healthy, when they will yield an abundance of cut flowers. If grown in 4½-inch pots, leave only

four plants in each pot. In order to grow specimen plants, fill 3-inch pots with compost, placing a few seeds in each pot, and when large enough pull the plants out, leaving the strongest in the middle. After four leaves have been made pinch out the top of the plant, when it will throw out strong side shoots, and these will require to be kept pinched back to three or four leaves, thus inducing the plants to produce abundance of side shoots. Shift into larger pots when necessary, giving small shifts at a time until they get their final shift into their flowering pots. A good size for specimen plants for the cool house will be found to be 8-inch pots.

TREE MIGNONETTE, to be in bloom in November, should be sown by the middle of March. Use 3-inch pots, which should be thoroughly clean and well drained; place a thin layer of Moss or some rough material over the crocks, and on this put the compost, pressing it firmly into the pots. Place a few seeds in the centre of each, covering them lightly with some fine soil. Give a good watering, and place the pots near the glass in a temperature of 60°. As soon as the plants are large enough to show which is the strongest, pull out all except these. Put a small stick to the one left, and tie it up as it grows in order to keep it from breaking off at the neck. When from 6 inches to 9 inches in length a shift will be required into 6-inch pots, when every care should be taken both as to soil and drainage. A little soot produces fine dark green foliage. Sprinkle it over the Moss on the top of the crocks, where it will also keep out worms. Pots of different sizes are used, in each of which plants may be grown successfully, but 11-inch pots is the size generally employed. The leading stem should not be stopped until it has reached the height required—generally 2 feet, and from that to 3 feet through. The side shoots will be found to form a fine head if properly attended to with regard to pinching and tying down to a trellis. The latter is best made of wire in the shape of an umbrella. Care must be taken in pinching out the points of the shoots not to injure the stem leaves; a pair of Grape scissors will be found useful in performing this operation. Allow them a temperature of 60°, place them near the glass, and give liquid manure twice a week after they have filled the pots with roots, syringing overhead, and by the month of November they will amply repay all the labour bestowed upon them. Make another sowing early in June, using 6-inch and 4½-inch pots, and growing several plants in a pot. They will be found useful for flowering late in the autumn and early in spring. Mignonette, when grown in quantity, is useful to cut from for filling vases when other flowers are scarce. A sowing should be made the second week in August, placing the pots in a cold frame and thinning out the plants when large enough. Support each with a thin stick. On the approach of frost they should be placed in a warm house or pit as near the glass as possible. From 45° to 50° will be found a suitable temperature for them during winter. Early in spring the plants will commence to bloom and continue to flower freely for several months.

Woodham Hall, Surrey. WM. CHRISTISON.

EXHIBITING GLOXINIAS.

THE suggestion made some little time ago to show Gloxinia flowers instead of plants would be a mistake from every point of view. By showing the flowers alone it would be impossible to form any idea of what the natural habits of the plants were, for although much depends on the way in which they are managed for being stout-stalked and compact in foliage, yet there is sufficient distinction in this respect between a good strain and a bad one to make a wide difference in the plants irrespective of treatment, and this can only be determined by seeing the plants with their flowers on them. The fact of the exhibition regulations requiring a dozen plants defeats its object, as they are too many to bring any distance; six would show the merits of both strain and the cultivator's skill quite as well as a larger number,

The flowers of Gloxinias are often more injured than other things by transit through two causes, viz., a soft, flimsy condition, the result of being badly grown and bad packing. In common with most other kinds of plants in flower, they need care as regards packing to insure their travelling without injury, and it is only by foresight and experience that anyone can become a successful packer.

Gloxinias to be conveyed ever so short a distance must have their flowers secured, so that there will be no room for them to rub. A well-grown plant will have its leaves stout with short stalks, the leaves lying flat and clinging close to the rim of the pot, with the head of bloom erect and clear of the foliage. To carry safely, the flowers must be drawn so closely together that they will not have room to move; secure them in that position with a sheet of tissue paper doubled repeatedly so as to be no wider than will allow of its clasping the stalks, and about half way covering the tube of the flower. Thus fastened, then take another sheet of the paper, doubling it once so that it will enclose the first piece, tie it round the stalks just above the flowers, draw it sufficiently close at the top to give no room for the flowers to rub against it and tie it in that position, using a couple of little sticks inserted in the soil to keep the whole of the paper from slipping down, which it is liable to do. Made secure in this way, but avoiding drawing the flowers so tightly as to crush them, Gloxinias when so grown as to give substance to the flowers may be carried long distances with little injury.

When the plants have been badly managed, with the flowers and their stalks long and weak, and the leaves also weak and drawn up half erect amongst the flowers, they are almost valueless either for exhibiting or use, and cannot be carried far, as the flowers will not bear packing without bruising, much less stand the jolting of a journey. In this age of flower shows a good deal might be said on the subject of packing. Not a few exhibitors are as often beaten through bad packing as by the superiority of growth in the plants against which they have to compete. To avoid injury in transit, almost every description of plant requires to be dealt with differently, but the fault is mostly to be found in allowing too much room, so that chafing takes place. Foresight and judgment have something to do with success in this kind of work, yet nothing short of experience will enable anyone to pack flowering plants and some of the fine-foliaged kinds in a way that they can be moved far without injury.

T. B.

CAMPANULAS IN AND OUT-OF-DOORS.

THERE are few plants that are more showy or useful in a decorative point of view than the Campanulas, of which there are many varieties, some being of lowly growth and others of a tall, strong habit, towering up and branching freely almost from base to summit. One of the most noteworthy in this respect is *C. pyramidalis* (the chimney Campanula), which, in good, rich soil, often attains a height of 6 feet, and when in flower forms one of the most striking objects it is possible to have in a border or pot, as it is not only suited for outdoor work, but is equally adapted for the embellishment of greenhouses and conservatories, where it makes a fine display during summer. The way in which this Campanula should be propagated is to take off the side shoots, which come freely around the crowns, and either dibble them in on a shady border under a hand-light till they make fresh roots, or pot them singly in pots and keep them close and moist in a frame. If seed be sown, and seedlings raised, which may be done easily, they should be got up in spring, so as to give time for a long season's growth, without which the young plants will not be large and strong enough to flower the following year. Being quite hardy, they require no protection during winter, but may be planted out where they are to remain, and those in pots intended for indoors should be plunged so as to keep frost from their roots. My favourite Campanula

FOR POTS is *C. calycanthema media*, a wonderfully floriferous kind, and one which bears large bell-shaped blooms with a coloured calyx, making the whole flower somewhat resemble a cup set in a saucer. As this kind is a biennial, it can only be had from seed, which should be sown at once on finely sifted soil in a pan, and kept close and moist till it germinates. This it will soon do, and when the plants are large enough to handle they ought to be pricked out in light rich ground, and kept sprinkled daily with water till they start afresh into growth. Before planting in borders, the finest and best plants should be selected for pots, and potted singly in 8-inch or 9-inch sizes, which are quite large enough if the plants are well fed. This may be done by mixing a good dressing of rotten manure with the soil, and when they are well rooted in it, giving them plenty of liquid manure. There are many shades of colour in this class of *Campanula*, the most choice being the white, which is quite Lily-like in purity. Another valuable sort for decorative purposes is the old Canterbury Bell, likewise a biennial, and to have plants strong for flowering next year no time should be lost in sowing the seed, which may be done under a handlight, and directly the plants are large enough to handle they should be planted in freshly manured soil where they are wanted to bloom. One of the

FINEST OF THE PERENNIAL SECTION is *C. Van Houttei*, a most charming hybrid, which sends up stems quite 2 feet in height, and bears very large dark blue blossoms at least 2 inches in length. The way to increase this *Campanula* is by division, which may be effected while the plant is at rest, but is best carried out early in spring just as growth commences, as then the severed pieces start off and make fresh roots at once. *C. Hendersoni* is also a hybrid of great merit, and is one of the few that flower long during the summer. Though not tall, it is of vigorous growth, and, like most of the others, is perfectly hardy. *C. persicifolia*, the Peach-leaved *Campanula*, has long been a favourite in herbaceous borders, and besides the normal form there is now a double white, which is first-rate for cutting, and deserving a place even in the smallest collections. *C. grandis alba* is a white variety of the old *C. grandis*, and is quite as strong and stately in appearance, and sends up a number of spikes thickly studded with large salver-shaped blooms. Among the

SMALLER KINDS, *C. turbinata* is one of the finest, for though it has only small foliage and is close and compact, it sends up, on its erect stems, flowers that measure quite 2 inches across. As a companion plant to this, *C. turbinata alba* should not be forgotten, as its big white blooms form a very pleasing contrast with those of the blue. *C. Hosti alba* is likewise a most excellent species, forming quite a close bush about a foot high, and having wiry stems bearing a profusion of large pure white blooms. It is to be hoped, now that hybridists have taken these hardy perennial *Campanulas* in hand, and shown they will cross-breed, that we shall have many new kinds, as they will be most acceptable plants in borders.

S. D.

DASYLIRIONS IN FLOWER AT KEW.

THERE are just now in the succulent house at Kew male and female specimens of *D. glaucum* bearing flower-spikes, and as there appears to be some interest taken at present in *Dasyliirions* and their seasons of flowering, such a circumstance may be worth recording. The male plant bore a good flower-spike some eight years ago, and before that in 1857. At Glasnevin, it is recorded, a specimen flowered in 1873. So far as I can learn, these plants were all males, so that the fine female inflorescence now in good condition at Kew is most likely the first borne by plants in this country. The spike borne by the male plant is about 10 feet in length, the upper half bearing short pendent racemes of small flowers, packed thickly together in the same way as in the case of some of the *Carices*. The stamens are longer than the flower segments, and bear yellow anthers thickly

clothed with pollen. The female flowers are quite distinct from the male inflorescence. They are very small, with rudimentary stamens, and a triquetrous ovary, which swells out to the size of *Rhubarb* seed-pods, to which it bears a close resemblance. Although *Dasyliirions* are classed among dioecious plants—that is those whose sexes are borne on separate individuals—yet it is not an uncommon occurrence for a few male flowers to be borne on the female spike. Mr. Baker has placed *D. glaucum* under *D. glaucophyllum*. Other species of *Dasyliirion* at Kew are *D. acrotrichum*, which has also flowered there some years ago. It is known in some gardens under the name of *Bonapartea gracilis* and *Bacenia glauca*. Both in length and serration of leaves this species is not unlike the above, but it is always easily recognised by the tuft of fibre into which the apex of each leaf is divided. Of this species there are some handsome specimens in the Kew collection.

D. LONGIFOLIUM now referred to *Beaucarnea* is a noble and graceful plant, with strap-shaped, smooth-edged recurved leaves. It does not appear to have ever flowered in England, but there is a record of its flowering in the island of Hyères, off the south coast of France, in 1876. At Kew there are very fine specimens of this species. *D. serratifolium* is very like *D. glaucum* so far as the leaves are concerned, but is said to be distinct as regards floral character; it has not yet flowered in cultivation. *D. Hookeri*, once called *Beaucarnea Hookeri*, is a most remarkable plant, represented in the Kew collection by two large specimens. The trunk of this species is like an immense tuber, and bears a close resemblance to the Elephant's-foot (*Testudinaria elephantipes*); on the upper portion of this singular stem tufts of foliage are borne. It is figured in the *Botanical Magazine*, t. 5099.

D. QUADRANGULATUM is a narrow, Rush-leaved species recently introduced to Kew, where there are several small plants of it. It may be likened to a stiff-leaved *Bonapartea juncea* (now known as *Agave*). It has angular, recurved foliage, tipped with a spine exactly as in *Bonapartea*—a rare and interesting plant. *D. Wheeleri* is another narrow-leaved species, also cultivated at Kew. Other plants, known in some places as *Dasyliirions*, but at Kew as *Beaucarneas*, are *D. Bigelowi* and *D. erumpens*, sometimes known as *Nolina erumpens*. B.

PROPAGATING CYTISUS CANARIENSIS.

THIS *Cytisus*, whether known under the above name or that of *C. racemosus*, will grow readily enough from seeds, but by that method it is impossible to obtain the small, much-branched little bushes of it so well known in winter and early spring wherever a supply of flowering plants has to be maintained. Complaints are often made as to the great difficulty experienced in striking cuttings of this *Cytisus*, most of which arise from the cuttings being in an improper condition when put in. In striking cuttings of this *Cytisus* there is no better way than the following. After flowering is over, the plants may be slightly shortened back, and if kept in a greenhouse or frame will soon start again into growth. The young shoots thus pushed out form the best cuttings, and about a week before removing them, keep the plants a little warmer than before—that is, if there is convenience for so doing. Should one end of the greenhouse be kept a little closer than the other, that will be sufficient, the object being to weaken the shoots somewhat, a condition that tends to encourage rooting. As bell-glasses are necessary, the size of the pots will of course depend upon that of the glasses; but whatever may be the size take care that they are thoroughly well drained. In order to ensure this, fill them to within 1½ inches of the top with broken crocks; on these press down the soil firmly, and leave just space enough on the top for a very thin layer of sand. The soil should consist of fine sandy peat.

When the young shoots are from 1½ inches to 2 inches long is a good time to take them for cuttings. They should be stripped off from the old

stem, the bottom leaves removed, and then dibbled into the cutting pots. In stripping off the shoots take the upper part between the finger and thumb with a firm, but gentle grip, give a quick pull downwards, which will detach the shoot at once, and perhaps with it a thin strip of bark, which must be removed with a sharp knife. In all manipulations handle the cutting very gently, as the least bruise will be fatal to it; therefore if there is the least doubt as to its being sound better throw it away than have it decay in the confined atmosphere of the bell-glass where it may infect others. The cuttings should be put in firmly, but not overcrowded, and when a pot is completed give it a good watering through a fine rose—sufficient to settle everything in its place, when the bell-glass must be left off till the foliage is nearly dry. The cutting pots should be kept if possible in a temperature rather above that of a greenhouse, and the after work will consist in taking off the glasses to wipe them dry every morning, in removing the least speck of decay, in watering when necessary, and in keeping them shaded from the sun. The best time for putting in cuttings, i.e., when they are in the most favourable condition, is about the end of spring, but they may be put in at any time during the summer provided the instructions just given are carried out. Seeds gathered when ripe and sown in pots of sandy soil come up quickly, but for only one purpose are they better than cuttings, and that is if grown on freely with the centre shoot supported by a stake, they quickly form large specimens of a pyramidal shape after the manner of *Fuchsias*. They are seldom seen grown in this way, but some plants came under my observation that had been so treated, and beautiful objects they were, each drooping shoot being terminated by clusters of golden blossoms. T.

CENTRADENIAS AND THEIR CULTURE.

THESE pretty dwarf-growing plants, belonging to the *Melastomads*, are especially adapted for amateurs who have only the convenience of a small stove, as they can be grown and flowered well in 6-inch or 8-inch pots. The flowers are small and individually of short duration, but they are produced in quantities successively for many weeks; the leaves are long and narrow, proportionate in size to the plants, deep green above and violet or deep red on the under surface; in this latter respect the oldest introduced species, *C. rosea*, is the darkest. The leaf-colouring renders this variety particularly useful for cutting in the winter to mix with flowers, as the leaves retain their colour for a month in water, and although the plants require heat to grow and flower in, the leaves will keep their beauty in a room with little or no warmth. Used in this way, altogether independent of the flowers, *C. rosea* is one of the most serviceable plants that can be employed for decorative purposes, its dwarf, compact habit adapting it for standing upon shelves near the glass. Thus placed, it receives the greatest amount of light, which is quite indispensable to induce the free opening of the flowers, for if *Centradenias* are placed at a distance from the glass, and at all darkened by the shade of other plants, or in a house or pit that is dark, the blooms fall off without opening. Owing to this, many persons have been so disappointed with them as to give up their cultivation, affirming that it was through the absence of sun in the winter that the flowers drop unexpanded; whereas it is caused by not placing them where they can receive sufficient light, coupled with over-watering the soil at a season when the root action is very slight. Neither are these the only *Melastomads* that are thus affected, as several of both the stove and greenhouse species are subject to the same drawback if they do not receive sufficient light. Of this the strong-growing *Medinilla magnifica* is an example; it often casts its flowers before they open if brought into bloom early in the spring and placed where it does not receive the maximum of light.

SOIL.—*Centradenias* will grow in either peat or loam, or a mixture of both, but I have always found that any plant which is at all subject to

throw off its flower-buds is more liable to do so when grown in peat or a mixture of peat than when loam alone is used. This points to the greater strength imparted by loam than peat, although the latter generally produces freer growth with a larger development of the leaves, and also imparts to them deeper colour. *Centradenias* root freely from cuttings put in in spring or summer when the wood is in a half-ripened state, but it is better to propagate them early. If the cuttings are put in during March in small pots drained and filled to within an inch of the rim, with a mixture of one-third sifted loam to two-thirds of silver sand, adding 1 inch of sand to the surface, they will root in a fortnight or three weeks in a temperature of 70°, keeping them moderately confined, but not too close, or the leaves are liable to damp; when rooted, gradually expose them to the full air of the house, and when the little pots are fairly filled with roots, shift into others 4 inches in diameter, using good turfy loam pulled to pieces about the size of acorns, with one-fifth of sand added; place them on a front shelf where they will receive plenty of light, but shade slightly when the sun is powerful. It is not well to grow them in too much heat; an intermediate temperature of 65° in the night, with 10° more in the day, through the summer is better than if a higher temperature is employed, which only produces weak growth—a condition by all means to be avoided. The natural habit is such as to need little or no support, a single small stick to the main stem being all that is required. Pinch out the points of the leading shoots to induce them to break back and keep compact and bushy. It may be found necessary to repeat this two or three times during the summer. Give them more air than the majority of stove subjects require. This may be managed without interfering with the requirements of other plants grown in the same house by placing them near where air is admitted; but although benefited by a free circulation of the atmosphere, they must not be subjected to draughts. Syringe them overhead every afternoon through the growing season, closing the house early enough to raise the temperature considerably for an hour or two. Give plenty of water at the roots. By the beginning of July they will want moving into the pots in which they are to flower; these should be from 6 inches to 7 inches in diameter, not larger than the last named, for it is essential to have the soil thoroughly filled with roots before the autumn is too far advanced, otherwise the wood does not become sufficiently ripe for the production of flowers to an extent the plants are capable of when well matured. Give them at this shift soil similar to that in which they were last potted, and continue to treat them in other ways as before until the beginning of September, when they will not need to be longer shaded or syringed, after which give a little more air, thereby gradually causing a cessation of growth. As the days get shorter reduce the temperature by degrees, keeping it from 55° to 60° in the night, with a slight increase in the daytime. When the flower-buds begin to swell place the plants as near the glass as possible without touching it; this arrangement will not only have the effect of preventing a disposition to premature dropping, but the blooms will open brighter in colour. At this time an application of clear manure water of moderate strength once a week will benefit them. By keeping a portion of the plants somewhat cooler than the others a succession of flowers can be had, using for cutting those that have been longest blooming. There is no necessity for any reluctance in cutting the branches to whatever extent may be required, for it is much better to grow on a fresh lot of plants each year than keep the old ones; the latter may, however, be used for decorative purposes in a cut state, as above indicated, merely retaining a plant or two, from which cuttings should again be taken in spring.

C. ROSEA is a native of Mexico, whence it was introduced over thirty years ago, and at one time was much more generally cultivated than at pre-

sent; the increasing demand for cut flowers of a showy description has put it in the shade, few having tried it for the purpose for which it is so well adapted, namely, mixing its branches with flowers, with which the colouring and form of the leaves contrast so well.

C. FLORIBUNDA comes from Guatemala. It has larger flowers, purplish violet in colour, and produced in great profusion. The leaves of this plant are also stained with purple on the under surface.

C. GRANDIFLORA.—A kind requiring similar treatment, yet not so desirable a plant as the two just named.

INSECTS.—Most insects that infest stove plants will live on *Centradenias*. The regular syringing recommended through the growing season will generally keep down red spider, aphides, and thrips; but when the syringe is found insufficient, these can be destroyed by dipping in a weak solution of insecticide. If mealy bug or scale gets established on the plants, and they are neglected for a time, it is difficult to eradicate them without injuring the leaves; the best means for the removal of the former is laying the plants on their sides and syringing freely with tepid water, using a small soft brush for the scale. T. BAINES.

Jasminum grandiflorum.—I should be much obliged to any reader of *THE GARDEN* for a little information as to the mode of culture pursued in Ghent and elsewhere in regard to this plant. Handsome examples of it thickly clothed with flower-buds are imported yearly by the London nurserymen, but, so far as I know, no one has attempted to grow them in the same way in this country, or I should rather say perhaps that no one has succeeded. The usefulness of this plant when managed as it is in Ghent and elsewhere on the Continent cannot be overrated. It blooms freely in midwinter, the flowers are handsome and deliciously scented, and it lasts well in a cut state. It is figured in the *Botanical Register*, where it is stated that it had long been cultivated in South France, Italy, &c., along with Oranges and other plants for its flowers, for which there is always a large demand for decorative purposes.—B.

Propagating *Ipomœa Horsfalliæ*.—Cuttings of this beautiful stove climber, in my case, absolutely refuse to root, yet it is easily propagated by grafting it on pieces of the root of *Batatas paniculata*. Having a specimen of the *Batatas* planted out in the corner of the stove, I have no difficulty in obtaining a quantity of roots. These I prefer about the thickness of a quill, and from 3 inches to 4 inches in length, with, if possible, a few fibres attached to them. The upper portion of the root is split, and the graft, a young growing shoot about 6 inches in length, fashioned wedge-shaped, is inserted therein. In tying the graft in its place, take care no bruising takes place, as the root is somewhat tender; then pot it in a small pot at such a depth that the point of union is just covered. Thus treated, they become united in a week or two. This is shown by the tops starting into growth, by which time also the fibres of the *Batatas* will become active. Side grafting may also be employed, but the best results are obtainable when grafted in the wedge manner. After grafting they should be put in a close case in the stove till a union takes place, and then they should be hardened off by degrees.—H. P.

Dwarf double flowered *Pelargoniums*.—About a couple of years ago there were sent from the Continent two double flowered zonal *Pelargoniums* entirely different from any others in cultivation, and greatly resembling each other except in colour. They are both very dwarf and much branched kinds, forming dense clusters of foliage of 6 inches or 8 inches in height. Their flowers are borne in the greatest profusion on stalks just long enough to raise them clear of the foliage, so that a plant of either kind presents a bouquet of bloom. One with mottled salmon coloured flowers is named *Comtesse de Tannberg*

and the other, which has rosy lilac flowers, *Princesse Stephanie*. As pot plants for conservatory decoration these two *Pelargoniums* are very beautiful, and from their extreme floriferousness they might be used for bedding, but for such a purpose I have not tried them. They are also valuable for supplying cut flowers, as if supplied with a little stimulating manure successional blooms quickly succeed those picked off and a few plants yield during the season a great quantity of cut flowers. The blooms, too, not being so large and lumpy as those of other double kinds, may be used in arrangements of flowers for which the larger sorts are unfitted.—H. P.

5032.—**Peat.**—I should not advise “E. L.” to use black peat, such as plant growers were accustomed to pot with in times past, when peat was mostly got in Kent, but which no one conversant with such matters now thinks of using on account of the less lasting properties which it possesses as compared with brown Hampshire peat. From Hampshire, peat of the best quality is now all but wholly procured. Not only does it last much longer before complete decomposition of the fibre takes place, but it is better on account of the nutritive elements which it contains being greater than in black peat wherever obtained, the result being that plants, Ferns included, make much more progress in it than in peat of a closer and poorer character.—T. B.

GARDEN FLORA.

PLATE CDI.

AN ENGLISH COTTAGE GARDEN.

The little garden shown in our illustration occurred beside the road near Great Tew, in Oxfordshire, and is a pretty, if modest, example of its class. It was bright with the great beauty of a plant of the old monthly Rose, clustering round the window at the time the sketch was taken. Mr. Parsons, in passing, made a rapid sketch, which we have, as well as we can, reproduced by means of lithography. The sight of cottage gardens, which are often very beautiful, opens up a question of some importance in garden design. Why is it that the cottage garden is often so much better in effect than the gardens of mansions, which are designed especially for effect? That such is the case no man who observes gardens can doubt. The reason is, it seems to us, to be found in the utter absence of pretence. The flowers that border the walk and the little plot seem at home. The whole is designed for convenience sake only—the flowers gathered beside the walk leading to the door. Often there is only the little square plot, but in these simple ways one can enjoy the flowers without having some complex and often bad design thrust in our faces. This is at the bottom of the charm of the cottage garden. In addition, the flowers are usually such as all love, and the bit of ground has become fertile from much careful work at it.

The moment the cottage garden becomes trim and has a set design its beauty is lost. One occasionally meets with an instance where some very clever person clears out the charming spot, and illustrates his notion of the modern flower garden. The result is frightful to behold—worse a great way than the greenery-yellow windows which were put in æsthetic houses two years ago, and now adorn the bars of the new “pubs.” To pull out a simple window (perhaps a true Queen Anne one) and stick in a lot of dim panelets (foolish as it was) was not a very ignoble effort compared with that of despoiling a cottage garden to stick there a “carpet bed.”



A CHESHIRE OUTDOOR GARDEN

SEASONABLE WORK.

FRUIT.

CUCUMBERS.—The weather we have lately been having has favoured frame Cucumbers, as it has enabled us to give more stimulating food to the roots, and plenty of atmospheric moisture after closing with strong solar heat for the day. It will not, however, be well to allow the heat from linings to decline, as nights will soon counterbalance days, and lack of bottom-heat will tell upon the quantity and quality of the fruit. As few plants so quickly resent neglect, see that the thinning out, stopping, and removal of surplus fruits receive the proper attention at least three times a week. Peg down the joints, and pack with pieces of fresh turf wherever fresh roots can be induced to work on the surface, and while keeping the frame well filled with fresh, healthy foliage, guard against overcrowding with old leaves, which often become the starting-point for red spider and mildew. From this time forward the sowing of seeds of Telegraph and other favourite winter kinds must be regulated by the periods at which the different compartments, now occupied with Melons, will be at liberty, and the same rule will apply to cuttings, as in each case it is better to throw away pot-bound plants and start with fresh, young stock than to run the risk of fostering insect pests from the outset. Where the yearly supply of fruit is obtained from one or two efficiently heated houses, now is a good time to clear out one. Cleanse, paint, scald, and lime-wash preparatory to a new start, as this opportunity may not again occur before next spring, and everyone knows how fresh and vigorous young maiden plants go away with everything clean and sweet about them. Where home-grown seed is in demand, a given space should be devoted to its growth, and clean, healthy fruit should be selected and carefully fertilised with the male blossoms. When ripe, wash out the seeds, and if progress is the first consideration, discard all that do not sink in the water.

ORCHARD HOUSES in which the fruit is now ripening may have all the ventilators left open, as highly flavoured Peaches and Nectarines cannot be obtained without a free circulation of air. Pay particular attention to the watering of trees in pots in all stages of growth, never allowing them to feel the want of this indispensable element, and syringe freely twice a day wherever clean water can be applied without wetting the ripe fruit. Always make a point of gathering the fruit when dry and cool, and before it is ripe enough to fall from the trees, otherwise it will lose its sprightly flavour, and the slightest touch will hasten its decay. When all the fruit has been gathered from the most forward trees, remove them to one end of the house or a separate compartment to be potted or top-dressed and cleansed, and re-arrange later kinds, so as to give them the benefit of more light and air. Where trees are fairly cropped, but little pinching or stopping will now be needed; but any sub-laterals which start may be kept in check, and old leaves, where they overhang the fruit, may be turned or tied aside to let in the sun. Where Figs are grown in the ordinary orchard house the trees will now be in full bearing and capable of taking plenty of good food, both in the liquid and solid form. When large trees in medium-sized pots are not plunged, it is a good plan to set them in saucers and to feed the crotch roots every day with diluted liquid or guano water; but where plunging can be practised the trees will give a maximum of fruit at a minimum of cost in labour, they will continue much longer in bearing, and the fruit will be finer and better in quality.

PINES.—As the summer fruiters are cleared away and space can be gained, a few of the most promising Queens should be collected together and plunged in a steady bottom heat of about 85°, with their heads near the glass in a light, airy pit, to ripen up their growth before the dark dull days set in. It is easy enough to grow a large plant in a very short time; but unless the growth can be properly matured, and the roots can be

kept in a temperature of 75° to 80°, the chances are greatly in favour of such tender kinds as Queens throwing up small or deformed fruit. The object, therefore, should be the production of stout, stocky plants which can be thoroughly ripened by October, and rested through the dead months in a temperature that will not chill or starve the roots, while the steady warmth is too mild to cause them to throw up prematurely. The general stock of plants now growing freely must be encouraged with stimulating food, plenty of atmospheric moisture, and early closing to save fire, heat, and, with the exception of rootless suckers, which will require protection from very bright sun, shading of the lightest description only must now be used for a short time through the middle of the day. Where there is only one fruiting pit, and it is thought desirable to keep recent starters in a moist growing atmosphere to get them well on before winter, all summer-swelled fruit may be lifted out and placed in a dry, airy vinery to ripen up, and when properly coloured the plants and fruit can be stored away near the light in a cool Grape room. See that that valuable, but much neglected Pine, the Black Jamaica, is not overlooked, as it enjoys a strong and does not object to a dry bottom-heat. It also grows and swells off fine fruits in very small pots, which cannot be excelled, if equalled, by any other winter Pine in cultivation. Where plants are now throwing up fruit, if mixed with other kinds, they should be drawn together and plunged at the warmest end of the house, or in a small compartment to themselves, with just sufficient head room to keep the crowns, which are apt to become large, from touching the glass.

SUCCESSIONS AND SUCKERS.—Follow up the irregular system of potting up suckers as they are detached from the plants and get them quickly rooted in a strong bottom-heat from fermenting leaves or tan. Shift into larger pots if they require more room, in preference to allowing them to remain pot-bound all the winter, and plunge close to the glass in a light, airy pit where they will keep growing through the winter. Examine successions that were passed over at the last potting, shift if necessary, but guard against overpotting after this period, and keep the plants growing until they start into fruit next spring or early summer.

VINES.—Let the Vines in mid-season houses be well cleansed with the engine or hose as they are cleared of fruit. Examine internal borders, and give them repeated waterings where they have been allowed to become at all dry, as no greater mistake can be committed than that of allowing the internal roots to feel the want of liquid food after the crop is gathered. If trained on the close-spur system shorten back the young wood to five or six buds and take out the lower laterals to plump up the pruning eyes. Carefully preserve all the old foliage from injury, as future shows depend upon the way in which the leaves complete their functions, and from this time onward leave the house fully ventilated by night and by day. Cover up the external borders of early and late vineries with some light material for checking evaporation, but guard against using it to the exclusion of solar heat, as, owing to the cold, unless character of the season, the ground has never attained its proper summer warmth, and on this account the roots should not be too much shaded from the influence of the sun and air. The principal crop of Muscats now colouring fast will require more light and as much air as can be admitted consistent with the maintenance of a temperature ranging from 70° at night to 85° by day, and when properly coloured, as will be the case by the middle of September, the Grapes will keep for several months if the external roots can be protected from the direct influence of cold autumnal rains. Where incessant firing has fostered spider, and the old foliage has suffered and become thin, it is a good plan to tie down a few of the laterals, and stop them at various lengths, so as to insure an even spread of foliage, which answers the twofold purpose of assisting the Vines and shading the delicate fruit from the direct rays of

the sun. Muscats that are quite ripe will require some very light material drawn over the roof, to prevent the sun from scorching the berries. Haythorn's netting answers well, as it excludes insects and does not interfere with the free passage of light and air. Proceed with the lifting and relaying of the roots of Vines in early houses before the leaves fall and lateral growth ceases; keep the house close, moist, and shaded from bright sun; use good turfy loam, lime rubble, and crushed bones in a dry state; give a little water to settle the soil about the roots and mulch when all is finished. If vigorous young Vines intended for next year's forcing do not show a disposition to ripen up their wood, apply fire heat every morning, shut it off in the afternoon, and keep the house dry through the night.

FLOWER GARDEN.

SOLANUMS.—There are numerous varieties of these, but the tender annual fine-foliaged species are the only kinds that can be used in the flower garden, and to these only the following notes apply. Their names are giganteum, laciniatum, macrocarpum, marginatum, pyracanthum, robustum, and Warscewiczii. Their seeds should be sown on a hotbed in February, and be grown on in a warm house until the middle of May, when they may be gradually inured to bear full exposure, and may then be planted out at the end of that month. All the varieties make fine self beds in the sub-tropical garden; when two or more kinds are planted in the same bed, the tall ones, such as giganteum and macrocarpum, should be in the middle, and pyracanthum and robustum in the outer line. Those having to do sub-tropical garden work, and stinted as to room in which to winter large plants, will find in these Solanums a ready way out of a difficulty, as they can be raised from seeds so easily, and are as effective as many of the rarer sub-tropicals. They require a rich, well-drained soil and plenty of water all through the early part of the season.

GENERAL WORK.—Propagation should now be proceeded with as opportunity offers. Pelargoniums have made rapid growth of late, and there are plenty of cuttings, but they should be taken off carefully in order that the beds may retain their effectiveness after the cuttings have been selected. Our best bedding kinds are scarlet—Bonfire, John Gibbons, and Vesuvius; pink—Master Christine, Lady Byron, and Amaranth; rosy crimson—Walther Seedling; light purplish crimson—Lord Palmerston; white—Madame Vaucher, still the best. Our best fine foliaged kinds are Sophia Dumaresque, Maréchal McMahon, May Queen, Mrs. Laing, and W. F. Radcliffe; others equally good might be named, but these are the best for general bedding effect, and it is much better to grow a few reliable varieties than numerous doubtful novelties. Flower beds need repeated going over and the removal of bad and seeding flowers. Violas and Calceolarias, generally the first to succumb to heat and drought, never fail, even on our light dry soil, and the only reason, next to having good supplies of water, why they do not is that old flowers are regularly picked off them. The same rule is applicable to all free flowering plants. To keep Lobelias in full blossom we occasionally clip off a portion of the tops with sheep shears; the plants at once throw out fresh shoots, and thus the flowering season is extended. Of course such work requires to be done cautiously and with discernment, taking care that sufficient flowers are left to last till new ones make their appearance. Fine foliaged plants in beds of geometrical design now need going over once a week to keep the outlines true to pattern, but though this is advised, it must not be supposed that evenness of plants or table-like flatness is meant, but rather that the plants should be allowed to grow naturally; the effect is then much more pleasing, and the labour needed to keep them in order less. In such beds we always use what—for want of a better term—we call “dot” plants, and these are kept in shape by ties, stopping, or curtailment of growth, according as the character of each demands. Our

best plants for such a purpose are *Grevillea robusta*, *Chamepeuce diacantha* and *C. Casabonae*, *Abutilons*, *Fuchsias*, small *Dracenas*, *Aloes*, and *Agaves*. The best basket or large vase plants of the season are the single *Dahlias* and *Marguerites*—white and yellow. Of the former *Paragon*, *Alba*, and *Juarez* are three of the best; their flowers, unfortunately, do not last long, otherwise such plants are a great acquisition. Tying up these and tall sub-tropicals are also just now important items of labour.

INDOOR PLANTS.

It is necessary now to attend well to the general stock of winter-flowering plants. These are mostly quick growers, and as the roots fill the pots which they occupy, it is needful to supply the soil well with manure water, otherwise the strongest growers are sure to suffer. If the propagation of the various plants, such as *Begonias*, *Salvias*, *Euphorbia jacquiniæflora*, *Poinsettias*, *Eranthemums*, *Plumbago rosea*, *Thysacanthus rutilans*, *Sericographis Ghiesbreghtii*, *Aphelandras*, &c., was carried out at the time recommended and due attention has been given to them since, the greater portion will be fast approaching the requisite size, after which in most cases they should have more air, less shade, and a somewhat lower temperature, so as to discourage exuberant growth, and to solidify and mature that which is made. There are some things amongst winter-flowering plants, such, for instance, as *Poinsettias*, which, if started sufficiently early to get them big enough before cold nights come on, are none the worse for being kept a few weeks in an unheated house or pit, or even in the open air for the last two or three weeks in August if the weather is warm. The finest heads of *Poinsettias* we ever had, 20 in. in diameter from point to point of their bracts, were from the previous year's struck plants, headed down in the beginning of April, and grown on in good-sized pots with single stems, which, when they had reached a height of from 4 ft. 6 in. to 5 ft., were turned out the beginning of August under a south wall and kept there until the end of the month. They were then taken inside and subjected to heat by the middle of September. This treatment stops all disposition to make further growth, and has the effect of hardening the tissues and enabling the plants to concentrate all their energies in the production of flower-heads. For general purposes medium-sized heads are the most useful, but where employed for the decoration of a large structure, large heads have a most telling effect; to secure them the plants must be both tall and proportionately strong, and have all their strength directed to the production of a single head. The majority of these winter-flowering subjects are comparatively little liable to the attacks of insects, yet care must be taken that red spider or any other pest which will thrive upon them is not allowed to go on unchecked, or the appearance of the leaves, as well as the flowering capabilities, will be seriously affected.

SUMMER-BLOOMING HEATHS.—These may consist of such as flower through June and July. Immediately the flowering is over remove the dead flowers, so as to stop the production of seeds, which sadly tax the energies of the plants and impede growth. Vigorous healthy plants treated as here advised will often produce a perfect sheet of bloom year after year in succession; whereas if allowed to seed there is little flower, except in alternate years. Early in spring and sufficiently early in the autumn, say September, are the best seasons for potting *Heaths*; in many cases the latter is preferable, and wherever *Heaths* are at all cramped at the roots preparations should at once be made for repotting. All specimen *Heaths* out-of-doors should be looked over twice a day whilst the present dry weather continues to see whether they do not want water, and on the least trace of mildew becoming apparent at once supply sulphur. Winter-blooming *Heaths* should now be exposed to the full rays of the sun where they will get plenty of air, as on this depends their

growth being thoroughly matured. However full of roots the pots may be, it is not well to resort to the highly stimulating manures often applied in the autumn season to this section of *Heaths*, by which means extreme vigour and luxuriance is frequently gained at the expense of flowers that rarely are forthcoming proportionate to the growth where this over-exuberance exists.

ORANGES AND CITRONS.—These are best kept wholly under glass where means can be found to accommodate them, but where, as is often the case, they have to make way for other things in summer there is no course but placing them outside. This affords an opportunity of giving them a thorough cleaning from scale insects, to which they are so much subject. If time can now be spared an effort should be made to eradicate these pests. The plants ought to be well attended to with water, and if at all under-potted, and the foliage shows, by assuming a yellow hue, that the soil is poor, manure water should be given. Any plants of this family about which there is the least doubt that the drainage of the pots or tubs which they occupy is at all defective should at once have means taken to rectify the evil, otherwise the soil becomes sodden and the roots are certain to perish.

PELARGONIUMS.—Plants of the early-flowering kinds, such as are now so extensively cultivated by the Covent Garden Market growers, and also the earliest bloomers of the show and fancy varieties that were cut back a short time since, and which have now broken, should at once be shaken out and repotted, removing most of the old soil and somewhat reducing the roots. They ought to be placed in pots a size or two smaller than those in which they have flowered. It is well to remind beginners that this section of the *Pelargonium* family requires to be harder potted than soft-wooded plants generally, for unless the soil is rammed hard with the potting lath, so as to make it quite solid, it holds more water than the roots can bear during the winter months, as the young feeding fibres, especially of the fancy kinds, are extremely sensitive of anything approaching a wet, spongy condition of the soil, and the strongest growers amongst the large-flowered sorts always run over much to leaf if the soil is in a condition to hold much moisture. As soon as potted place the plants in a pit or frame, where they can be kept close for a week or two, until the roots have begun to move, but they must also be where they will get a full share of light, otherwise the young leaves will be drawn, a state which must be carefully avoided. Head down such as have been kept on flowering the latest as soon as the wood has got hardened up by exposure in the open air in the way recommended for the earliest batch, first letting them get quite dry at the roots.

MIGNONETTE for late spring flowering is best grown in small pots, say 6 inches or 7 inches in diameter. Half a dozen seeds should be sown in 4-inch or 5-inch pots, sufficiently drained and filled with good loam, to which has been added a little sand, leaf mould, and rotten manure. The pots should then be placed in frames, raising them near the glass, and keeping them close until the seed has vegetated, when the lights ought to be removed so as to keep the plants short and stocky; they should be thus exposed until there is danger from frost. When so treated they will be in the best condition for standing the winter.

POTTING SOILS.—This and the next month are the best for securing peat and loam for the ensuing year's potting. At first sight it might be supposed that soil for such purposes could, with equal advantages, be dug at any time, but this is by no means the case; the fibrous matter furnished by the roots of the native plants, *Grasses*, and *Ferns* that occupy the land from which the turf is dug is a most important element in potting soils; such as possess this fibrous matter in the greatest quantities are immeasurably the best for by far the greatest number of plants. When collected it should be stacked in the open air; on no account put it into sheds or under a roof of any kind, except a short time before use, as where thus placed out of reach of rain it gradually gets

dried up unnaturally, and when reduced to this condition a great deal of its fertility is irretrievably lost. Where peat and loam have been subjected to an unnatural drying process we have found that the plants afterwards potted in them invariably failed to thrive as they ought to have done.

KITCHEN GARDEN.

WE are now very busy with the first Mushroom beds for autumn bearing. We generally have our beds in some out-of-the-way place, as they are anything but ornamental, and the site is allowed to grow wild during the summer, except that we mow down the weeds to prevent them from seeding. The object is simply to get a semi-turf to consolidate the manure, as at this season the manure gets dry. We first adze up the turf and put it to the manure, then add turf, watering at the same time with strong liquid manure, making all solid as the work proceeds, turning it about twice or thrice, when all is ready for building the beds. Spinach should now be sown, also Cauliflowers, and we do not like our *Tripoli Onions* to be late. Cabbage and Lettuce should have timely attention. Take especial note that Celery should not be allowed to flag; give it good soakings of water, putting the spout of the can close to the surface to prevent any scalding. All late Peas should also be mulched and well watered; if a little manure water is at hand mix a pailful of it with 36 gallons of clear water; this will add to the welfare of the crop. Leeks and all strong feeders must have due attention, otherwise the crops will be lost. Young seeds now just up should be hoed as soon as the plants indicate the rows; this hoeing has a tendency to keep off slugs or other vermin. If you make the leaves distasteful, and by hoeing cause a certain amount of grit to stick to them, you will find that they will not be troublesome. Keep all garden walks clean and trim.

KITCHEN GARDEN.

SOWING ONIONS IN AUTUMN.

AUTUMN-SOWN *Onions* form such an important crop, that the proper time for dealing with it should not be allowed to pass unnoticed. In sowing, sufficient seed should be put in to produce plants enough to draw young and use as salad throughout the winter, besides furnishing a supply in April and May next when the previous year's *Onions* are generally scarce and new ones not ready, and last, but not least, a good number of plants should be raised to transplant in the spring and grow on throughout the summer or until this time, when they will become large and handsome in size and valuable for any purpose for which large *Onions* are required. For exhibiting throughout May, June, and July there are no *Onions* so fine as autumn-sown ones, and all who are interested in such matters should do their best with them. Amongst *Onions* of this kind we have had bulbs by the end of June weighing 1 lb. 4 oz., and handsome in proportion to their size. The *Tripoli* and *Giant Rocca* are the kinds most commonly sown in autumn and the white-skinned varieties always come to maturity first; but for a really good sound autumn *Onion* nothing equals the *Giant Zittau*, and it is one of the hardest to stand the winter. The bulbs grow to one and a-half pounds in weight, and are as fine in shape and as handsome in appearance as any *Onions* I have ever seen. They are pale yellow in colour; we have sown more seed of it this autumn than of all the others put together. Twelve of this *Onion* put into the scales just now weigh a little over twelve pounds. From now onwards it will keep as long as the *Banbury*, *Reading*, *White Spanish*, or any other of that type, and this is more than any of the other autumn-sown kinds will do.

ONION GROUND cannot be too well prepared. It should be deeply dug, heavily manured, and well exposed to the sun. It is a waste of everything to try to grow *Onions* on poor shady soil, and wherever there is a suspicion of any grubs

existing that ground must also be avoided, as although the plants may come up and do well for a time, the grubs are sure to attack them, and just when the plants are becoming useful they perish. Ground which has been repeatedly heavily manured of late, and now very rich, might seem suitable for Onions, but I would think twice before I consigned the seed to such a spot. Very rich ground is just the sort in which all kinds of maggots generate and thrive, and unless a large quantity of lime, soot, or salt was dug into it, the Onions would be sure to perish. Last spring we put the contents of some earth-closets on our spring-transplanted Onion ground, and this is still rich with material in which Onions delight, but I know it is maggoty; and, suitable as it would be for another crop of Onions, we will not risk the autumn seed there. On the contrary, we are sowing it on one of the poorest pieces of soil in the garden, from which has recently been cleared a heavy crop of Cabbage. When these were thrown away the soil was really too poor for grubs to exist in it, and the liberal quantity of manure dug in just before sowing was well incorporated with soot and salt, and we have not the slightest doubt that our Onion crop will have grown and been matured before any pest has found its way into the soil to any injurious extent. Row after row is the best of all ways of sowing Onions now. They should be at least 12 inches from each other, and as soon as the plants are large enough to draw for use only those from spots where they are much too close together should be taken. As time goes on and

TRANSPLANTING TIME comes round in spring, a regular thinning should take place, and the plants should be left standing every 6 inches or 8 inches apart in the rows. These will become largest early in the season, and in the kitchen will be found most useful with which to begin the Onion season. CAMBRIAN.

EARTHING UP CELERY.

As the time is again at hand when Celery will require earthing up, a few hints on the subject may be acceptable. There is nothing at all to hinder anyone from growing Celery in any kind of garden, as abundance of manure and plenty of water will always produce stems and leaves, but it is quite another matter turning it out of the soil in first-rate condition after it has been earthed up two or three times and for a number of weeks or months. Before beginning to earth up, the stems are always clean and free from worm and slug marks, but when earthed up and blanched it is astonishing what a quantity of Celery turns out rusty, worm-eaten, and pithy. Now in the best of gardens, and under the most practical of men, Celery will become thus affected in exceptional times, but such blighted Celery should never be produced year after year. When this is the case it undoubtedly shows ineffective culture, and, above all, imperfect earthing up. In some soils grubs are more plentiful than in others, but Celery should never be planted where they are abundant, but, putting this aside, precautions against vermin should be taken before earthing up in any or all soils is commenced. Two or three days before earthing a sprinkling of salt should be thrown along each side of the rows and on the top of the soil, which will be used for earthing up, and just before beginning to use this a quantity of soot should be scattered amongst the plants; this should be done before each earthing up.

WHEN TO BEGIN EARTHING is a question easily answered. The first earthing should take place when the plants are about 18 inches high. At this time it will be found that besides the principal leaves there are a good many short ones growing on the outside. These are of no use, and should all be removed; when this has been done each plant should have a slight piece of matting tied round it near the top of the leaves to keep them firmly together, and then earthing up may begin. The soil on the sides of the trenches nearest the Celery should be broken down with the spade, and it must be made quite fine before applying it to the plants. In doing this the heaviest part of it may

be put between the stems with the spade, but the hands only should be used for pressing it about the plants. This should be done with care, and no particle of it should be allowed to go between the leaves or into the centre of the plants, as this would spoil them completely. The cleanest part of the stems of the leaves should be covered over with soil, but it should not be heaped up on them so far as to be liable to fall into the centre. Rather than do this it is better to earth up more frequently, repeating the process just described. It is only at the first earthing that the small-sized leaves require to be taken off, but the plants should be tied up each time, and the ligatures should be removed after each earthing. Where there is a large quantity of Celery to earth up the work can be done better and faster when two people are employed at it—one to break the soil and the other to put it around the plants. In some cases Celery is earthed up with finely sifted ashes, and these blanch it well and keep it nice and clean, but it is a more expensive way of treating it than using the most convenient soil, and is generally only practised in the case of Celery for exhibition. J. M.

ASPARAGUS BEDS IN AUTUMN.

MANY cultivators, especially of small gardens, give the best and ample attention to their Asparagus beds and plantations in spring and throughout the early part of the season, but when autumn comes round care is relaxed, and, as a rule, the beds become an intricate mass of weeds. A weedy Asparagus bed is no uncommon thing; indeed, very often the Asparagus quarters are the dirtiest in the garden, as for some reason or other weeds do grow more luxuriantly in them than anywhere else. All the more attention therefore should be devoted to weeding and hoeing them, and it is work of this kind which should not be neglected on any account at the present time. It is too often the case that when growth seems to be stopped it is considered that no further attention is needed, but after full growth comes the ripening, and in the case of Asparagus in particular this is of the utmost importance, as no matter how high and finely developed the stem may be, unless the successional crowns are thoroughly matured in autumn, the plants will go backward in the ensuing year and will fail to give satisfaction. We frequently force Asparagus roots in November, and it is astonishing how freely they yield to warmth at that unnatural season; we have indeed cut good heads in three weeks after the roots were lifted, but I am of opinion that success is mainly due to having the crowns thoroughly ripened. To ensure this being properly accomplished, the surface of the ground around the crowns should be kept perfectly free from weeds, and the Dutch hoe should be carefully used now and then to open and loosen up the surface. If thoroughly cleansed now, weeds will not grow rapidly afterwards. If inclined to take possession by-and-by, this should be prevented, as the crowns cannot become properly matured unless the surface is kept clean until the stems have completely died down. J. MUIR.

Bare earth in gardens.—Although it may be desirable in some cases to cover bare earth for the sake of neatness or for mulching during dry hot weather when it is often necessary to shade the soil for the sake of the roots and to keep in the moisture, there can, I think, be no question that the ground at other seasons is best exposed, as we all know how beneficial sun, light, and air are in ameliorating and sweetening soil, which, when kept from the influence of these several agencies soon becomes inert, close, and sour, a condition highly unfavourable as regards the welfare of plants. There are, however, many plants like the Sedums, Lycopodiums, and others that do little harm when used for carpeting, as, being surface rooters, they are not great robbers, neither do they obstruct the air much. As to covering the boles and stems of trees with Moss and Lichen, nothing can be worse for their health. What I like to see with trees is the bark clear of

everything of the kind, and bright and polished looking, and if not so, we sometimes give them a scrub, and soon find them all the better for the trifling labour which such attention involves. Latterly, however, we have saved the time such work entails by burning a little sulphur under our wall trees when naked in winter, and I am very pleased with the result; not only does it free them from all Moss and Lichen, but stifles and destroys scale and other insects that may be lurking upon them.—J. SHEPPARD.

LILIES AND OTHER GOOD THINGS.

I ENJOYED a feast of these the other day in the quaint old English garden attached to the rectory at Bingham. Unfortunately, the inspiring genius and chief of the garden, Mr. Frank Miles, was absent. But Mrs. Miles inherits, or more probably is the author of, his love of Nature, and seems to stand sponsor to his pets in his unavoidable absence from his paternal home in pursuit of the higher and kindred art of painting, in which he has won such honourable fame. It is impossible to conceive a more congenial home for an artist than Bingham. The garden seems a poem, the house a picture, to which each member of the family has apparently contributed their various quotas of light or shade; and the output is a peaceful, restful, beautiful home, in which art and Nature meet together, and, as it were, melt into one another. But Bingham hardly needs introduction to your readers. Vivid pen and pencil sketches of some of its choicest and best plants have not seldom enriched these pages. Still, it is impossible to judge of either gardens or pictures piece-meal. Tit-bits culled here and there may be very choice and beautiful; the form may be perfect, the colour brilliant; still they are but fragments. The charm that enchains us most in either picture or garden is born of that touch of genius that moulds and combines, contrasts and harmonises all the perfect parts into one yet more perfect, complete, and satisfying whole. I must confess that it was this unity of expression amid an almost infinite variety of detail that affected me most powerfully and pleased me most at Bingham. Nature seemed in everything and everywhere to reign with such apparent and absolute liberty, as to conceal the art that obviously underlaid and to some gentle extent restrained her waywardness and reined in her freedom. The predominance of Nature was obvious at a glance; the art was so subtle as to almost evade detection. It is well to bear in mind that

MERE TRIMNESS IS NOT ART any more than geometrical lines form a picture, and hence the easy flowing grace of the natural style is far more artistic than the rigid formality of, say for example, carpet bedding. It would almost seem as if some writers confounded the two words, artificial and artistic; whereas the more artificial, the less art, as a rule, and *vice versa*. Art may be said to reign supreme in this garden, not only in its form and disposition, but in the mode of its furnishing; for example, the richness of the feast of Lilies was greatly enhanced by the mode of their arrangement. Taking broad views and writing in general terms, the foundation of the feast was laid with white Lilies. These overspread the greater part of the garden, forming a ground colour of spotless purity, on which the more rare species were splashed in, like islets of brightness and beauty on a silvern sea. And such happy contrasts and skilful correlations of parts to wholes pervade the entire garden. No part or class of plants, however beautiful, seems to be left to stand alone. Each family of plants is linked on, as it were, to that which preceded it, and also to that which follows after; the beauty as well as the life is thus as far as possible made perennial, perpetual. Each series of plants as they are marshalled in in orderly succession nurses, strengthens, brightens the effect of, and prepares the way for those that are to follow. Thus light and shade, ground or neutral tints, and brilliant masses of colouring are seldom wanting in such a garden. It is thus that the true artist makes use of each series of plant life to give new

forms and fresh colouring to the living picture that his genius is forming in the garden instead of painting on canvas. One of the faults as well as the perfections of the latter is that, however beautiful, it must necessarily be stereotyped—finished. But the garden picture changes almost every day throughout the year, and he is the truest landscape gardener, be he painter, poet, or horticulturist, who can so form and furnish a garden that it shall provide a feast more or less full of perpetual beauty to enchain the eye and satisfy the heart all the year round. Probably few gardens would do all this more effectually than that of the old rectory garden at Bingham. And yet in itself and its surroundings it is most common-place—a flat quadrangular piece of ground, tolerably well furnished with trees, consisting of lawn, kitchen garden, orchard, flower garden, and a small pond, with not a single object of interest beyond its boundaries but the tower of the church close at hand. Neither is there any attempt to counteract, by artistic forms of flower beds or borders, or highly finished furnishing, the humdrum character of its surroundings. A couple of raised beds on the little lawn in front of the drawing-room windows, formed into different zones, with tiny walls of the common wood Ivy, furnished on the mixed style, the chief and most conspicuous plants being very fine ones of the silvery variegated Coltsfoot, with a raised bank behind, form what may be called the flower garden proper. And yet the richest flower garden is not there. It is spread along each side of a long walk that proceeds from the rectory with a gentle sweep towards the nuttree and orchard, and may be said to terminate at the pond. The border on either side is about 6 feet wide, and is backed up with a rustic trellis over 7 feet high, covered with Clematises and Roses chiefly. Among the former are several American species, the all too seldom seen *C. Viticella*, *C. alba*, *C. grandiflora*, and *Flammula robusta*. Clematis Sieboldi, still one of the most striking, also formed a conspicuous feature with *Jackmanni* in rich variety.

THE ROSES were mostly old favourites, with the exception of the comparatively rare species *Brunoniana*, which, though seldom seen, was introduced from Nepal in 1882. Among the others we noticed the pink *Gloire de Dijon* or *Gloire de Bordeaux*—admirably adapted for such positions. The flowers, though they never equal in fulness the common form of *Gloire de Dijon*, improve very much in the autumn, and contrast admirably with it on the trellis. Charles Lawson, the climbing forms of such good Roses as *Jules Margottin* and *Victor Verdier*, &c., were conspicuous for their vigour and beauty. This rich clothing or screen of climbers allowed to ramble with comparative freedom is not only exceedingly beautiful in itself, but is most useful in adding, as it were, a second cordon of shelter to the choice herbaceous plants and bulbs with which the borders are furnished. So complete and thorough is the shelter provided by this screen and the trees, walls, or other buildings beyond, that it is almost impossible for any rough winds to reach the plants. These snug borders, with a few beds and patches here and there in cosy nooks and corners, provide the base lines for the display of the botanical and floral wealth of Bingham. A casual visitor can gain but a meagre notion at the best of the richness and variety of the floral treasures that are either flowering in season, resting after their heyday of beauty is over, or opening their eyes to succeed those that are fading beside or above them. Such borders are like rich mines—the more deeply and persistently worked the richer the treasures they yield.

The forest of labels throw some light on the number and variety of the buried treasures. But as one reflects how each square stick represents a family, serious reflections on overcrowding, struggles for life, the survival of the fittest—that is, the strongest—flash through the mind. Every part of the garden, even the pond and its banks, are fully furnished with plant life. And of plants of all descriptions it may truly be said the cry is "Still they come;" so that, closely packed as the flower borders now are, they will probably be

fuller still in the future, unless, indeed, the whole kitchen garden become appropriated, which seems probable enough, seeing that the work of propagation is proceeding at express speed in all directions. Why, I saw seedling *Hepaticas* alone sufficient to fill an entire border. And the same may be said of *Hellebores*, or Christmas Roses, of which there is an extensive collection of seedlings and named sorts, the latter including most of those in cultivation.

In and out of doors, too, in all directions are pots and tubs with seeds of or seedling *Nymphæas* and other rare water plants, including a cross between *Nelumbium album* and a Japanese species. There are besides the common Water Lilies about ten or twelve species, all hardy, with several hundreds of seedlings. *N. alba rubra* and *tuberosa* were nicely in bloom at the time of my visit. Lilies raised from scales and seeds also abound. The Golden Lily (*auratum*) succeeds well in this way, almost each scale becoming a bulb. Among the finer Lilies seen at the time of my visit, among masses of the beautiful white *candidum*, were *L. monadelphum* in variety, *Turk's-cap* or *Martagon* in variety especially, the magnificent *dalmaticum* with flowers almost double the size of the common *Turk's-cap* and a darker colour; *L. chalcedonicum*, or scarlet *Turk's-cap*, very telling over or among the common whites; *L. Hansoni*, rich golden with carmine spots; *L. californicum*, *L. polyphyllum*, with very long and striking flowers; *L. aurantiacum*, *auratum*, &c., in variety; and, perhaps most striking of all, *L. Washingtonianum*, with pure white, fragrant blooms 3½ in. across. This is a fine tall Californian Lily which has flowered for the first time at Bingham in perfection this year. The flowers are pure white at first, and change to blush and purple as they get older. There is also a semi-purple variety of this fine Lily named *L. W. purpureum*.

Among the other more conspicuous bulbs in flower at the time were many choice *Alstroemerias*, chiefly *Van Houtte's* seedlings; also the remains of a rich collection of *Irises*, several of the Japanese or *Kämpferi* growing in, or close to, water—not the pond in which the true aquatic species abound. Among other fine species were *I. gigantea*, *I. Monnieri*, &c. Among other striking plants were the too seldom seen *Delphinium cardinale* and choice seedlings of *Lemoine's* of the *D. formosum* section, *Spirea Aruncus*, *S. japonica*, *S. palmata*, *Aconitum album*, *Phloxes*, *Campanulas*, *Funkias*, *Lysimachias*, *Asphodels*, &c., of many species and varieties. An interesting collection of single *Dahlias* and a very pale variety of the common *Sunflower* were also found near the end of the border or in groups detached from it.

Glancing under the surface, we find hosts of *Scillas*, *Snowdrops*, *Sisyrinchiums*, *Anemones*, *Fritillarias*, *Narcissi*, &c., all found ready to give a good account of themselves in the early spring-tide. About thirty species and varieties of *Fritillarias*, including some very rare species, are grown, and about 100 varieties of *Narcissi*. These alone must form a feast as rich and sweet as that of the Lilies in the late summer and autumnal months. Altogether, Bingham garden is the best combination of what, for lack of better terms, may be called wild and tame gardening that has come under my notice. The almost unchecked luxuriance of most of the plants but added to the effect, and proclaimed to all beholders that there at least the plants, and not the hard and fast laws of the trim cultivator, were masters of the fortunate bit of earth they so fully filled and so richly adorned.

D. T. FISH.

Fungi (*L. H. Dunston, Norwich*).—The fungus sent is a sort of Puffball named *Scleroderma vulgare*; it is not edible. We cannot say what the fungus of the Aberdeenshire Pine woods is without seeing an example. It is not very likely to be the common Mushroom, as that grows in pastures, not in Pine woods. The spawn of the Aberdeen fungus might probably be transferred with success from Scotland to Norfolk. It probably, however, already grows in Norfolk.—W. G. S.

FLOWER GARDEN.

THE ANDROSACES.

THESE are amongst the most charming of our alpine flowers, and are eagerly desired by all who value these interesting plants, while their interest is somewhat increased by the difficulty experienced in growing some of them. As in my limited space I am obliged to content myself with a selection of plants, I have chosen three or four, and I append a few notes on them, and should be obliged also if any of your correspondents could give me information on one or two points on which I am at sea.

ANDROSACE SARMENTOSA has been lately introduced from the Himalayan Mountains, and its foliage is a remarkably pretty plant, especially in the winter months, when the silvery grey rosettes of leaves make it look almost like some of the *Sedums* or *Sempervivums*; it is, moreover, one of the easiest grown of the species, the plant forming rapidly spreading stoloniferous racemes. My plant, which two years ago was simply one of these rosettes, now covers a space of a foot square, and is in most vigorous health, but I have been for all that previously disappointed in it. I have not had any bloom on it this year. I had one tuft of bloom last season, and was hopefully looking forward to a pretty display of its rosy pink clusters of bloom, but they have not made their appearance. My plant is growing in sandy loam in a position well exposed to the sun, and is a perfect picture of health. Can anyone give any reason for its not flowering, or is this its usual character?

ANDROSACE LANUGINOSA is another Himalayan species, and, like the preceding, easy of cultivation. It is not like the European varieties (dwarf), but spreads out with long branching stems, and is well adapted for planting on a slightly elevated spot in the rockery, where its branches can hang down over the stones, and where it produces its delicately rose-coloured flowers. The leaves are covered with long silky hairs, giving the plant altogether the appearance of a dwarf species of *Stachys*. I have found it easy of cultivation, but it is one of those that require the foliage to be covered with a piece of glass or a small hand-glass in winter, as it is liable to be affected by wet and to damp off. As the *Androsaces* are closely allied to *Primula*, they require about the same kind of soil, and in the sandy loam of my rockery they do very well. It has been suggested that cold is injurious to this plant, but I think it more likely that, as with many alpine flowers, it suffers more from wet; but perhaps some of your correspondents who live in colder regions than I do (Kent) will be able to say how it does with them.

ANDROSACE CARNEA.—This is one of the most charming of the genus, although some difficulty has been experienced in growing it. I met the other day a gentleman who was introduced to me as a great lover and successful grower of alpine plants. He informed me they were the easiest things to grow possible. This made me rather doubtful of the success he was said to have achieved; and as there are a few plants which I look upon as test plants, I asked him did he succeed with *Gentiana verna*. "No." What about the *Androsaces*? "He had not grown any of them." I therefore concluded it was of no use pursuing my investigations any further. I imagine that with this, as with others, the changeable character of our winters, alternate wet and frost, is injurious to its well-being. My plant of it is on an exposed portion of the rockery under the shelter of a large stone, and there it seems to be at home.

ANDROSACE CARNEA VAR. EXIMIA, which has of late been re-introduced to our gardens from Auvergne, is, I think, hardier and more easily grown. The foliage is somewhat different, but the flowers seem to be like the type, being of a rosy crimson colour with a yellow eye. My friend Mr. Hammond collected it last year on Mont d'Or, in Auvergne, and has found it to do well with him on all parts of his rock garden; its foliage is appa-

rently more rigid than the type, and perhaps is better able to resist wet.

These are the only species that I have grown. I tried *Androsace villosa*, but did not succeed with it, but mean to try again, as it does not seem to be a very difficult one to grow, and its white flowers are very pleasing in contrast with the others. By-the-by, in looking through Froebel's catalogue I do not see either *carnea* or *carnea eximia*. Why is this? for the former is very frequently to be met with in the Alps and Pyrenees. Are there any other of the genus than those named which any of your correspondents would consider ought to be grown where space is limited? DELTA.

CONVOLVULUS TRICOLOR ROSE QUEEN.

THERE are now nearly a dozen distinct colours to be found in the varieties of the old *Convolvulus tricolor* or *C. minor*, as it is more frequently

time of flowering, and the shape of the bulbs are all different. It is a much taller grower, being 3 feet to 4 feet in height, while *L. elegans venustum* is about a foot. The leaves are long and slender, and the bulbs distinctly flattened, so much so that it is easy to distinguish them from those of any other kind. Again, *L. Batemanniae* does not succeed with me in pots, as the foliage persistently dies off, while the smaller Lily does well under such treatment.—H. P.

PINKS AND PANSIES AT EDINBURGH.

PINKS.—“A new departure” respecting these has been made by Messrs. Dicksons & Co., Edinburgh, who have gone in for hybridising the border varieties with such success that a race of seedlings may now be seen in their Pilrig Nurseries, the beauty of which it would be difficult to overrate. Everything that may be required for exhibition purposes,



Flower-stem of Convolvulus tricolor Rose Queen.

called, all of which are beautiful, but there are one or two new sorts in which they are particularly so. These we lately saw at Messrs. Carter's seed farms at St. Osyth. One was named New Crimson Violet, the colour of the flowers being that represented by its name—a charming tint and quite distinct from all the rest. Another new one was Rose Queen, the subject of the annexed woodcut, the flowers of which are rose with a pure white centre, and fringed with purplish violet shading off to yellow. It is an extremely pretty variety and one of the showiest of hardy annuals. In habit it is dwarf and dense and very floriferous. A third new and beautiful sort is *elegans*, a kind with flowers of an intensely rich purple with light centre. In a selection of annuals these should not be omitted.

Lilium Batemanniae.—Among the later flowering Lilies this stands out very distinctly, being in full bloom while the beauty of the *davuricum* and *elegans* section is over. The flowers, which are of a deep apricot colour, are entirely unspotted. They are open and cup-shaped, and bear a remarkable resemblance to those of *L. elegans venustum*, but the habit of the plant, the

as to “points,” is contained in this new strain without any drawbacks, such as paper collars, staking, or tying up refractory blooms. Nearly all the varieties are of dwarf, compact habit, with short, much-branched flower-stalks. Amongst them may be mentioned *Multiflorus*, Mrs. Grieve (certificated last week at Glasgow), Tom Welsh, Pilrig Park, Miss Owen, and Mrs. McKellar. The last named of these is so striking, that it might be described as black and white. These vary in size of bloom from 1 inch to 3 inches in diameter, are very double and regularly marked, besides being so floriferous as to be styled perpetual flowerers, yielding as they do masses of fragrant bloom from July to September. There are among them a large number of excellent seedlings, semi-double, which for beauty cannot be surpassed. We have heard a good deal lately about the charming white *Clove* Mrs. Sinkins, but, if I mistake not, here is a seedling to equal, if not to surpass it. It is more vigorous in habit, bears blooms $2\frac{3}{4}$ inches in diameter, and of pearly whiteness; its petals are regularly imbricated without that tendency to greenness noticeable in the centre of Mrs. Sinkins, and to be able to count six fully expanded perfect blooms on one stem without even a sign of a rup-

tured calyx is a great point in favour of this new white seedling.

PANSIES.—Improvement in these is not now so rapid as in the case of Pinks; hybridisation has been carried on by noted growers to such an extent that little has been left to be done; nevertheless, Messrs. Dicksons have some beds of seedlings which contain new Wallflower or mahogany-hued flowers of excellent quality and substance. It may not be out of place to suggest to amateurs how easily the love for these beautiful flowers may be fostered by raising seedlings, and if only one or two really good ones are produced in each batch, they will amply repay all trouble. After having carefully selected two Pansies or Violas, or one of each, cross-fertilisation is best insured by bending the lip or lower petal gently downwards, and then removing it, reserving only the claw or petal stalk to which the male or pollen germs will be seen adhering. We now have Pansy No. 1 divested of its lip, and proceed to repeat the operation on No. 2. The next process is to change one claw for the other, and push it as far back as possible into the vacant place. In nearly every case the pressure of the adjoining petals suffices to keep the claw in its place until withered and cross-fertilisation is ensured. It is in order to prevent wind having too much hold that the broad part of the petal is torn off and dispensed with. A piece of bast tied to the flower-stalk marks it for preservation until ripe, and care must be taken to gather the seed-pods when brown and before they open. Lay them on large sheets of paper turned up at the edges; in a few hours they will spring open if exposed to sunlight. Placing them, pods downwards, in a narrow wine-glass is a good way of catching the seed. We thus have from one operation two seed-pods of quite different seeds. For example, suppose Pansy No. 1 to be a yellow self crossed with a purple self, and Pansy No. 2 *vice versa*, the results of No. 1 might be yellow with purple markings, and No. 2 purple with yellow. Pansies may be kept in bloom until frost comes by clipping off all dead and dying blooms, and not allowing them to seed; but unless they are mulched with rich, old manure or treated to a weak solution of liquid manure occasionally, the blooms get so small as to be almost worthless. When large blooms ($2\frac{1}{2}$ inches and 3 inches in diameter) are wanted, all flower-buds should be clipped off a few weeks before the large blooms are wanted, and then the plants should only be allowed to carry a limited number. In the south of England it is difficult to get such a show of bloom as may be seen in the much cooler north, yet by planting a selection of good fancy Pansies in a semi-shady spot and only ordinary care used in their culture, a rich mass and a great variety of colour may be obtained even in southern counties. Pansies, to be effective, must, however, be used in a tasteful and natural manner, and in quantities proportionate to the size of the garden in which they are planted. In reference to this point Phillips (“*Flora Historica*”) says: “To imitate the serpentine windings of large plantations in small gardens is scarcely less ridiculous than it would be to use heroic strains in writing an epitaph on a cock-robin, and it discovers an equal want of judgment and good taste when we see large grounds frittered into the trifling minutiae of a *parterre*, displaying hearts and diamonds where Nature ought to appear as if at liberty to sport in all her gay, luxuriant frolics.” R. A. H. G.

THE HOLLYHOCK.

OUR Hollyhock plants, now in full bloom, remind us that the summertime is over, and that autumn is at hand. Owing to the disease with which Hollyhocks have been attacked, we had not been able to grow a collection of them for some years, but we have again made a start, and they have certainly well repaid us for our trouble. Seedling raising has not been at a standstill, that is certain. The best of the modern flowers are of the very largest size, perfect in form, and rich and varied in colour. The first to open with us this season was a pure white variety named *Cygnets*. The

lower flowers opened 18 inches from the surface of the ground, the stout stem running up 9 feet 6 inches, thus giving quite 8 feet of flower-stem. Merry is a pleasing rose-coloured flower, large and full. Walden Queen, a clear rosy peach-coloured variety, forms a noble spike. Champion (Downie) is one of the very finest we have. Its flowers, which are arranged very closely on the spike, are rich crimson in colour, large, and quite full with distinct guard petals. Frank Gibb Dougal is the finest purple we have. Its flowers are not quite so full as those of some of the others, but they are very large and of good form. Robert Ryle, sent here by Mr. Oliver, gardener to Lord Ravensworth, Eslington Park, is a very fine kind. Its flowers are clear reddish rose, perfect in form, and the habit of the plant is good. It is certainly the best I have seen of its colour. These are the finest sorts now in flower. We are now propagating young plants from single eyes taken from the side growths; the eye with the leaf cut off, but with the leaf-stem attached, is inserted in a small pot, using fine sandy soil. The young plant soon pushes through the mould, and forms roots freely with the aid of a little bottom heat. We pot on the young plants as they require it. Cuttings may likewise be found near the base of the plants, which also form roots in a hotbed. If seeds were sown now in heat, they would soon vegetate, and could be pricked out and encouraged to grow in a cold frame; they would form good flowering plants for next season.

J. DOUGLAS.

SINGLE CHRYSANTHEMUMS.

THE showy and floriferous tricoloured Ox-eye Daisy (*C. Burridgeanum*) well deserves to be more generally grown than it is. It is a robust, hardy annual, attaining under fair treatment as to soil and room bush-like dimensions, and its flowers add greatly to the enrichment of any garden. When massed in borders or in large beds, it is strikingly beautiful. It endures protracted wet weather better than most annuals, and if the faded blooms can be removed once a week or so to prevent exhaustion, it will present a continuously gay appearance from July until destroyed by sharp frosts. It is easily cultivated; the seeds may be sown in May out of doors where the plants are to flower, but when thus treated they do not bloom so early as when raised and forwarded under glass; besides, great watchfulness and care are needed to keep seedlings of this description in the open ground from being devoured by vermin. We prefer, therefore, to sow under glass in boxes in April. Prick out the seedlings when large enough in a cold frame, and transplant carefully to the open ground at the end of May. A packet of seed will produce flowers of diverse shades and sizes, nearly all bright and effective. In a cut state we find them highly valued and very lasting. They may be a little stiff in form, but this can be improved by cutting the stems of different lengths and arranging them lightly by themselves, with a little supporting greenery intermixed.

Of a different class, and of greater value than the preceding, are the almost universal favourites, the Marguerites or Paris Daisies, *C. frutescens*, justly entitled to the term perpetual-flowering. These are alike useful in pots indoors in winter and spring, or planted out for summer and autumn display. For this purpose we like best the charming Etoile d'Or and the white variety, with finely cut, glaucous leaves. The blooms are borne more abundantly on this sort than on those with larger flowers, and the foliage alone is ornamental. We hear of these Daisies living through the winter in some favoured localities, but they do not do so here, and I think the least troublesome way of providing considerable numbers of sturdy young plants for bedding will be to take cuttings in October, and treat them precisely the same way as shrubby *Calceolarias* are usually propagated. We inserted a quantity last season in a cold frame set on a dry, firm bottom, on which were placed 5 inches or 6 inches of sandy loam, into which the cuttings were dibbled. These made much stronger and healthier plants

than those from cuttings struck in heat in spring. *Cranmore*. A. MOORE.

CARNATIONS FROM CUTTINGS V. LAYERS.

I HAVE always been taught to propagate Carnations by means of layers, and have for a good while followed that plan unhesitatingly; but the inconvenience and trouble of it, not to say its untidiness, have led me to discontinue it, and for that part I have never yet heard any reason assigned for the preference given to the layering system. By cuttings is twenty times easier and far more convenient. We have hundreds of Carnations all over the place, in beds and on borders and layering the stock there means many barrowfuls of compost and very tedious work, not to speak of the unsightliness of the hillocks patched by stones to keep the birds from pulling away the compost in their search for worms in dry weather. With us anything of that kind is at once scattered by the birds, as we are in the midst of woods. By cuttings, on the other hand, a barrowful or two of soil and one or two square yards of ground are all one wants in addition to hand-light tops or cloches, which are handier and cheaper. If, under these, cuttings are inserted in August or July, every one will strike, and make as good, if not better, plants than layers. They have only to be inserted, and the cloches put over them, and left on, and shaded in bright weather; but the cloches do not need moving for ventilation, as the cuttings need none under such circumstances—even with cloches without holes at their tops. After the cuttings are rooted, air should be admitted gradually, and in a few days the cloches may be taken off altogether. This is, indeed, the way to root mostly all hardy plants, and hardly one will fail. I put in some Carnation cuttings received in October last year in this way, and did not lift the cloche off once till April last spring, when the plants by that time well rooted, were transferred to the flower beds and are now in flower, but they are not so early or so strong as July or August put in cuttings of course. Cuttings rooted in this way may be left exposed all the winter where they were struck or potted up just as needful. Plants that have never been potted or nursed flower best, and hence it is a good plan to dibble cuttings in on the border where they are to grow and flower, and if these patches become too crowded, a portion of the plants can be transplanted in spring. I see the florists recommend layering for Carnations exclusively; would they kindly tell us why? Too much praise cannot be bestowed on the French cloche for propagating purposes.

J. S. W.

VEITCH'S VIRGINIAN CREEPER.

(AMPELOPSIS VEITCHI.)

THIS is undoubtedly one of the most valuable plants for covering walls which we possess, as it attaches itself thereto without any nailing or other fastening. The foliage, too, is a bright shade of green and very dense, and the plant is perfectly hardy. In a young state it is not very rapid as regards growth, but when once established its rate of progress is much quicker, the slender shoots, studded at regular distances apart with bright green leaves, pushing away several feet in a season. If it is desired to cover a wall, and the plants are of the size usually sold, viz., about a yard high, and slender in growth, they should be planted somewhat thickly, especially if immediate effect is required. In this latter case they may be put in about 18 inches apart, and secured to the wall by a few nails—a support which will be necessary till young shoots are produced, when they will attach themselves firmly to the bricks by means of the small sucker-like protuberances with which they are furnished. In this way, if large plants are removed, all that is necessary is to fasten them in their places till the first season's growth secures them in the ordinary way. I was compelled to remove some large plants two years ago, and as their roots were principally in brick rubbish at the foot of the wall I was in no way sanguine as to the result. However, I took up

the plants (four in number) as carefully as possible. Even then, however, it was necessary to sacrifice some of the roots, and those that remained seemed very small in proportion to the branches. These latter were stripped from the wall without damage, the plants removed to their new quarters, planted carefully, and supplied with water during the following summer; the result exceeded my anticipations. It would now be impossible to tell that the plants had ever been shifted. This habit of securing itself to whatever support is near gives this Virginian Creeper an advantage over its stronger growing ally, which to cover a wall requires in the first place to be secured thereon; but when that is done, the long drooping branches arrange themselves in a very graceful manner. In the case of Veitch's *Ampelopsis*, however, the wall is covered with a dense mass of foliage. This *Ampelopsis*, after it has attained a large size, sometimes produces foliage that differs altogether from that usually found on it. In some cases, indeed, it is as large as that of a Grape Vine and deeply lobed. Such an occurrence is singular, as no one would take the large lobed leaves and the small ordinary foliage to belong to the same plant; but if cuttings with only large leaves are struck, the young growth produced therefrom is of the ordinary character. A good example as regards the difference in the foliage is shown in the temperate house at Kew. A pretty effect is produced by planting this *Ampelopsis* and one of the smaller *Ivies* in such a way that their branches become intermixed. In that case the Ivy furnishes the wall in winter, when the *Ampelopsis* is without leaves, and in summer the foliage of the other becomes more prominent than that of the Ivy. This *Ampelopsis* strikes readily from cuttings if taken off during winter. Cut the shoots into pieces about 6 inches long, and put them in pots of sandy soil. About a dozen in a 5-in. pot is a good useful number, and they will require to be kept close in a cold frame till rooted. Cuttings will also root if put in the open ground, but in that case it is necessary to employ stouter shoots for the purpose and it is not always possible to obtain them. The young shoots may be taken during summer and treated in the same way as those of *Fuchsias*, when they will soon root. They are more susceptible of damp than *Fuchsias* are, but with a little attention to obviate this, but few will be lost. Take the cuttings as early in the summer as possible; they may be potted off when rooted, and will make good little plants by autumn. They will strike readily enough now, but in that case it is better when rooted to leave them undisturbed till early spring; then pot them off, and plant them out as the season advances. This *Ampelopsis* is also known and frequently met with under the name of *Vitis tricuspidata*.

H. P.

New Statice.—Allow us to direct your attention to a very fine new *Statice*, viz., *S. Suworowi*, of which we send you flowering branches, a fresh one and a dried one. Though it has been already figured and described by Dr. Regel, in the *Gartenflora*, 1882, tab. 1095, this figure can give no idea of the beauty of a full-grown plant in the open ground. Dr. Regel's figure must have been drawn from a very poor plant grown in a pot; even the colour of the flower cannot be recognised, being on the plate a pale, dull lilac, while in reality it is bright rose shaded with crimson. We also have added a branch of *S. spicata*, to which the new plant is nearest related, in order to show the great superiority of the latter as a decorative plant. *S. Suworowi* is a very free-growing, profusely-flowering annual; a single plant will last in bloom more than two months. If sown successively from February to April, it may be had in full bloom from May to October, and a bed of the plant in bloom is a truly magnificent sight, being one mass of flower-spikes, which quite hide the foliage. The latter is comparatively small, undulated, and glaucous, and lies flat on the ground. We send now only side branches, of which there are from ten to fifteen, and even more on each plant besides the main branch, which is stouter and from 15 inches to 18 inches in length, has

done flowering. *S. Suworowi* is by far the finest of the annual species of *Statice*, and, indeed, one of the showiest annuals which we possess. Dr. Regel received it from his son, who gathered it in West Turkestan, and has entrusted it to us for distribution next season.—HAAGE & SCHMIDT, *Erfurt*.

* * A remarkably distinct, and, so far as we can judge from dried specimens, a very handsome plant.—ED.

LILIUM BROWNI IN THE NORTH.

THIS is surely one of the most beautiful of hardy Lilies, and in this cold district we are indebted to Mrs. Barker, of Oaklands, Stokesley, for showing how well this and other Lilies can be grown with ordinary care. When Mrs. Barker drew my attention to this Lily the other day the first impression was—Has somebody been trying to "paint the Lily"? I read all that I see about Lilies, and I was prepared to see something new in *L. Browni*, but I was delightfully surprised to see this hardy flower so strikingly superior to any written description that I had seen of it. The Lily to which I refer is growing in a *Rhododendron* bed, fairly sheltered, and I am not aware that any special preparation was made for the bulbs more than for those of other hardy Lilies in beds near it. Yet its massive trumpet-shaped flowers show substance superior to that of anything I have seen in other Lilies. The perfect form and pure white of the inside contrasts singularly with the purple shade on the exterior. I cannot do less than express gratitude to Mrs. Barker for the opportunity of seeing this crowning beauty, added to a garden filled with charming hardy flowers, and which is freely open to everyone who takes an interest in them. CHAS. McDONALD.

Garden House, Stokesley.

Sidalcea candida is a better plant than I have been led to expect. It flowers on erect stems, but the blooms are not quite so large as those of *S. malvæflora*; they are pure white and conspicuous because borne abundantly. *S. humilis* is another new species, having rose-coloured blossoms also smaller than those of *S. malvæflora*. It is dwarf, but the flower-spikes are comparatively long and trailing.—P. S., *York*.

Lilium pulchellum.—Among the earlier flowering Lilies is this pretty little kind, which has been in great beauty with me this season treated as a pot plant. The bulbs were received from Siberia, and potted, six in a 5-inch pot, in light sandy loam, and plunged to the rim in Cocoa-nut refuse on a sheltered border reserved for such things. The result has been that not a bulb has missed flowering, and, if kept in a cool, shaded house when expanded, they continue in perfection for about a fortnight.—H. P.

Lilium auratum platyphyllum.—The ordinary *Lilium auratum* is a universal favourite, its massive deliciously fragrant blossoms being almost unequalled in attractiveness amongst Lilies, or, indeed, amongst any other class of plants; but, lovely as *auratum* is, it pales before the *platyphyllum* variety. This, as grown in Messrs. Veitch's nurseries, is a thing to be remembered. Ten days ago I saw bulbs of it there growing in 6-inch and 8-inch pots, with saucer-like reflexed blooms 14 inches in diameter; they outvalled by far the common *auratum*, both in richness of markings and fragrance.—J. M.

Tuberous Begonias at Annerville, Clonmel.—It is difficult to conjecture what *Begonias* may yet become if they continue to improve as seen here from year to year. This is a private collection, and principally managed by a lady; yet, for variety and substance, but especially for size of blooms, they can compare with anything I have yet seen. I thought the first prize collection (Captain Riall's) at the Dublin show last year admirable, but it will in no way detract from their great merit to place them far behind a selection from those I saw here to-day. From

fifty to one hundred perfect blooms, from 3½ inches to 5½ inches, across was the rule, the plants being grown from 8-inch to 10-inch pots. Almost every colour, from the purest white to the deepest red, pink, yellow, orange, and their combinations, single and double, may be found, and the plants are almost all seedlings. If liquid guano given twice a week be not the secret of success, I cannot make it out—they are grand.—W. J. M.

Lilium candidum.—Much has been written in praise of other Lilies, but this, to my thinking, the purest and most lovely of all, seldom gets noticed. I have seen it as good, or better, in cottagers' gardens than I have anywhere else. This may arise through the little digging and delving their borders get compared with those in more ambitious places, where such things get frequently disturbed in preparing the ground for its summer occupants. Be this as it may, certain it is that one seldom sees this good old white Lily in the gardens of the wealthy, and some complain that they cannot get it to succeed, and to those I would say plant it moderately deep in sharp, gritty soil, and afterwards leave it alone.—S. D.

Reverting of white Lavender.—A good sized bush of the white-flowered form of the common sweet-scented Lavender has for the last year or two bloomed abundantly in one of my borders, and being rather uncommon has frequently attracted the attention of visitors who have asked for cuttings which have been freely given. Last summer this bush produced also a very few heads of bloom of the common lavender colour (but not more than two or three), this season, however, all the blooms are of the uniform common colour, and I fear I have lost my white Lavender till I can replace it from some other garden. I shall be glad if any of your readers will inform me through THE GARDEN if they have met with a similar experience.—W. E. G.

Double Poet's Narcissus failing in bud.

I cannot agree with Mr. Rawson that spring frosts have anything to do with this. I have thousands of them in different parts of this cold garden where they grow well in the native stiff clay, and they never fail, in spite of severe late frosts, except amongst trees, when they have got very much crowded. On the other hand, in my sheltered warm garden at Eton, where the soil is poor, especially near Elm trees, failure of the bud was the rule; at flowering time nothing but a stalk and an empty spathe was found. I have no doubt that starvation is the true cause, and I am sure that the best remedy is 4 inches of good manure in autumn, after which the bulbs will never fail to flower, provided they then have a flower bud in them.—C. WOLLEY DOD, *Edge Hall*.

Sweet Peas.—Although it is possible to have these in flower throughout the entire season (however long that may mean), as Mr. Wildsmith says, it strikes me, as no doubt it will many more, that it is much less trouble to open a drill and sow for succession than to go over the rows, as he states he does, and pick off the seed-pods, which must entail a considerable amount of time and labour when both are required to contend with weeds and other pressing work in summer. Of course, if Sweet Peas are grown for the embellishment of borders instead of for cutting, it may be worth while to go to the trouble of relieving them of their seed, but if they are grown for the latter purpose, then I should advise cultivators of them to sow frequently and have more vigorous plants, as, like most annuals, Sweet Peas are poor when the first flush of vigour is over.—S. D.

English names.—"G.'s" remarks on this subject (p. 59) was an effective shot. There is likely to be a pretty general upheaval of Latin strata before long. The whole thing is shaky; the foundations are overweighted and the whole dreary pile will have to be rebuilt on a broader basis. Talk of "species"—a "species" means nought. If I write to a nurseryman for *Cattleya labiata*, *Odontoglossum Alexandræ*, or fifty other Orchids under their Latin names, I get anything by return, since no two plants of these species are

alike. Why not call "poultry" by Latin names, and not Pekin, Rouen, or Aylesbury ducks; or Cochin, Brahma, Houdan, Game, or Hamburgh fowls? No; it is plants only that must ever and always be Latinised. A dictionary of English names will do more to popularise their use than any argument. It is curious that before Linnaeus lived, all Latin names were really short Latin descriptions. Linnaeus's own plan was to limit the name to two words—one generic, one specific. Now we find so much variety, that three or four words at least are necessary.—O.

Everlasting Peas.—Visiting a farmhouse the other evening, I saw, at a long distance off, in the garden hedgerow a great mass of colour, which turned out, on closer inspection, to be a clump of Everlasting Peas, and the thought immediately occurred to me what grand subjects these Peas would be established in some wild places, as from their strong growth, overtopping weeds, and climbing habit they would lay hold of any branches left within their reach, and be quite independent of artificial support. Here we grow both kinds, the white and the purple, in the foreground of shrubs, where they form quite a striking picture in the borders, associated with tall Delphiniums, Helianthus, single Dahlias, &c., and afford us great quantities of flowers for cutting, a purpose for which they are well adapted, as they last long in water. The best time in which to divide the plants with a view to their increase is in spring just as they begin to start, when any pieces taken off with a crown and a few roots attached are almost certain to grow.—S. D.

Single Dahlias.—Why Mr. Nisbet, of Aswarby, should have been disappointed with his single Dahlias from cuttings and seeds, I am at a loss to understand, as these are the usual and best modes of raising them. He appears to have been dissatisfied with the size of the flowers which they produced, as he says they are three times larger from the old roots. Surely such increased size is not desirable, and is just that to which I and most others, I think, strongly object. Of what use are such large blooms in a cut state? Or for borders even, where, if anyone admired such giants, they would be sure to be knocked about and damaged by wind? The most desirable, in my opinion, are those that bear flowers about the size of a five-shilling-piece, which, if of good form and colour, are not only best in beds and borders, but the most suitable for vases, where, if arranged with ordinary taste, they have a light and elegant appearance. Some of the named sorts are well worth having, but the way in which we manage, as regards the bulk of our plants, is to sow seed annually and keep marking and selecting the best, which we save by taking up the roots, and storing them in the usual manner during winter.—S. D.

Plants for Rhododendron beds.—In some places it is customary in beds of thinly planted Rhododendrons, Azaleas, &c., to plant herbaceous plants and bulbs amongst them with a view to a continued show of bloom throughout the summer, and now that the flush of Rhododendrons is over, it is gratifying to note the comparative lesser lights peeping out among their massive associates that have been brightening us up for the past three months. In such positions we employ a variety of plants, conspicuous now among them being Foxgloves (white and spotted), Delphiniums, and Campanulas, the towering spikes of varied colours as seen among and above the shrubs being very effective. *Spiræas* (*japonica*, *palmata*, and *Aruncus*), *Phloxes* (*suffruticosa*), early flowering Lilies, Canterbury Bells, *Anchusa italica*, Snapdragons, Pentstemons, *Pæonies*, Oriental Poppies, and Columbine, together with such ornamental-foliaged as well as flowering plants as *Thalictrums*, equally varied in height as in the diversity of their beautiful foliage; *Funkias*, *Cannas*, *Eryngiums* (notably *amethystinum*), *Acanthus*, *Ferulas*, *Bocconia cordata*, &c.; and in open spaces near the margins, good clumps of Sweet William, mule Pinks, and strong-growing Carnations; while such shrubs as Japanese Roses, *Fuchsias* (*Riccartoni* and *gracilis*), in large

bushes, now in full bloom, all combine to make up a show of wonderful variety in form and colour and of great beauty, even if a little less brilliant than the Rhododendrons lately were. Present appearances also justify our expectations in the near future of a continued display from such as Lilliums (some stems of auratum from established clumps are already upwards of 6 feet high), Gladioli (undisturbed for the last three years), Phloxes (decussata), Michaelmas Daisies, Tritomas, Dahlias, single and double, &c., which will probably carry us on until late in the year.—TAFKY, *North Wales*.

SAXIFRAGA DIVERSIFOLIA.

THIS plant is a recent introduction from the Himalayas, and a distinct and welcome one it is; in suitable soil it grows vigorously. Here it succeeds best in a bog bed made up for Cypripedium spectabile, Lillium superbum, and plants of that class, and it likes partial shade. Under such conditions it rapidly becomes a strong tuft, and throws up numerous flower-stems from 1½ feet to 2 feet high, bearing paniculate heads of bright yellow cup-shaped blossoms thickly covered with orange-coloured dots. The annexed illustration shows but a small spray of it, the strongest stems here bearing as many as twenty flowers. It is quite easily propagated either by division or seeds. Its specific name is quite characteristic, inasmuch as there is great diversity both in the size and shape of its leaves. The radical ones have petioles longer than the blades, which are about 2 inches long by 1 inch broad. The stem leaves are sessile, partly clasping, and the largest are about 2½ inches long and 1½ inches broad. A curious circumstance about the plant is that the imported seeds produced no variety; whereas home-saved seeds show already a tendency to vary. I have one miniature the total height of which is barely 1 inch, and the radical leaves three-quarters of an inch by one-quarter of an inch. Another is quite the opposite; it has broad, almost circular leaves, and is a very robust plant. In dry soils and sunny spots its foliage is liable to become blackened, curled up, and the whole plant gets stunted and never shows its true character. T. S.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 114.)

GONIOPTERIS.—This genus contains some very handsome Ferns of robust growth, although there are also in it some small growers well suited for Fern cases. Most of them are of a soft texture, and require rather more than ordinary care and attention as regards watering. A mixture of two parts peat to one of sand and one of loam will suit the stronger growers exactly, but for the small growing kinds it will be found to be advantageous if, in the mixture, the loam is replaced by leaf-mould.

G. CRENATA.—A very handsome West Indian species, producing elegant fronds of about 2 feet long; they are pinnate, with pinnæ crenulate on both edges and about 6 inches in length by 2 inches in width. The whole plant is of a very rich dark green colour. Stove.

G. DIVERSIFOLIA (*G. vivipara*, *Polypodium proliferum*).—This is a strong-growing evergreen Brazilian species, making a very handsome specimen and highly interesting, as well as ornamental. The fronds, which start from a central crown, are from 3 feet to 4 feet high, and proliferous at their extremity; in fact, large specimens of it are usually seen loaded with a quantity of young plants still attached to them, and having themselves fronds 12 inches or 18 inches long. They are pinnate, the pinnæ measuring from 4 inches to 6 inches long, and are of a light green colour. When the plant is sufficiently old, it forms a sort of a caudex or short trunk. Stove.

G. GHIESBREGHTII (*Pteris Ghiesbreghtii*).—A very handsome and distinct looking tropical

American species, with beautiful fronds produced from a thick, fleshy underground rhizome. It grows to about 3 feet high, and has fronds pinnate with pinnæ opposite, 6 inches to 8 inches long by about 2 inches wide; these have their margins deeply toothed, and are of a pale delicate green colour. The whole plant, including the thick, fleshy stalks, is densely covered with short hairs of a very light hue.

G. REPTANS.—This is a very elegant little species from Jamaica, with fronds from 10 inches to 15 inches long, pinnate, and proliferous at their extremity. It is wonderfully well adapted for growing in small baskets, where it makes a very fine display, the little fronds gracefully arching over, although not quite pendulous. The

exists also a variety seldom seen in collections and called *G. vacciniifolia albida*. It is also a native of Brazil, and in habit and size resembles the species, from which, however, it greatly differs in colour; the latter, instead of dark green, is a peculiar metallic white, which it conserves through all its different stages of growth. They may both be utilised with advantage for covering trunks of Tree Ferns either dead or living, as they require but very little nourishment. Stove.

G. VERRUCOSA.—A bold and very handsome species from the Malay Islands, well adapted for growing in large baskets. Although not drooping so much as *G. subauriculata*, it certainly makes a fine companion for it, but its fronds are much broader, more massive, and longer in the pinnæ.



Flower-stem of Saxifraga diversifolia (colour, yellow).

pinnæ are small, but broad, obtuse, and sometimes auriculate at their base. The whole plant is of a delightful light green. There is also a variety of it, called *G. reptans gracile*, of a more slender habit and with fronds much longer, sometimes measuring 20 inches long; they are usually pinnate half-way up, when they become pinnatifid with pinnæ generally auriculate. This variety also differs from the species, as it is of a very dark green colour. Stove.

G. TETRAGONA (*G. megalodus*).—A highly decorative West Indian species, attaining sometimes the height of 3 feet. The fronds, robust and semi-erect, are pinnate, with pinnæ from 5 inches to 6 inches long and about half an inch wide, deeply and regularly lobed. It is a very satisfactory grower, and makes a good-sized specimen in a comparatively shorter time than most of the *Goniopteris*. Stove.

G. VACCINIIFOLIA.—This little Brazilian species is very dwarf in habit, but that does not prevent its being very interesting. As regards the size of the fronds and the way in which they are covered with scales, it greatly resembles *G. piloselloides*, but its rhizome is thicker, and although the fertile fronds are, as in that species, simple and linear, and also grow to about 3 inches high, the barren ones are quite different; they are very nearly circular, and only 1 inch high; they are smooth and of a dark green colour. There

They are perhaps not produced in such profusion, but their texture is much more leathery; therefore they have the power of lasting a deal longer. Instead of being soft and somewhat hairy, they are of a bright shining green. They grow to about 5 feet long, are pinnate with pinnæ 7 inches to 8 inches in length; the sori, being deeply imbedded in the frond, form little protuberances of a wart-like character, beautifully seen on the upper surface of all the fertile fronds. Stove.

PELLÆA.

5040.—Filmy Ferns on walls.—As galvanised wire is not injurious to Filmy Ferns in any way, the simplest method of covering a wall is by having a trellis made of it with meshes of a good size (2½ inches or 3 inches), so as to allow for the packing in of peat, which should be broken up into lumps sufficiently small to be forced through the meshes. Starting from the bottom, it should be packed quite hard, and then the plants, either *Hymenophyllums* or *Trichomanes*, or even young *Todeas*, should be pegged to it. The trellis should be kept at a distance of about 3 inches from the wall by means of hooks, thus allowing a bed of material sufficient for them to grow on for several years without being touched. That is the way in which they are grown most successfully by Mr. Cooper Foster in Upper Grosvenor Street. Another easy mode of covering a wall is that practised at Glasnevin. There flat iron bars, about 4 inches

wide, are fixed in the wall horizontally at distances of about 15 inches apart, and the space between is filled up with compressed boggy peat in which Filmy Ferns luxuriate. It is kept constantly moist by means of water being poured with a syringe or spouted pot from the top and allowed to run down between the wall and the plants. Do not on any account syringe them overhead; they derive quite sufficient moisture in the way just stated and keep their fronds in a healthy state much longer. The north aspect at the end of a greenhouse is the best position for them, especially when shut off by a glass partition. The best way in which to keep slugs from a fernery is by putting a little bran here and there where they will be found during the evening and may be destroyed. As to woodlice, there are no other means of keeping them down except by constantly trapping them.—S.

—The best way of placing Ferns on walls is to nail virgin cork on them, and form in it pockets for their reception. Commence at the top and work downwards, using some large pieces and some small; the large overlapping will form the pockets, or, in order to give a more natural and rugged appearance, procure some iron stay brackets 6 inches long, let 2 inches into the wall; the stays should be put in every 3 feet 6 inches, horizontally. On these lay a small bar or rod of iron, procure some sandstones of different sizes and lengths, and lay them on the bars alternately in different sizes so as to form a rugged and broken appearance. The stones should have a little cement put behind them to hold them securely against the wall. The rows of stays should be a foot apart. The Filmy Ferns thus placed will soon cover their supports, and will look as if growing on a natural miniature rock.—A. EVANS, *Lythe Hall*.

5037.—**Fernery creepers.**—Besides the creepers mentioned a very good effect may be produced by growing the small-leaved variety of *Ficus repens* called minima, and the *Pothos celatocaulis*, which has large orbicular leaves of a pleasing pea green; both plants stick of their own accord to anything moist, and both retain their foliage for a very long time. Their effect, when intermixed, is charming.—S.

—There are several creepers other than the Tradescantias suitable for filling up and covering blank spaces in a stove fernery. One of the most useful is *Pellionia Daveauana*, which grows luxuriously when shaded, and thus treated the marking of the foliage is much more distinct than when exposed directly to light. It is of just as easy culture as the Tradescantias, like them, running about and rooting everywhere. The centre portion of the leaf is of a pale glaucous green, while the outer part is bronzy in hue, thus forming a striking contrast. *Pellionia pulchra* is of more recent introduction, and therefore at present not so widely distributed, but still it is very beautiful when grown under the same conditions as the kind last named. In *P. Daveauana* the leaf is narrowed to a point, but in *P. pulchra* it rounds off very abruptly, while the colour is a deep metallic green in the old leaves and brownish in the young ones. The foliage is irregularly blotched and marked with light green, thus forming a pretty variegation. The *Fittonias* are also shade-loving plants, and do well in such a situation. A couple of good distinct sorts are *F. argyroneura*, the leaves of which are of a bright satiny green veined with pure white, and *F. Pearcei*, with olive-green foliage and red veins. In this last the surface of the leaf is overspread with a peculiar satiny sheen more pronounced even than in *F. argyroneura*. *Cyrtodeira fulgida* has pretty brownish green foliage, in which the mid-rib and principal veins are marked with silver; their bright crimson flowers are also very showy. One of the most indifferent is the variegated *Panicum*, which spreads and makes itself at home wherever there is the least moisture. In moist, shady spots it grows rapidly, but the grassy foliage is not distinctly variegated, while, when more exposed to light, the white variegation is better defined, and sometimes suffused with pink. Some of the *Selaginellas* make beautiful carpet plants; one of the most useful is the

common green *Kraussiana*, or, as it is often erroneously called, *S. denticulata*. This is really a greenhouse plant, and when grown in that temperature lasts longer than in the stove, where its growth at first is much more rapid, but after a time is apt to decay if kept too moist. However, that matters but little, as if pulled to pieces and again dibbled in, it becomes established in a few days. The golden variety is also very pretty. *S. cæsia* or *uncinata*, too, grows readily, and quickly covers a considerable space. *Ficus repens* and minima, though mostly used to cover walls, are also very pretty when allowed to ramble at will on cork or the stones of a fernery, the shade and moisture of which just suit them. This list might be still further extended, but the few herein mentioned rank amongst the best.—H. P.

FRUIT GARDEN.

ORCHARD HOUSES.

HOUSES constructed for the purpose of growing fruit trees in pots are not quite so popular as they were, say, fifteen years ago. The late Mr. Thomas Rivers, of Sawbridgeworth, then and for years previous to that date, both by precept and example, earnestly advocated the culture of Peaches and Nectarines in pots under glass; he grew them well, and, moreover, raised many good and distinct varieties from seeds. For more than twenty years I have been growing Peaches and Nectarines in pots. I have also had much experience with planted-out trees, and I am now decidedly in favour of growing the trees in both ways. Planted-out trees trained to a trellis produce very fine fruits with less trouble than in pots, but, on the other hand, the culture of trees in pots is highly interesting, and as far as the quality of the fruit is concerned it can be grown in pots good enough for the best exhibitions. In the case of amateurs with spare time on their hands, the culture of fruit trees in pots may not only be made a delightful pastime, but also a profitable occupation. Any form of house, lean-to or span-roofed, is adapted for their culture; the principal point in connection therewith is to have the glass well exposed to the sun, and the trees as near it as they can be conveniently placed. Trees can be purchased in pots to start with, and healthy trees two or three years old are the most likely to do well. A two-year-old tree will most likely be thickly studded with fruit buds, and will probably bear a dozen or more fruits the following season. For those blessed with patience, trees one year from the bud can be purchased much cheaper than trained trees. They will require 10-inch and 11-inch pots to start with; the pots must be well drained, and the compost, which should consist of good yellow loam, ought to be well rammed in round the roots. Some crushed bones may be added to the loam and a fourth part of rotten stable manure. I like to pot early in the season, say in November or early in December. The roots keep on growing all through the winter when the temperature is not too low for them. The trees thus become well established and start strongly into growth the following season. The yearling or "maiden" trees when well grown the previous season have usually one very strong central growth, as thick as a man's finger at the base, furnished from that point upwards with numerous side growths.

FORM OF TREE.—In order to form a bush tree, about two-thirds of the main stem must be cut away and the lateral growths cut back considerably. A pyramid is formed by cutting one-third from the main stem, and pruning back the laterals near the top to within an inch or two of the stem. Those near the base should be left from 6 inches to 9 inches long, and the intermediate laterals should be cut back closer at the top, leaving them longer towards the base in order to form a pyramid to start with. These young trees ought not to be forced, or the buds will not start evenly. They will not of course bear fruit the first year, but by careful pinching and training, with the view of obtaining fruit-bearing wood, they will produce fruit the second season, and fruit, too, of most ex-

cellent quality. By the end of the first season the pots will be packed quite full of roots, and unless supplied with rich surface dressings the fruit cannot be expected to be first-rate. We place a handful or two of the dressing on the surface, and it is washed down to the roots by the waterings. The best material is very short stable manure, loam, and malt dust or kiln dust in equal proportions. This mixture, if thrown together in a small heap, will soon heat very much, and to prevent injury from over-heating it must be turned over daily; in about a fortnight it will be ready for use. The trees will need three or four dressings during the time when the fruit is growing. At the end of the second season it will be necessary to repot the trees into larger pots. Those in 10-inch and 11-inch pots may be shifted into 12-inch and 13-inch ones. A little of the old exhausted compost should be picked out from amongst the roots, and the new soil should be rammed in firmly to fill its place, and also round the sides of the pots. The trees should be kept under glass until well established in their new pots, when they may be removed out-of-doors, or they may be kept in the house if required for any other purpose.

INSECT PESTS.—The most troublesome of these is the Peach aphid, which causes "curl" in the leaves early in the season, but a good cultivator will not allow this pest to increase to such an extent as to injure the leaves. The best way is to fumigate the trees well before they get into blossom. When that is done they often remain clean through the season. Red spider is also very fond of the leaves, and attacks them in force as soon as they are well developed; but as the trees delight in copious drenchings with the garden engine, this easily keeps the spider off them. Brown scale, which fastens itself to the old and young wood as limpets attach themselves to rocks, can only be removed by scrubbing it off and washing the parts where it has been with soapy water, an operation which should be performed during the winter months.

POT CULTURE admits of a large number of distinct varieties both of Peaches and Nectarines to be grown in a small space. Nearly all the varieties of Nectarines raised at Sawbridgeworth may be grown with advantage; indeed, we have discarded all the old sorts, and substituted the Sawbridgeworth seedlings. Lord Napier, which is not a seedling itself, but a sport from the Early Albert Peach, is the best early Nectarine in existence. Stanwick Elruge and Pine-apple added to it form a trio that will hardly be beaten, unless Humboldt, a seedling from Pine-apple, displaces that fine variety, being larger. Victoria is also distinct, and exquisite in flavour when well exposed to the sun in ripening. Of Peaches, Hale's Early, Early Grosse Mignonne, Grosse Mignonne, Bellegarde, and Noblesse are not easily surpassed. Goshawk, raised at Sawbridgeworth, is a grand Peach. Of the very early sorts, Early Rivers is the variety that succeeds best with us, but its fault of producing so many fruits with split stones is a serious one.

J. DOUGLAS.

RENOVATING OLD PEAR TREES.

LOOKING more closely along the Pear wall, now that the summer pruning has cleared off a quantity of the luxuriant growth, the crop proves decidedly better than we at first imagined, the greater part of the fruit lying well towards the top of the wall. The majority of our trees are on a north-west by west wall, and are very large, some of them measuring 30 inches in circumference at 1 foot from the ground. Circumstances having rendered it impossible to do much with them for some years past, they presented a formidable appearance last autumn, the spurs standing out, in many cases, quite 18 inches from the wall, with an occasional bare stretch along the branches of a corresponding distance. Despite their objectionable appearance, the growth made during the summer was stout and strong, giving one the impression that a little extra trouble might restore the old trees to something like a presentable shape and yet retain enough spurs to produce an average crop. Healthy

young trees that will furnish us with fine fruit are doubtless preferable to these venerable specimens, but the latter can often be made to look fairly well, and, moreover, supply the table with good fruit until their younger brethren attain sufficient size to take their place. Being all fan-trained trees, we could not well renovate them by the method sometimes adopted with horizontal trained ones, viz., working up new growth from the bottom branch and training it perpendicularly; so rather more than half the old spurs were cut clean away, and the remainder, after being thinned, were tied in as close as we could get them to the branches. It was rather a difficult task, the spurs requiring a considerable amount of persuasion ere they would bend their heads to the twine. They have given us a fair crop this season; the growth on them also is clean and stocky, whilst where the old spurs were cut hard into the branches the breaks are invariably good, furnishing luxuriant growth. So as soon as we can get fruit buds on this last, the remaining spurs that were tied in last winter can be cut away, as, from our experience this year, we need not doubt that the trees will break well however hard they may be cut. I shall be glad if any of your correspondents who have made experiments with old trees, giving young branches to old stems, and young spurs to old branches, can give the result of such experience, so far as it may relate to their after fruitfulness and general health. From the growth made this season, the root action must be good, and although the situation is low and moist, there must be sufficient drainage to prevent the amount of water that gathers in their vicinity from becoming at all stagnant. E. B.

The flavour of Peaches.—We dare not have had Peaches, as we grow them to eat, not to look at. The Peach is just as much in our hands as regards flavour and quality as are Grapes. It is simply a matter of watering, or, I should say, of non-watering. Peaches should not be watered after there are signs of the fruit swelling up for ripening. If thus treated, there would be but a small percentage of insipid fruit.—W.

Althorpe Crassane Pear.—This is one of our sure bearing sorts of Pears that even in the worst of seasons always yield a few fruit. This season, when most Pears are thin, we have a good crop of Althorpe Crassane; we grow it on a west wall now, but I have found it equally prolific on any other aspect. Unfortunately, it is not a large or showy Pear, but, nevertheless, there are not many that beat it as regards flavour. Its skin is soft and light green, its flesh white, melting, and very juicy; in short, it is little, if any, inferior in flavour to a well-grown Marie Louise. It makes a capital companion Pear for Winter Nelis, ripening generally about a fortnight before that variety, and in form of fruit and in growth and habit it is in every respect very much like it. If I had space for pyramid Pears I should certainly plant a few trees of this sort, believing as I do that it would prove a very desirable kind to grow, and if I had a liking for toy trees I should grow it on the most dwarfing stock I could get.—J. C. C.

The fruit crop in Anglesey.—This part of Anglesey being close to the sea and exposed to sea winds is not good for Apples, Pears, and Plums, except where there is good shelter. Strong winds from the sea, when the trees are in bloom or setting fruit, generally cause failure more or less. This year Apples are a better crop than they have been for several years, but looking back for ten or twelve years they are still only an average crop. Some of the most reliable sorts for kitchen use are Keswick Codlin, Lord Suffield, Hawthornden, Stirling Castle, Manks Codlin, Lord Clyde, Reinette du Canada, Alfriston, Mère de Menage, Cox's Pomona, Warner's King, and Worcester Pearmain. The best sorts for dessert use are Early Oslin, Cox's Orange Pippin, Court of Wick, Dutch Mignonne, Ribston Pippin, and Blenheim Orange. Of Pears, the best are Beurré Superfin, Louise Bonne of Jersey, Marie Louise, Winter Nelis, Glou Morceau, and Ne Plus Meuris. Of Plums, Green Gage, Coe's Golden Drop, Early Prolific, Victoria, Kirke's,

Michelson's, Prince of Wales, and Purple Gage. None of the Cherries do well except Morellos and May Duke. All small fruits this summer have done fairly well. Most of our Strawberries are grown for preserving, and I find the best sorts are President, La Grosse, and Keen's Seedling.—J. ELLAM, *Bodorgan*.

PLANTS IN FLOWER.

PENTSTEMON RICHARDSONI.—This has been flowering continually for two months, and is only just going off. I recommend this plant, as it is handsome in itself and very graceful, and useful as a cut flower.—STUART WORTLEY.

RHODOTYPOS KERRIOIDES.—Flowering sprays of this very distinct Rosaceous shrub have been sent to us by Mr. Noble from the Sunningdale Nursery, Bagshot. In growth and foliage it strikingly resembles the old *Kerria japonica*, but the flowers, which are borne singly at the tips of the shoots, are pure white and large enough to be attractive. It is a Japanese shrub and quite hardy.

LOBELIA LITTORALIS.—This pretty little New Zealand plant was shown admirably at South Kensington on Tuesday last by Messrs. Cheal, Lowfield Nurseries, Crawley. It was in a large pot, which it completely filled and hung down thickly on all sides so as to form a dense cushion-like mass, thickly studded with white flowers and reddish berries. It is an excellent plant for growing in hanging pots or baskets in a greenhouse.

WHITE CLOVE CARNATION.—Last week we spoke in high terms of the beauty of the white *Carnation Gloire de Nancy*, but we hardly know which to admire most—that kind, or one which Mr. Poë sends us bearing the name of Susan Askey. The latter is, we think, a better formed flower than *Gloire de Nancy*; its petals are broader, and they incurve more. The perfume, too, is delicious—quite as strong as that of the old crimson Clove.

SPIRÆA BUMALDA.—A plant of this new *Spiræa* has been sent to us from the Newry Nurseries by Mr. Smith, who describes it as "a real beauty." It much resembles *S. callosa*, but is much dwarfer, the plant sent being only a foot in height, and Mr. Smith states that it is as high as it ever gets; hence it may be best described as a pigmy *S. callosa*. Being so dwarf and so profuse in flower, it will be found useful for many positions, especially in the rock garden.

SALVIA PORPHYRANTHERA.—A long name for a very bright little Mexican Sage, of which Mr. Stevens sends us some flowers. It is a dwarf bush, seldom more than a foot high, and every shoot is terminated by an erect raceme of the most brilliant carmine-crimson flowers produced continuously, so that the plant is attractive almost throughout the summer. It is not hardy, except in very warm localities in such light soil as that in Mr. Stevens' garden at Byfleet.

WILLOW-LEAVED GENTIAN (G. asclepiadea).—The strongest grown specimens of this *Gentian* we ever remember to have seen were shown by Mr. G. F. Wilson at South Kensington on Tuesday last. One of the stems measured 2½ feet in height, and for fully half its height was covered with flowers, beautiful in form, and of a bright violet-purple colour. This remarkable growth was attained in Mr. Wilson's wood garden at Wisley, in which this plant is quite at home, being a lover of shady copses, and delighting in a deep vegetable soil, such as that in the Wisley garden. It would be difficult to name a finer autumn border plant than this *Gentian* when seen in perfection, as this was, but seldom do we find it grown so well. Often it is placed in an exposed, poor border; hence the stunted growth which it usually makes. It should always have a partially shaded spot and a rich, light, and deep soil. There are, we find, several varieties of this plant described by European botanists, and we have no doubt that Mr. Wilson's is one of the finest forms. This we surmise, as he showed some dwarf specimens grown under the same conditions. He also had some

excellent specimens of the bright little *G. septemfida*, also a pretty species, and one that is grateful for a little shade.

RHUS COTINUS, one of the most ornamental of the Sumachs, is now beautifully in bloom with us—a very feathery kind of inflorescence, light and elegant. It is green in the shade, but reddish pink on the sunny side, and beautiful in vases. It made quite a sensation some years ago at the Exeter flower show, when I used it for that purpose. It is, I fear, often overlooked by planters, as one seldom sees it in ornamental grounds.—JOHN GARLAND, *Killerton, Exeter*.

BRODIEA GRANDIFLORA.—This is one of the prettiest of all the species in cultivation, and certainly one of the most satisfactory to cultivate. It is quite hardy, and rarely fails to flower well in warm, light soils. It grows about a foot high, and bears on the top of slender stems clusters of showy pale purple blossoms with whitish centres. It is just now beautifully in bloom in gardens about London, and some fine specimens of it come to us from Mr. Stevens' garden at Byfleet.

ROSE CAMPION (Agrostemma coronaria).—Mr. Poë sends us from his garden at Riverston, Nenagh, flowers of the pure white variety (*alba*) and the deep crimson variety (*atro-sanguinea*) of this beautiful old-fashioned hardy perennial. These far surpass the older forms; indeed, it would be difficult to find a flower with such rich colouring as the variety *atro-sanguinea*. The white and crimson flowers intermixed have a charming effect, and the silvery down on the foliage and flower-stalks enhances their beauty.

MICHAUXIA LÆVIGATA.—Flowers of this old, but rare, hardy biennial have been sent to us by Colonel Stuart Wortley, who says that he prefers it to the better-known *M. campanuloides*. It much resembles the latter species both in growth and in the size and form of the flowers, but instead of being pale purple they are pure white. Moreover, the flowers of *M. campanuloides* droop, while those of *M. lævigata* are poised horizontally on short pedicels. It is a native of Persia, and grows taller than the South European species.

CALOCHORTUS FUSCUS AND FLAVUS.—Flowers of these two rare Californian bulbous plants have been sent to us by Mr. Stevens, who evidently grows them well in his garden at Byfleet, as they are as fine as any we have seen. We have frequently alluded to *C. fuscus* this season, having received it from several gardens. It is not a showy plant, but the colour, a sort of chocolate-brown, is an uncommon one. The other, *C. flavus*, is a charming little plant, the flowers of which are 1½ inches across and of a clear orange-yellow; the inner faces of the petals are also thickly clothed with blackish bristles, which add to the beauty of the flower. Both are well worth pot culture in frames, by far the most satisfactory way of growing *Calochorti*.

NEW JAPANESE LILY.—Among a number of varieties of *Lilium longiflorum* brought to us the other day by Dr. Wallace from the New Plant and Bulb Company's nursery at Colchester was one which bore a well-marked form distinct from all the rest, and which seemed exactly intermediate in character between *L. Browni* and typical *longiflorum*. It is a handsome Lily, and if it possesses such a vigorous growth as *L. Browni* it will be a useful plant. Dr. Wallace writes as follows respecting it: "This form coming to us direct from Japan is interesting, as resembling somewhat in shape and texture of flower *L. Browni*, though distinctly belonging to the *longiflorum* group. The foliage is three-nerved, green, and arching downward, narrower than in *longiflorum* true, but not so long and narrow as in *L. eschium*. The stem is 2 feet high, bronzed at the base and in the axils, as in the form known as *Takesima*; flowers, three, on somewhat curved bronzed stems, semi-erect, forming an obtuse angle with the stem; flowers 6½ inches long, of great substance, only slightly revolute, slightly campanulate, enlarging gradually from apex to base, coloured externally along the midrib and petals, not with chocolate, as in *Takesima*, but with a red,

dish tint, more especially along the upper outside portion of the flower. It seems a superior form to Takesima, both as regards size of flower, substance of petals, and external colouration, being much more richly coloured with bright rose. The perfume also is distinct, having something of Stephanotis about it and being very agreeable and powerful."

LISIANTHUS RUSSELLIANUS.—Flowers of this beautiful old-fashioned greenhouse plant have been sent to us by Captain Patton from his garden in the Alpha Road, Regent's Park, where it is grown admirably by Mr. Young, who evidently well understands the culture of this reputedly difficult plant to manage. It would be interesting to know his mode of culture.

CASTILLEJA INDIVISA.—As no one sends you this plant, though it is so easily grown, I enclose a few spikes, that you may judge how effective a plant it is. There is really no secret about its cultivation except early sowing—not later than January, and if in December it will be better still. Of course this implies sowing in a greenhouse.—W. THOMPSON, Ipswich. [A very bright and effective plant, having terminal tufts of flower leaves of the brightest vermilion.]

DOUBLE OPIUM POPPIES.—A beautiful gathering of these comes to us from Mrs. Ellison Macartney, Clogher, Co. Tyrone, which shows admirably what bright and effective border flowers these Poppies are. They are large and very double, and the colours are extremely varied, some being brilliant scarlet with white centres, others rich purple, and some snow-white. Accompanying the Poppies are some beautiful hardy flowers, such as *Lilium pardalinum*, *Oenothera taraxacifolia*, and *Bartonia aurea*—all desirable open-air plants of easy culture.

HYACINTHUS CANDICANS.—The flowering season of this noble bulbous plant has just commenced, the first flowers of it that have reached us being from Mr. Stevens, who grows it admirably in an open border in his garden at Byfleet. A group of this plant rightly placed in a garden, that is where its tall spires of white blossoms have a background of foliage, has a fine effect. It is one of those plants that are not very effective seen as solitary specimens, but very much so when seen *en masse*. On Tuesday last Mr. Barron showed a fine group of it in pots in the conservatory at South Kensington, where it was evidently much admired.

LILIUM BATEMANNI.—Of this beautiful Lily an uncommonly fine flower-stem was exhibited at South Kensington, on Tuesday last, by Mr. G. F. Wilson, Heatherbank, Weybridge. It was just upon 2 feet in height and bore fifteen flowers and buds—a fine example of good culture. This is, we consider, one of if not the finest of all late summer Lilies, the colour, a warm apricot, being so soft, yet highly attractive. The flowers are borne almost erect in a dense cluster and the buds expand in quick succession, so that several flowers are open at once. This Lily with the beautiful *L. Wallacei* and *venustum* form a trio that should bedeck every good garden.

PENTSTEMONS FROM HAWICK.—A large and very fine gathering of Pentstemons, single Dahlias, and Carnations reaches us from Mr. Forbes' nursery, Hawick. All are of uncommonly fine growth, particularly the Pentstemons, which are finer than we have ever seen them grown in the south, and show plainly how well the Scotch climate suits their growth. The spikes are tall and massive and the flowers abundant, very large, and with well defined colours. We have selected from the collection a dozen of the finest Pentstemons, the names of which are as follows: Decision, magenta, white throat; William Miller, cherry crimson, pencilled in throat; Miss Watson, maroon-purple, chocolate-crimson throat; Robert Dodds, flower large, bright crimson, white throat; Lady Margaret, claret-crimson, white throat; James Thomson, bright vermilion, very fine; Eccentric, scarlet-crimson flower and spike very large; Helen Wood, purple-crimson, white throat; Jessie Forbes, purple, white throat; Mrs. Nixon, dark

purple; James Bigg, carmine-magenta, white throat, large, and very showy; and Miss Hope, whole spike almost pure white, there being but a slight suffusion of pink in the flowers.

THYSANOTUS TUBEROSUS.—A specimen of this charming little bulbous plant has been sent to us by the New Plant and Bulb Company, Colchester. Its flower-stems are very slender and bear a few flowers about 1 inch across. They are violet-purple in colour, and the sepals and petals are exquisitely fringed, rendering it altogether extremely pretty. A similar plant also from the same nursery is *Dichopogon humilis*, a native of Van Dieman's Land. It is quite of the same stamp as the *Thysanotus*, and the flowers are of the same colour, but lack the beautiful fringe. It is pleasant to see these beautiful plants grown for sale, for as a rule they can be only found in botanic gardens.

SPIRÆA PALMATA ALBA.—This pretty new hardy plant, to which a first-class certificate was awarded by the floral committee of the Royal Horticultural Society at their last meeting, and which is in the course of being distributed by Messrs. Veitch, is now in bloom with me. This plant would, I think, be more correctly named *Spiræa palmata elegans alba* than as above, as the formation of the leaf growth is exactly similar to that of the pale pink variety known as *S. palmata elegans*, having smaller leaves all up the stem, which are totally absent in the foliage of *S. palmata*, the stems of which are quite bare. This novelty is probably either a sport from *S. palmata elegans*, or has sprung from the same source as that intermediate variety.—W. E. G.

GRASS OF PARNASSUS (*Parnassia palustris*).—It is surprising how good this plant is just now, with its white flowers and its almost innumerable rising stems. We speak of the plant as it is seen as a colony in a bog. The miserable plants in cold frames and in ill-managed rockeries, &c., give no idea of the beauty of the plant compared with a bold group of it when in a good state. The best group we have seen is in the gardens at Munstead, where it is one of the plants that give the best effect in the season when there is a decrease among the flowers of the open garden—between the blooming of the midsummer plants like Delphiniums, and the coming in of the true autumn ones like the *Tritomas* and *Michaelmas Daisies*.

IOCHROMA LONGIFLORUM.—Of this singularly handsome South American shrub, belonging to the Solanum family, Mr. Green has sent us some admirable specimens from Sir George Macleay's garden at Pendell Court, Bletchingley, where there is a fine standard specimen of it 10 feet or more high. It is planted out in the cool conservatory, and must indeed be a fine sight at the present time. It somewhat resembles a *Brugmansia* in growth and foliage, but the flowers are smaller, being about 2 inches or 3 inches long, tubular, purple, and produced in drooping clusters. It would be well worth growing in small pots, as it flowers freely in a small state, but to see it in perfection it must be planted out as the Pendell Court specimen is. It is by no means a common plant; indeed, it is only in such richly stocked gardens as those of Sir George Macleay in which it can be seen.

Carnations (*O. N.*)—A Carnation garden would be the queen of summer gardens. Go in for it, and search the world for beautiful, free, and hardy kinds, having a border to test all as to the above qualities before increasing and growing them. See what can be got by growing the tree varieties in the open air both from seed and cuttings, and see how far a series of kinds could be got to bloom long and well. At Scarborough the bloom is late and prolonged, and there are many kinds among which, perhaps, one may get good varieties. But the French, German, and all other growers should be looked up. All kinds should be considered for their value in the open air only, and this means that habit and vigour and prolonged bloom are as important as the flower itself. Some attention should be made to see how far the *Picotée*, with its delicate lacing, will do as a

border flower while retaining its lacing in the forms you value best.

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 14.

THIS meeting was a fairly good one as regards the number of exhibits, but devoid of any absolute novelty. The following were awarded first-class certificates:—

LILIUM WALLACEI.—An extremely handsome Lily in the way of the better-known *L. venustum*. The flowers are borne nearly erect in good-sized clusters on stems about a yard high. The colour is a bright clear apricot, copiously spotted with black. Exhibited by Mr. Ware, Hale Farm Nursery, Tottenham.

SWEET PEA NEW CARMINE ROSE.—A new and lovely variety, distinct from any other with respect to colour, which is a soft rose, delicately shaded and mottled with lighter and darker shades. It is really an acquisition, and will be sure to become popular. Shown by Messrs. Hurst & Sons, Houndsditch.

BEGONIA VIRGINALIS.—A tuberous-rooted variety, producing large double rosette-like blossoms of almost a pure white. It is free flowering, and the habit of growth is good. From Mr. Bealby, Roehampton.

GLADIOLUS GRANDE ROUGE.—A massive spike, carrying large flowers of a vivid vermilion-scarlet, very bright, and showy. **ANDRÉ LEROY.**—Spike large, flowers white, flaked with rose. Both exhibited by Messrs. Vilmorin, Paris.

PELARGONIUM JEANNE D'ARC.—An Ivy-leaved variety, bearing large trusses of double blossoms of a delicate mauve tint. One of the finest of any of this section yet exhibited. Mr. Bealby.

GLADIOLUS HER MAJESTY, with very large spike, and flower of a pale mauve, flaked with magenta. **DUKE OF TECK.**—A long and massive spike; flowers large and of fine form, of a pale mauve flaked and blotched with carmine. Shown by Messrs. Kelway & Son, Langport.

DAHLIAS were rather numerous, though the season is somewhat early for them at present. An extremely fine collection of single, bouquet, and show varieties was exhibited by Mr. Turner, Royal Nurseries, Slough, who shows Dahlias, especially the bouquet and single sorts, better than most exhibitors. His plan is to cut plenty of stalk with the flower, and also foliage, which he intermixes with the gay colours of the flowers with charming effect—a better way by far than sticking the blooms flat on bare boards. The varieties shown comprised some of the finest, the best among the three dozen singles being *Purity*, a good white; *Duke of Teck*, deep mauve; *Rob Roy*, deep crimson; *Yellow Dwarf*, a fine dwarf yellow; *Olivette*, coppery red; *Alba*, one of the finest whites; *Paragon*, a well known and beautiful sort; *Mauve Queen*, one of the finest of its colour; *Glory*, vivid scarlet; *Cloth of Gold*, one of the best yellows; and *Huntsman*, deep crimson. A selection of the bouquet varieties included *Lady Blanche* and *Aster*, two beautiful whites, the latter having the florets prettily fringed; *Little Princess* and *Cupid*, both purplish pink and very pretty; *Titania*, buff yellow; *Butterfly*, yellowish white, tipped with plum purple; *Prince of Lilliputians*, brilliant vermilion; *Louis Rodani*, bright purple; *Carl Mendel*, maroon-crimson; *Mabel*, violet-purple; *Gem*, deep red; *Princess Sophia*, plum-purple. Among the best of the show and fancy sorts of crimscons or shades of that colour were *John Wyatt*, *Cardinal*, *James Service*, *Rosetta*, *Burgundy*, *William Rawlings* (one of the finest), *Harry C. Ridley*, *Prince of Denmark*, *James Vick*, *Duke of Albany*, *Mr. Harris*. The best of the yellows were *Cecilia*, *Gaiety*, *Mr. Saunders*, *Constancy*, *Goldfinder*. Among the whites *Mrs. Henshaw* was the best. This fine group was worthily awarded a silver Banksian medal. A very fine group of show Dahlias also came from Messrs. Cannell, Swanley, and a selection of about three dozen single Dahlias was also shown

by Mr. Ware, the most noteworthy being Mauve Queen and White Queen, both queens in their respective colours; Paragon, Harlequin, deep mauve; Christine, pale mauve; Pantaloon, maroon-crimson striped white; Beauty of Cambridge, maroon-crimson, very fine; Orangeman, orange-red, distinct and attractive; William Cullingford, a good yellow; Le Grand, plum-purple, very fine; Lucy Ireland, deep carmine-magenta; Regrets, blackish crimson; Lutea grandiflora, very fine yellow; and Reginald, crimson shading to magenta.

GLADIOLI.—Next to the Dahlias, these were the most noteworthy, and we need hardly say that Messrs. Kelway, of Langport, were the chief exhibitors, as they have been at these August meetings for years past. On this occasion they had a very fine display, consisting of some five dozen spikes; among these were about a dozen new kinds which were all very beautiful, and no doubt better than older kinds. Besides those certificated the new sorts were Alsopes, mauve, mottled with a deeper tint; Sir Trevor Lawrence, vermilion, pencilled with crimson; Sir Garnet Wolsley, bright vermilion, white lip; St. Blaise, mauve, heavily flaked with carmine-crimson; Lord Alcester, pale mauve, flaked with magenta. These all had massive spikes thickly set with large and handsome shaped blossoms. In the collection of older sorts we singled out the following as being particularly fine: among the crimson or shades of that colour were Admiral Willis, Ball of Fire, Grace Darling, Victory, flaked with deeper colour; Marcianus, Mr. Thornton, carmine, white lip; President, pink, flaked with red; Lord Leigh, cerise flaked with rose; Pictum, flesh pink, flaked and spotted with deeper hue; Dr. Woodman, fleshy carmine, purple lip; Richard Dean, cherry-rose, flaked and spotted; Dr. Thornton, cerise-crimson, white veined and white lip. Among the light tinted sorts were Amy, light mauve, flaked and spotted; Lady Aberdare, deeper than the last; Queen Mary, white flaked with purple, lip purple. These may be said to be the cream of Messrs. Kelway's enormous collection of Gladioli, which, judging by the spikes shown, are finer this year than usual. A silver Banksian medal was awarded.

A similarly fine collection, consisting of about three dozen spikes, came all the way from Messrs. Vilmorin's nursery in Paris, and, having regard to the long distance, the spikes were in an uncommonly fine condition—of course not quite so trim and fresh as Messrs. Kelway's. The varieties were superb, plainly showing that the French raisers are still holding their ground as regards Gladioli raising. The most conspicuous of Messrs. Vilmorin's sorts were the following: Flamboyant, brilliant carmine; Mirbel, carmine and mauve; Flamingo, bright crimson; Horace Vernet, a superb sort of a brilliant cerise; Mad. Desportes, still one of the finest light sorts; Shakespeare, white flaked with purple; Baroness Burdett Coutts, mauve, striped with carmine; Hermione, mauve, flaked and edged with a deeper hue; Jupiter and African, both intensely dark varieties and both very handsome; Unique Violet, bright purplish violet; Atlas, light mauve; Hesperides, salmon-pink; and Rayon d'Or, the last a singular colour—a yellowish buff.

PETUNIAS were shown admirably by Messrs. Carter, who are making a speciality of them at their nursery at Forest Hill. There were about a dozen distinct sorts, the most beautiful being Blue Perfection, a self of a rich blue-purple; Purple Prince, very fine; White Maltese Lace, an exquisite sort with white flowers beautifully fringed at the margin; Mrs. Sharman, white, blotched with purple; Blue Veins, pretty and distinct; Stars and Stripes, white, curiously striped in the form of a star; King of Crimson, one of the best of its colour with white centre; Cerise Brilliant and Queen of Roses, both uncommonly fine. These made an attractive display, a good sized basketful of each sort being shown.

Among a group of choice plants from Mr. Ware the most noteworthy were *Bessera elegans*, the pretty Mexican bulbous plant alluded to last week in **THE GARDEN**; *Habenaria ciliaris*, a yellow

flowered terrestrial Orchid; *Primula obconica*, the pretty mauve-flowered species lately introduced from Japan; the rare *Lilium cordifolium*, not a great beauty, comparable only with a poorly developed *L. giganteum*; *Podophyllum Emodi*, with bright orange-red fruits as large as hen's eggs; and *Francoa ramosa*, of which there was a fine specimen shown with quite a sheaf of slender white flower-spikes. Mr. Noble, Sunningdale Nursery, Bagshot, showed blooms of his new bedding Rose named Duchess of Connaught, with large finely formed blooms of a deep maroon-crimson. The white *Clematis Jackmanni* was again shown by Mr. Noble, and was quite as lovely as when previously exhibited.

A spike, a yard long, of the new *Calanthe sylvatica* was shown by Mr. Douglas, Great Gearies, Ilford. It is no great beauty, only suitable for the specialist. A cultural commendation was accorded to Mr. Hudson, Gunnersbury House gardens, Acton, for a plant of a very fine new *Gloxinia* named *Lilacina*. The flowers are erect, very large, and of remarkably thick texture. The colour is a bright purple, netted, and pencilled in the throat, with the same colour on a white ground. The plant, a fine one, was in a 3-inch pot and bore six fully expanded flowers. Some beautiful flowering branches of *Lapageria rosea superba*, the finest variety of all, were exhibited by Mr. Humphrey's gardener at Nash Court, Faversham. Each of the branches shown was profusely hung with flowers, some 4 inches or 5 inches in length, of a rich coral red colour, mottled inside with white. A cultural commendation was accorded. A new double tuberous *Begonia*, named *Gabriel Legros*, was shown by Messrs. Laing, Stanstead Park Nurseries, Forest Hill. The flowers are very double, of fair size, and of a delicate sulphur-yellow, profusely borne on bushy plants.

BALSAMS were shown largely by Messrs. F. Smith & Co., West Dulwich, whose strain has so long been considered perfection. The plants shown were all sturdy and dwarf in growth. The flowers were large, perfectly double, like a *Camellia*, and extremely varied in colour, some being prettily variegated with white. Mr. Todman, Bushy Down, Tooting, exhibited several seedling zonal *Pelargoniums*, those named Miss B. Connell, Mr. R. Crook, and Mr. A. Heaver being the best. A new double *Fuchsia* named *Phenomenal* was shown by Messrs. H. Cannell & Sons, Swanley, the flowers of which were very large, having scarlet sepals and very double purple corollas. It is of good habit and floriferous.

Cattleya Jamesiana (a provisional name given to a supposed new species) was exhibited by Mr. H. James, Castle Nursery, Lower Norwood. It may be best described as being of similar habit and growth to *C. dolosa*, and with the flowers of *C. Eldorado*. The flower is 4 inches or 5 inches across, the sepals and petals being pale mauve. The labellum measures about an inch across the mouth. The throat is white; then there is a large blotch of orange-yellow, while the lowermost lobe is broadly margined with mauve deeper than that of the sepals. Mr. James also showed a spike of a *Saccolabium* in the way of *Blumei*, but which no one seemed to know. A fine plant of the rare *Oncidium lamelligerum*, a species of the *O. crispum* section, was exhibited by Mr. Vanner, Camden Wood Chislehurst. It is a handsome Orchid and valuable as an August flowerer.

Besides the Gladioli, Messrs. Kelway showed a fine collection of double and single *Pyrethrums*, the latter being particularly noteworthy, as they contained some beautiful sorts. Among the best of the singles we noted *Scylla*, bluish pink; *Coanthus*, crimson; *Bæton*, crimson; *Pan*, a fine white; *Abron*, rose; *Habis*, crimson; and *Democratis*, crimson. A selection of the doubles included *Cleopatra*, *Jeannette*, *Le Dante*, *Captain Boyton*, very fine; *Hobart Pasha*, *Mobe*, and *Vance*. This collection clearly showed what beauty there is in these *Pyrethrums* alone for the autumn borders.

FRUIT AND VEGETABLES.—Seedling Melons, as usual, were shown by several, the most remarkable being an enormous fruit from the Duke of Richmond's garden at Goodwood, shown by Mr.

Rutland, who raised it from seed brought from the Cape by General Drury Lowe. It weighed twenty-one pounds, and was oval in shape and well netted. The flesh was white, very juicy, and of excellent flavour. A cultural commendation was accorded to Mr. Rutland. A fine round, netted, red-fleshed seedling Melon was shown by Mr. Burnett from Mrs. Hope's garden, The Deepdene, Dorking, and others came from Mr. Jackson, Putney Heath, and Mr. Taylor, Apperley Bridge, Leeds. There were several dishes of Apples. Mr. Killick, Langley, Maidstone, showed good dishes of Golden Spire, Duchess of Oldenburgh (very fine), Yorkshire Beauty, Early Julien, Echlinville Seedling, Mr. Gladstone, White Transparent, Emperor Napoleon, Worcester, Pearmain, and fruits from the original tree of Weaving Apple, grafted on the Orange Goff sixty-three years ago at Weaving, Maidstone. A few dishes of Apples also came from Messrs. Lane, Berkhamstead, among which were Red Juneating, Duchess of Oldenburgh, Eve, and Mr. Gladstone. A new seedling Apple named Early Lowfield was shown by Messrs. Cheal, Lowfield Nurseries, Crawley. It is in the way of Red Juneating, and is of excellent quality. The fruits shown were rather over-ripe—a proof of its earliness. A new Gooseberry named Bolton's Prolific was exhibited by the raiser, Mr. Bolton, Coombe Bank, Sevenoaks. The berries are yellowish, oval in shape, of average size, and of fair quality. That it is a most prolific sort was well exemplified by the branches shown, which were thickly hung with fruit. The committee desired to see it earlier in the season, as the fruits were over-ripe. Messrs. Carter showed samples of their Long Standing Lettuce, and Messrs. Vilmorin, Paris, sent some fine samples of White Globe Onion. First-class certificates were awarded to

APPLE W. E. GLADSTONE, an early variety, with small conical fruits, highly coloured, and of excellent flavour. Exhibited by Messrs. Lane & Sons, Berkhamstead.

RASPBERRY LORD BEACONSFIELD.—A new sort, bearing very large red fruits of fine flavour. It is a prolific bearer, and in every way a first-rate sort and a real acquisition. Shown by Mr. A. Faulkner, Inkpen, Berks.

POST-CARD received from Derby without any communication—posted, doubtless, by mistake.

Mimulus cardinalis (W. McB.)—A native of California; therefore not among the hardiest. It is a perennial and flourishes best in moist soil.

Gooseberry (J. W.).—Too far gone to judge of flavour, but promising. Increase and try it as a bush as well as espalier, and test its value. Well flavoured Gooseberries we cannot have too many of.

Sweet Pea New Carmine.—It appears that this beautiful new Sweet Pea was not raised by Mr. Laxton. It belongs to Messrs. Hurst, Houndsditch, who will doubtless soon distribute it.

Naming plants.—Four plants, fruits, or flowers only can be named at one time, and this only when good specimens are sent. Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of plants.—Reader.—1, *Tanacetum vulgare*; 2, *Liatris spicata*; 3, *Scabiosa Columbaria*; 4, *Centaurea nigra*.—W. Thomson.—*Eleagnus argentea*.—T. Denny.—*Epidendrum striatum*.—A. Elder.—1, *Sedum Ewersi*; 2, *Allium carinatum*; 3, *Pyrethrum roseum album*; 4, *Aster cordifolius*.—T. G.—1, *Spiraea callosa alba*; 2, *Broughtonia sanguinea*; 3, species of *Davallia*; 4, *Acropera Loddigesii*.—F. W.—*Sedum pulchellum*; the *Pelargonium* is probably a hybrid from *P. quercifolium*.—W. Nelson.—*Bocconia cordata*.—Anon.—1, *Danea racemosa*; 2, *Lonicera reticulata*; 3, *Keria japonica*; 4, *Staphylea trifoliata*.—Mrs. Robinson.—Yellow Sweet Sultan, *Centaurea suaveolens*; variegated Jacob's Ladder, *Polemonium coeruleum variegatum*.—J. T. P.—*Rosa lucida*.—E. G.—*Eryngium alpinum*.—Anon.—1, cannot name without flowers; 3, *Phlebodium aureum*; 4, *Selaginella Wilde nowi*; 5, *Aspidium Filix-mas cristatum*.

No. 614. SATURDAY, AUG. 25, 1893. Vol. XXIV.

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

CARNATIONS FROM SCARBOROUGH.

THIS town is happy in the possession of many Carnations in its gardens, little and big, and Mr. Woodall sends us a boxful of them with the following notes. A lover and grower of the plants, he well estimates their value. "The handsome claret and light grey striped Clove, sometimes sporting to a rich self colour, I think very highly of, and have named it John Harrison, after its raiser at Falsgrove. Nero, a handsome orange border Carnation flamed with red, is also from the same raiser, and very robust and free. Gem, a very cheerful scarlet and white striped and edged border Carnation, particularly free and long flowering, also raised by Harrison, is very useful. Beauty of Boston Spa, a clear rose-coloured self Carnation, with smooth edged petals of Clove-like growth and foliage, but scentless, is the one you admired so much last year, and was raised by Padman, of Boston Spa. Its remarkable vigour at Scarborough is curious; indeed, it is hardly recognisable, and it is only after growing plants from different sources side by side that I feel convinced they are the same. Lady Agnes is a vigorous and useful border Carnation, which is well known and much grown in the north, notably at Raby, where Mr. Westcott has had beds of it for many years, and both there and elsewhere, no name was ever given it, so I gladly adopt the name Miss Jekyll sent me when I found that she grew that charming salmon-pink variety. There were several yellow and red varieties whose names and origin I forget, and so omit them. It is worthy of note that the layers of Carnations that were planted out last autumn have grown so much better than those planted in the spring, that in any garden where, as with us, there is no fear of stagnant air or moisture, it is far better boldly to plant in October or early in November, and put a handful of sea sand round the collar of each plant. You would see that *Olearia Haasti* is thoroughly hardy with us, and stands the most cutting sea wind better even than *Euonymus japonicus*."

FRUIT FARMING IN GLOUCESTERSHIRE.

NOT very long ago, if one spoke of fruit farming as a means of profitably employing arable land that was in want of tenants, a storm of opposition was at once aroused. Our wretched climate and the frequent failure of fruit crops, either wholly or partially, were always ready to be quoted in order to damp the ardour of anyone who thought of trying the experiment, but, in spite of adverse seasons and other drawbacks, few industries have made more satisfactory progress than fruit farming. Not only in Kent, but in other counties it is rapidly extending, and land that it was prophesied would go out of cultivation has been by this means rendered of greater value than ever it was before. In this locality we have hundreds of acres of well-nigh barren heath and common lands broken up and converted into Strawberry fields that yield enormous quantities of fruit. But it is Lord Sudeley's fruit farm at Toddington, Gloucestershire, to which I now wish to refer. It already occupies

500 acres, and will probably be largely extended, being as yet only in its infancy. The work is being carried out on the true Kentish system of straight lines, some of which are three-quarters of a mile in length, and the trees are in the most flourishing condition possible. They were all planted under the direction of Mr. Bunyard, of Maidstone, and the following table will give some idea of the respective numbers of the fruits selected:—

Standard Plums and Damsons	42,500
" Apples	18,000
" Pears	300
" Cherries	432
Pyramid	100
" Pears on Quince stock	512
" Apples on Paradise do.	1319
Black Currants	199,000
Red	10,000
Gooseberries	150,500
Cob Nuts	100
Horizontal trained Pears on buildings	110
Raspberries	70,000
Total	492,873

The standards stand 16 feet apart, with intermediate rows of bushes, and in addition to the above, from 20,000 to 30,000 young Pershore Plums are planted to be ready for future plantations; bush fruits, too, are being propagated from the above stock in enormous numbers. The soil is a good substantial loam, well prepared for the purpose, and the trees and bushes young, healthy, vigorous material that will soon develop into grand plantations. For sheltering, some 10,000 Poplars were planted and 100 Scotch Firs.

OF STRAWBERRIES, some 40 acres are now in full bearing condition, the varieties being Stirling Castle Pine and the American Scarlet, which is very similar, if not identical, with the Grove End, the sort grown in old times specially for preserving. Unlike the large soft sorts grown for dessert, and which smash up into a jelly when boiled, the fruit of the Grove End remains whole and retains its bright red colour, so that preserves made of it command a ready sale. I may add that a regular jam factory is already in operation on the farm, about 50 tons being made this season; what the amount will be when the whole of the bushes get into bearing it is difficult to conjecture. Mr. Beach, of Old Brentford, has entered into an agreement to take the produce of this plantation for several years, a fact that would lead one to suppose that he has confidence that our home-made jams will be able to hold their own against foreign competition.

DOES IT PAY? That is the question. Well, my own experience justifies me in saying that landlords could not invest in a safer undertaking, or tenants either, if security of tenure be guaranteed and compensation for unexhausted improvements allowed at the end of the tenancy. Where the mixed system of planting is adopted, as here, if one crop fails another is almost sure to be good. The system of selling the crop by auction, largely adopted in Kent, is pretty good proof that fruit farming pays if rightly carried out. But to do this a thorough knowledge of the locality, soil, and situation is absolutely necessary before even a practical fruit grower can select the suitable sorts to plant. It would be only inviting failure to plant Cherry orchards where Apples and Plums thrive best, and *vice versa*. Taking even the Apple; while nearly all kinds may be grown in some specially favoured districts, in others only certain sorts will succeed. In Lord Sudeley's case he availed himself of Mr. Bunyard's experience to

select and supply varieties suitable for market fruit farming, and anyone who has read Mr. Bunyard's book on "Fruit Growing for Profit" will be able to form a pretty correct idea of the sorts that are planted at Toddington; for, although Messrs. Bunyard grow every sort of fruit that is worthy of culture, it is only a few that are considered to be adapted for planting on a large scale. In no branch of hardy fruit culture have we made so much advance as in that of selection. As Keswick Codlin heads the list of Apples every year as a safe cropper, and the Victoria that of Plums even in the very worst of years, it follows that they are the sorts to plant for people who want fruit in quantity. It is useless looking for all good qualities in one sort, but a careful study of the fruit reports published in THE GARDEN annually, or a visit to some of the great fruit-growing districts, will help one to make a pretty correct selection.

It is not to be supposed that many will emulate Lord Sudeley's example on so extensive a scale, at least for some time; but the tendency of the day is towards gigantic affairs; what individuals cannot accomplish co-operation can, and that fruit farming will be one of the things likely to be largely taken up in that way I feel confident. The demand for fruit, both fresh and preserved, is not only insatiable, but one likely to increase beyond any means of supplying it, provided it can be done at a reasonable price. It is useless quarrelling with foreign competition; we must supply the article wanted at a lower price than foreigners can do, and I feel sure that we will be able to hold our ground in this matter against all comers.

JAMES GROOM.

Gosport.

IMPORTED AZALEAS.

DURING the autumn months great quantities of Azaleas are imported into this country from Belgium in the shape of small plants for flowering in the ensuing spring, or, in the case of some of the early kinds, for forcing into flower about Christmas. Long before flowering, however, many of these lose their leaves to such an extent as to greatly impair their appearance, though when first imported their foliage was ample. Shifting about would account for the loss of some leaves; but, on the other hand, with a little extra care and attention, many might be prevented from dropping. As these Azaleas are planted out in a light vegetable soil, they are lifted in most cases with larger balls than can be got into a pot of about sufficient size to balance the head of the plant. In this case the size of the ball may be reduced without injury, that is, if the reduction be not too severe. In my own case our plants are received about the middle of September, frequently just before that time; all are unpacked and laid on the damp floor of a potting shed. When unpacking, all those whose roots are at all dry are placed in a tub of water just sufficient in depth to cover the balls, and there they are allowed to remain for some time to soak, otherwise if potted in a dry condition it would be almost impossible to thoroughly wet the ball, and ill-health would be the result. After all are unpacked,

POTTING is commenced, choosing those first that have not been soaked, as these latter will be benefited by being left to drain for a time. The soil which I use is peat and leaf-mould in equal proportions, with a fair admixture of sand. In potting, a good deal can be sometimes

done towards getting the plants in reasonable sized pots by pressing down with the hand any prominent parts of the ball, but where that does not suffice the ball then must be reduced. The soil must be pressed down firmly, using where required a thin piece of wood to work it down into its place. After potting, give a good watering through a rosed pot to thoroughly settle the soil, and if the foliage is wetted at the same time, dust and other impurities adhering thereto will be removed. When this is done and the superfluous water has drained off, they are set in a cold frame as thickly as possible without undue crowding that is so that the tips of the branches just touch each other. So placed, glimpses of the pots can be caught and their state of moisture ascertained. The frame is kept nearly closed and shaded from bright sunshine for about a week, in order to cause the roots to start, when more air is given by degrees and the shading dispensed with. During bright days the plants are syringed both in the morning and afternoon, but in dull weather that is unnecessary. In a week or ten days they will have recovered from their check, when full exposure to air and sunshine will help the ripening of the wood and cause the plants to flower better than if they were unduly excited at that time. The lights are put on during the night, and when requisite protected from frost. Treated in this way, the plants become well furnished with good, healthy foliage, and the buds acquire that plump firmness which betokens a good display of flower.

THE EARLIER KINDS are speedily shifted into the greenhouse, and as soon as there is any danger to be apprehended from severe frosts the whole are removed thereto, whence those required early are soon moved into warmer quarters. When in the increased temperature of the forcing house they will need frequent syringing, otherwise they will become a prey to thrips, which greatly disfigure the foliage. In the case of old plants, if forced every season, they may be had in bloom by the beginning of December, the old white kind being one of the best for the purpose. To fit them for this, force them into bloom as early as possible the first year; then after flowering encourage them to make a good growth in the same temperature, and in spring harden them off by degrees, so that by midsummer the firm, healthy wood may promise well for bloom. If no forcing is required, all that is needed is to keep them in the greenhouse and water them properly till flowering time. *Azalea mollis*, such a grand object in early spring for conservatory decoration, flowers just as well if potted when taken indoors as it does if done some time before that; indeed, from its masses of roots it is in no ways distressed if simply placed on the floor of the house, and a little soil is scattered over the roots and kept moist. There is now a much wider range of colour among the flowers of this last named section than formerly, there being now yellow, both of a deep golden and of a pale sulphur tint, and also rose, salmon, and all intermediate shades.

H. P.

Double *Narcissus poeticus*.—If Mr. Wolley Dod is right in his surmise about the non-blooming of this *Narcissus* (p. 145), and which I attribute to the effect of late spring frosts, how does he account for the fact that in some seasons the clumps will bloom without a failure, while in other seasons the same clumps will not have a perfect bloom on the whole of them, the bulbs having been untouched for years? This was the case in my garden in Kent.—A. RAWSON, *Win-dermere*.

THE PHYLLOXERA IN ENGLISH VINERIES.

I THINK it would be greatly advantageous to the gardening community if more appeared in THE GARDEN about this Vine pest, because I believe that not only is it spreading in this country, but that it is much more prevalent than most of your readers are aware of. I had it in two of my vineries some three years ago, and I then adopted the complete plan of burning. That was recommended to me by competent persons, but since then I have been reading some French works, notably one by Mons. Barrel (*Bibliothèque Physiologique, Paris*) on the "Disease and its Remedies," and I do not feel at all certain that other remedies not so vigorous or so expensive would not answer. At Ashton Court near here the disease has got firm hold; one viney has been destroyed and I expect others will follow. I hear reports of another large garden being attacked, and it may surprise you when I say that I am fully convinced that not half our gardeners know anything about it, either as to its first appearance or as to its treatment. I know of no work in English that will help them, and I think you will be doing good if, through your columns, you will allow your correspondents to give in as condensed form as they can all possible information as to its early appearance and the different modes of treatment that are now used.

Crome Hall, Bath.

H. W. TUGWELL.

** Any information that reaches us on the subject we shall gladly publish.—ED.

NOTES AND READINGS.

GARDENERS' BENEVOLENT INSTITUTION.—The indefatigable secretary, at 14, Tavistock Row, Covent Garden, laments in the *Chronicle* the return of the all but empty "hat" sent round to the 11,000 odd gardeners and horticulturists, and fears "it will be a very long time before the pensions can be increased" if no better support is received. This, or something like it, has been the plaint of the Institution ever since I remember it. Any other society representing a body of craftsmen of the intelligence and position of gardeners would have come to the conclusion by this time that it was needful to try some other plan, but the "Gardeners' Royal" persists in simply begging more importunately than ever. It is only institutions that appeal to the universal sympathy and benevolence of the public that manage to exist on voluntary contributions, and the institution in question is not one of these. It is only the few and better known cases of need among gardeners and their families that gardeners hear of by means of circulars and advertisements in the gardening papers, from which such appeals are now hardly ever absent, but these are sufficient to show the need of some kind of provident institution for gardeners where they could invest their subscriptions to some tangible purpose instead of "casting their bread upon the waters" in the way they are invited to do. If the sole and only object of the Gardeners' Benevolent Institution is to help gardeners, let it set up on modern and better principles, by inviting them to help themselves and it will be seen they will do it. Let it sink its charity dinners and its parade of stewards and all the paraphernalia connected with it, and use its name and organisation in the creation of a society to which all can contribute and from which all will receive help when they need it.

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OVER-PAISED ORCHIDS.—A good many gardeners, and lovers of flowers generally, wonder what there is about a *Vanda tricolor*, for example, to render it so precious in some men's eyes. We find it quite impossible to get up much enthusiasm for a plant that is rather difficult in ordinary culture to prevent becoming a scarecrow in appearance,

culminating at intervals in the production of flowers by no means particularly noticeable. *Vandas* are not very interesting or very beautiful, and, except to buy and sell like shares in Tulips that had no existence in times gone by, they are not really of much account, and would be amongst the last thing which many people would buy who were not influenced by fictitious considerations. We need to be awfully discriminating in these days about Orchids.

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SHOWING HARDY PLANTS AND ANNUALS.—We trust the exhibitions of these will continue. It does not matter in the least whether they are forced or not so long as they are not overforced, and it pays no one to do that with any plant. Plants in flower, and not stiffly trained, show better than can be done in any other way all those points which people want to know about, and at shows people see the plants and judge for themselves. Cut flowers are very well and useful, too, but plants are much better. If cut specimens were always large enough to show habit and branch, they would, however, go far to serve the purpose of plants, and some exhibits of hardy cut flowers we have seen have been very good. Florists' flowers, like Carnations or Pansies, put up on cards convey hardly more idea of the value of the variety from which they were cut than a single brick would do of a mansion.

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A REMARKABLE GARDEN.—That Lancashire garden in a contemporary a while ago was readable, but the Buckinghamshire garden is trying to those who attempt to get through it, only providentially they are few. Many have wondered for whom and for what purpose it is penned, but that is as great a mystery to the general reader as Mr. Shapiras' Moabite manuscripts are at present. Our Buckinghamshire chronicler is nothing if not poetical and kaleidoscopic, and the charming manner he or she weaves Beetroot, Cabbages, Carnations, Fennel, Pinks, Lettuces, Irises and the like all into the same web, just as the crops appear to be arranged in Buckinghamshire, cannot fail to arouse the envy of the "fine writer." We never quite credited the tale of Walter Scott's wife, of whom it is related that she said she "liked lambs best with Mint sauce" when her more imaginative husband dwelt on the sportive gambols of these animals in the meadow; but when one finds our Buckinghamshire friend staying in the midst of his musings and soliloquy to debate with himself whether he "likes these beautiful Green Peas growing in their tall ranks" as much "as when served up in a dish for dinner," they may reasonably conclude the great wizard's wife was not slandered after all; and when they read also of Carnations planted in conjunction with Cabbages and Beetroot, Japanese Iris among Sage and Fennel, and of the "powerful" odour of "ripe Strawberries" drowning the fragrance of the best patch of Pinks, &c., they will understand the æsthetical arrangements of a Buckinghamshire garden much better.

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ACCURATE KNOWLEDGE.—We wish gardeners were as accurately informed on matters connected with their business as doctors and other professional men. We fear the gardener is not always guided, like the true physician, by "a fair view of facts investigated on the principles of positive science," but just as often by "rule of thumb," and that is the reason probably why the gardener has so few generally reliable specifics to offer for the wants and ailments of the subjects under his care. He is not to blame so much for this, for his only school is the garden and his own experience. Gardeners have no qualified professors of the art to teach them. I here refer principally to cultural matters. Take the subject of manures, for example, of which it seems we have yet hardly reached the threshold. The application of manures is quite a random matter with cultivators. The wants of mostly all subjects are different in that respect. What we want are plant stimulants or tonics compounded on the principles of "Farrish's Chemical Food" for example, or the syrups of

citrate, iron, and quinine, and the like, in which all the elements are nicely adjusted to suit the subjects for which they are intended.

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BOOKS might help the gardener, and he has plenty, but they are pervaded by the same empiricism as his practice. A Royal Horticultural Society, aided by a committee of scientific experts, might do much to solve many gardening problems, but these bodies are lost for want of an aim and a purpose. What a lot of plain needful work lies ready for them if they would only do it. Take the shanking of Grapes, for example, that bugbear of the Vine grower. It is a palpable enough disease, for which no one has assigned any definite cause as yet. The *Chronicle* only this week, in one of those delightfully scientific replies to a correspondent, says that shanking is due to "anything that causes a weakness of important parts," which is no doubt true, but what are these weaknesses? It is out of the power of gardeners to prosecute investigations on such subjects, but it is safe to predict that if the scientific committee were to analyse samples of good Black Hamburgs and samples of shanked Grapes of the same kind, they would find that they differed in substance, and it might lead to some certain means of prevention. It might be necessary to repeat the investigation more than once, but it would be a more likely plan than guessing at the cause of the disease. It might even be advisable to analyse the ash of the wood of the Vines in both cases to see if any difference existed there. In all matters of this kind we want accurate knowledge, so far as it can be gained.

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THE ROTHAMSTEAD EXPERIMENTS.—According to the *Mark Lane Express*, these are of a nature to startle gardeners, as well as farmers, out of preconceived opinions. We have lately been reading some articles, based on the "rule of thumb" sort of practice, in which too much nitrogen is described as the main fault of some soils, but the accurate experiments of Sir J. B. Lawes tend in the other direction. The first lesson taught by the Rothamstead trials "is the inexhaustible fertility of good land, the second is the great durability of added fertility, and the third is the comparative uselessness of mineral manures without nitrogen in addition to force the growth of corn. It is not a little remarkable, and well worth remembrance, that two plots of land not manured for thirty-nine years up to and including last year, and cropped with wheat for the whole period, year after year, should have averaged in produce $13\frac{3}{4}$ and $13\frac{1}{4}$ bushels per acre respectively during the last thirty years, or more than the average per acre of the United States. We need not say that the land has had to be kept scrupulously clean in order to secure such a result. . . ." "On plot 5, manured for thirty years up to and including 1881 with 200 lbs. sulphate of potash, 100 lbs. sulphate of soda, 100 lbs. sulphate of magnesia, and $3\frac{1}{2}$ cwt. superphosphate of lime, the average yearly produce of wheat per acre over the whole period has been only $15\frac{3}{4}$ bushels against $13\frac{3}{4}$ bushels on the continuously unmanured plot close to it. This shows the small value of minerals alone and the need of nitrogen." We know of no examples in gardening except borders of hardy plants, corresponding to this, but some of these we do know that have thriven with unimpaired vigour without manure for many years after being well planted at the beginning.

PEREGRINE.

The wooden pavement, says an American paper, is to be given up in London. It has not only failed to realise the promised advantages, but has led, according to Professor Tyndall's report, to serious affections of the eyes and lungs. By continual watering, the wood became saturated with the nastiness of the London streets, and then, under the influence of the hot sun, gave forth a species of dust which was pernicious. The old Macadam system is to be restored.

* * * We wish it were; but unfortunately wooden pavement still exists in London streets.—ED.

PLANTS IN FLOWER.

LILIUM KRÆTZERI.—This fine white Japan Lily, with a good and not too rich an odour, comes to us from Captain Patton, who has many of it. We hope to illustrate it soon.

LILIES AT CHELSEA.—In Mr. Bull's establishment in the King's Road there are now in bloom the rare and beautiful *Lilium philippinense*, and the new *Lilium speciosum carminatum* and the white Easter Lily of Bermuda.

DIANTHUS SUPERBUS.—An old and now somewhat neglected plant. It is good in large bunches for the house, and has a delicate and welcome odour. Well worth growing in some quantity, and very free on many soils. From Mr. Scrase-Dickins at Coolhurst.

CHRYSANTHEMUM TRICOLOR.—Mr. J. Caudwell, of Wantage, sends us some large blooms of this fine annual Daisy, as it is the fashion to call such flowers now-a-days. We are pleased to add that he has not attempted to make them double or distort them in any other way.

STUARTIA PENTAGYNA.—A flowering shrub beyond praise, and quite beyond the usual young-lady-power of drawing. White cups deeply fringed and round bold handsome buds in all stages. Perfectly hardy, and blooming abundantly at Coolhurst (Mr. Scrase-Dickins), near Horsham.

ROBINIA HISPIDA.—In several places this shrub, or rather small tree, is flowering profusely a second time, and though the blossoms are not so bright in colour as they were earlier in the season, they still add greatly to the ornamental appearance of the plant, and are just now doubly welcome.

ST. DABEOC'S HEATH (*Daboecia polifolia*).—This has been finely in flower for some time. We have the ordinary purple-flowered kind intermixed with the white one, and there are also a few plants of the parti-coloured variety. The great recommendation of a flower bed filled with these plants is that all its occupants are perfectly hardy.

BOUGAINVILLEA GLABRA.—This as generally seen, viz., trained more or less severely into a globular shape, is not nearly so beautiful as when allowed to ramble over the end of a house at will, as at Kew, where in No. 4 greenhouse there is a large plant of it so treated that every year becomes quite a mass of purple bracts. It succeeds so well there, that it is evident stove treatment so frequently accorded it is unnecessary.

MIMULUS MOSCHATUS RUBER.—This is a pretty robust growing, yet dwarf, variety of the common Musk, highly fragrant and bearing large flowers of a pleasing shade of reddish buff with, in most specimens, deep orange margins to the petals. Its dwarf, free flowering habit renders it useful for conservatory decoration, as it furnishes a colour almost wanting therein, besides which it is highly prized for its scent.

SINGLE DAHLIAS.—We have received from Mr. Fish a charming single Dahlia (a seedling), which he proposes to name Lucie Goldworth Fish. Its petals, which are of good form and substance, are white as snow, broadly edged with the brightest scarlet—colours which, combined with the yellow centre, give to the flowers an appearance at once striking and novel. Mr. Fish adds that the habit of the plant is excellent, and, that being so, this new variety cannot fail to become a favourite.

GREENHOUSE CLIMBERS.—In the conservatory at Kew a most charming effect is produced by three climbers growing in close proximity to each other and bearing a thick profusion of bloom. Two of them, viz., *Rhodochiton volubile* and *Tacsonia exoniensis*, are trained along rafters, and the third is *Bougainvillea glabra*, an unusually good variety, trained against the end of one of the divisions. The *Rhodochiton* hangs from the rafters in the shape of a long curtain of green foliage and purple and red flowers, and a little beyond it is seen long shoots of the *Tacsonia* with bright green foliage and rosy red flowers well shown off against the blaze of *Bougainvillea* blooms in the background. The beauty of many

climbers is never displayed to the full when trained up stiffly and trimmed in closely. It is only when the shoots are allowed to wander a little at will and hang down as long as they like to do that the beauty of such plants reveals itself. There is too much stiff training and tying and staking and pruning among many of the plants in our indoor gardens and not enough of their natural grace and beauty to make our plant houses what they should really look, viz., gardens under glass.

RHUS GLABRA.—The flowers of this *Rhus* are not so showy as those of some of the others, but the foliage is just now so handsome as to make the plant very ornamental. The leaves are long and pinnate, of a deep shining green, and, as they appear to be proof against the attacks of insects, they are as perfect as at first, unless planted in too dry a situation. The cut-leaved variety (*laciniata*) is also very distinct, but the most beautiful as regards inflorescence are *R. typhina* and *Cotinus*.

MONTBRETIA POTTSII.—We have received from the New Plant and Bulb Company, Colchester, sprays of this *Montbretia*; also of *Crococsmia aurea*, and of the beautiful hybrid between these, viz., *Montbretia crocosmiæflora*. All these are bright orange-crimson flowered plants, found to be hardy or nearly so at Colchester. Dr. Wallace also sends a few flowers of *Freesia refracta alba* (odorata) to show how well this lovely white-flowered fragrant plant is flowering this year out of doors.

HIBISCUS SYRIACUS.—This, the *Althæa frutex* of old writers, is now beginning to unfold its large round purplish blossoms. It still maintains its place as one of the most ornamental of autumn flowering shrubs. A moderately moist soil, but not wet, suits its requirements best, as when dry the leaves turn yellow and the flowers do not open properly. The variety in colour is great, ranging from purple to white, and both single and double flowers are of frequent occurrence. Where favourably situated, blossoms will continue to expand till frost sets in.

PELAGONIUM PRINCESS STEPHANIE is one of the varieties of a new race recently introduced from the Continent. It is an admirable plant, remarkable for its dwarf sturdy habit and free flowering tendency even in small plants. The flowers are double, of a deep rose-pink, and produced in dense trusses on stout short stalks. It makes an excellent decorative plant, and for this purpose is highly esteemed, and will doubtless be largely grown for market purposes. At Messrs. Cripps' nursery, Tunbridge Wells, it is grown in place of older varieties which it will in time supplant.

CAMPANULA PYRAMIDALIS.—This was at one time common in every garden, but now somewhat neglected, though useful in the greenhouse at this season. In company with its white variety it is employed with advantage in the decoration of No. 4 greenhouse at Kew. Another *Campanula* (*C. Vidalii*) has been very beautiful there for some time, and well deserves more extended cultivation than it receives. It forms a stout stem about a foot high, from the upper portion of which the long flower-shoots are produced. The flowers are pure white, bell-shaped, drooping, and borne in great numbers throughout the summer.

HÆMANTHUS NATALENSIS.—In the Cape house in Kew Gardens several plants of the "Blood Flower," as this plant is sometimes called, are bearing good heads of flower, which, for brilliance of colour, are unsurpassed by those of any other species of the genus. We have on several occasions directed attention to the remarkable beauty of these plants, especially to *H. coccineus*, of which there are also two large pans of bulbs about to push up flower-spikes. There is much to be said in favour of the Blood Flowers as useful garden plants, and we feel sure that if they were once taken well in hand they would prove as valuable for autumn decoration as *Hyacinths* are for spring. *H. natalensis* is a common South African plant. It imports well, and, if gathered at the right time, blooms soon after arriving in this country. We learn that the plants now in flower at Kew arrived from Natal but a short time ago,

and that the flower-heads had half developed in the box in which they were packed. The bulbs are as large as Apricots, thickly spotted with red on a green ground. The flower-head, which is as large as one's fist, is borne before the leaves appear, and is composed of a large number of bright orange-red flowers packed thickly together and surrounded by pale green bracts. *H. albiflorus*, a white-flowered species, is also represented in the above house by some well-flowered specimens.

RUBUS ODORATUS.—The large showy blossoms of this Bramble are especially valuable now when but few others are in flower. It forms a stout growing upright shrub, clothed with large five-lobed leaves as much as a foot in diameter, and its clusters of open flowers measure 2 inches across. When first expanded they are purplish crimson, but afterwards become paler. Though, according to Loudon, this plant was introduced early in the last century, it is seldom planted, notwithstanding its handsome appearance. A large plant of it has been for some time very ornamental on a raised bank in the herbaceous ground at Kew. There is also a white-flowered variety, but it is rarely met with in gardens.

AMORPHA CANESCENS.—This is an erect growing shrub reaching a height of 3 feet or 4 feet, and later in flowering than its ally, the Bastard Indigo (*Amorpha fruticosa*). It derives its name from the hoary appearance of the leaves. This *Amorpha* is known as the Lead Plant of the United States, an idea being prevalent that its presence indicates the existence of lead ore in the soil. The flower-spikes are terminal, and the densely packed blooms are of a beautiful purplish blue, with which the golden anthers form a striking contrast. This shrub seldom thrives with us for any length of time, but in the collection of Leguminosae at Kew it has remained two or three years, and is now finely in flower.

BOUVARDIAS IN SUMMER.—Though generally regarded in the light of winter-blooming plants, many *Bouvardias* flower freely enough under special treatment at this season, and, notwithstanding the wealth of flowering plants now in perfection, their chastely beautiful flowers are always prized. Those under notice were flowered early last winter, then rested a little, and started into growth in spring, with the result that they are again in full bloom, and the amount of cut flowers supplied by them is very considerable. These plants have been top-dressed a couple of times during the season with a little artificial manure. Another method is to turn the old plants out into a sheltered border, whence quantities of flower are obtained with no trouble, except an occasional watering, but the colour is not so pure as when grown under glass. The varieties to which we allude are *Vreelandi* (white), *elegans* (scarlet), *Maiden's Blush*, *Queen of Roses*, and *Rosea oculata* (pink), and the two doubles, *Alfred Neuner* and *President Garfield*.

OLEARIA HAASTI.—Till recently this Australian Composite shrub could only be found in botanical gardens, but now it is becoming more widely known, since it has proved to be thoroughly hardy at least in the south of England and in Ireland. It is unquestionably a most valuable shrub, flowering, as it does, in late summer, when flowering shrubs are most wanted. It has much to recommend it, being dwarf (from 2 feet to 4 feet high), and, moreover, very neat and compact. Just now bushes of it are dense masses of white Daisy-like blossoms produced in large flat clusters at the tip of every twig. It lasts for several weeks in perfect bloom, and when out of flower its small leathery foliage makes it a handsome Evergreen. By far the finest bushes of it we have seen planted out in the open were those we saw the other day in Mr. Kay's beautiful new garden at Ely Grange, Frant, where in light sandy loam this plant thrives to perfection, and is now a perfect mass of white. Bushes of it are planted on an exposed lawn interspersed with *Rhododendrons* and *Brenchley Gladioli*, the latter being now in full flower, and their tall brilliant scarlet spikes, mingled with the *Olearia*, produce a charming effect. As to the hardiness of the

Olearia about Tunbridge Wells, there is no doubt, for in Messrs. Cripps' nursery it withstood the severe winter of 1880-81 in exposed quarters, and the same plants are now in perfect health and in the fullest bloom.

DOUBLE IVY-LEAVED PELARGONIUM ABEL CARRIERE.—This popular class of *Pelargoniums* has of late received some notable additions, especially from Continental raisers, to whom we are indebted for several of the best varieties. Among the most prominent is *M. Crousse*, of Nancy, from whose establishment this variety was put into commerce during the current year. It has the stout, sturdy habit of many of the new kinds rather than that of older sorts raised directly from the common Ivy-leaved *Pelargonium*. The flowers of the kind in question are very large and bright magenta, shaded with crimson towards the centre of the flower. It is the finest of that shade of colour that has yet come under our observation.

BEDFORD RIVAL TROPÆOLUM.—If anyone desires to see this useful dwarf *Tropæolum* to good advantage they cannot do better than pay a visit just now to the Chiswick Gardens of the Royal Horticultural Society, where it will be found in full bloom. It rarely seeds, especially when grown from cuttings, and it flowers with great freedom until cut off by frost. It comes very true from seed. Lustrous, awarded a first-class certificate by the floral committee at South Kensington not long since, forms an excellent companion to it, having that dark bronzy green foliage found in some of the dwarf *Nasturtiums*, and fine, stout, well-formed flowers of a lustrous crimson colour. Both are well worth a place in the flower garden.

DOUBLE-FLOWERED BRAMBLES.—We were struck with the appearance of these in Messrs. Cripps' nursery at Tunbridge Wells, where there is a fine display of them now in full beauty. There are three distinct varieties, the double white, double pink, and double rose. All three are beautiful, but the latter particularly so, there being several shades of tint in the flowers varying with their age. The flowers are perfect rosettes like a quilled double Daisy, and are produced in long terminal clusters all over the bushes, which spread widely in all directions. The double Brambles make fine objects as isolated bushes in retired nooks near or on a lawn, and they never have the untidy look of a common Bramble.

AUGUST LILIES.—A noble series of kinds admirably grown from Mr. Wilson's, at Heatherbank. It is a great pleasure to see the fine, distinct forms of *auratum* and *speciosum*, and, richest of all perhaps, the larger forms of the *Tiger Lily*. The white *speciosum* is a lovely thing in a cut state, well grown as these are. The following are from the open ground at Wisley, viz., *L. auratum rubrovittatum* (four flowers), *L. a. virginale*, broad petalled (three flowers), *L. Leichtlini* (four flowers), *L. Batemannia* (four flowers), and *L. cordifolium* (three flowers). From the cottage orchard house, in pots, came *L. tigrinum splendens* (six flowers), *L. t. jucundum* (three flowers), *L. longiflorum eximium* or *Wilsoni* (one flower), *L. speciosum rubrum* true (six flowers), and *L. s. album* (eight flowers).

GUSTAVIA GRACILLIMA.—For the introduction of this beautiful plant we are indebted to Mr. Bull, who was successful in flowering it in 1875, and from whose nurseries it has been widely distributed. We are not aware that flowers have been produced in this country since Mr. Bull's plant produced them until the present time, when flowers are to be seen on a plant at Kew in the Victoria house. This *Gustavia* is a member of the *Myrtle* family, and especially interesting both to botanists and horticulturists. In the *Botanical Magazine* it is stated to be one of the finest garden plants of recent introduction, and we have no doubt that as it becomes better known it will prove deserving of such an encomium. Its habit resembles that of some of the *Aralias*, the hard, woody, erect stems and the linear, bright green foliage—in itself by no means unattractive—suggesting the *Aralia* family rather than the *Myrtle* order as its botanical position. The *Clusia*-like flowers are borne on the ripened wood in the axils

of the leaves on young plants, and on the leafless portion of the branches as they become older. They are about 4 inches in diameter and of a bright rose colour. The petals, of which there are eight, are incurved, and surround a broad cluster of densely-packed stamens tipped with purple anthers. The flowers do not last very long, but as a large number are borne on even young plants, there is a good succession of bloom. *G. gracillima* is a native of the United States of Colombia, where it was discovered by M. Roetzl. Other species of *Gustavia* that have flowered at Kew are *G. pterocarpa*, introduced by M. Linden, and distributed by him as *G. Leopoldi*. This is a white-flowered plant with leaves of ample size, not unlike those of a Laurel. *G. insignis* has large cream-coloured, sweet-scented flowers. The foliage in this, too, is broad and large, with a serrated margin.

AUTUMNAL ROSES.—I have to-day (August 20) cut, as showing the (to us now-a-days unusual) summer-like character of the present glorious weather, as beautiful a bunch of *Roses* as it is possible to cut at any time of the year. I began with *Duc de Rohan*, then *Marie Baumann*, then the *Hon. George Bancroft* (so sweet), one of *Bennett's* pedigree *Roses*—by the way, these *Roses* must have sun to bring out their blooms—an almost black *Jean Lilliviere*, a lovely *Madame Gabriel Luizet*, a splendid bloom, deliciously fragrant, of one of *Frettingham's* new seedlings, *Beauty of Beeston*, a fine bold *Egeria*, a *J. B. M. Camm*, an *Auguste Rigotard*, and last, but not least, two or three opening buds of that (with me) shy opening *Tea Rose La Boule d'Or*. My blooms altogether made up a bouquet a queen might be proud of.—N. H. FOWNALL, *Lenton Hall, Notts.*

LAPAGERIA BLOOMS.—Mr. Humphrey, Nash Court, Faversham, sends us some lovely blooms of his variety of *Lapageria rosea*—certainly one of the best we have seen, being beautifully mottled with white; he also sends some blooms of *L. rosea superba* to show that his variety is superior to that so named. It is, in short, an unusually fine and free flowering form of *L. rosea*. Mr. Humphrey states that both are growing in the conservatory at Nash Court under exactly the same treatment as regards soil. They were both planted on the same day four years ago, and both have made wonderfully fine growth. His variety, which he has named *splendens*, has, at the present time, over 500 fully expanded blooms on it, and, being mixed with the lovely white kind, they have a grand effect.

VARIEGATED KERRIA.—The variegated-leaved form of the old Japanese *Kerria*, such a common shrub against the walls of country cottages, is really a charming shrub where it succeeds well in the open, which is not always the case on heavy soils, as it is of a weaker constitution than the type. The other day we saw a fine bush of it over a yard through in the Tunbridge Wells Nursery, where it is perfectly hardy and thrives admirably in the dry, warm soil there. This bush at the present time is studded with golden yellow flowers among the silvery edged foliage, producing an uncommonly pretty effect. In conservatories, where the plants are planted out, this shrub is well worth a place, as it flowers under glass so much earlier than out-of-doors, and there is no risk of the foliage being injured. We have often alluded to the beauty of bushes of it planted out in the temperate house at Kew.

NATIVE HEATHS.—There is an interesting collection of these either in flower or rapidly approaching that stage in the new Heath garden at Kew. The difference among them is very great, there being stout free-growing forms nearly 2 feet high, and others but a few inches in height. The flowers, too, vary in colour from purplish red to white, and from the difference in their time of expanding a selection might be made that would extend the flowering season over several weeks. There is one variety (*alba pubescens*) in which the leaves are quite woolly, and a dwarf one of a bright golden colour. For planting in hot and exposed parts of gardens several of our hardy *Heaths* are well adapted.

FLOWER GARDEN.

MILLA BIFLORA.

WE herewith give an illustration of a bulbous plant that, both recently and for some years past,

stems are smooth, from 9 inches to 12 inches in height, and usually bear but one flower, but when grown strongly they sometimes produce two and three flowers, and in a wild state they not unfrequently bear as many as five flowers. The speci-



Flower-stem and bulb of Milla biflora flowers white.

has been the subject of much comment in THE GARDEN. It shows the plant life-size, but, though correct in form, it conveys but little idea of the exquisite beauty of the snow-white wax-like flowers. The bulb, or rather corm, is somewhat small, and membranous coated. The leaves are round, Rush-like, and very rough. The flower-

men from which our drawing was made bore three flowers, but only one was expanded when the sketch was taken. It was sent to us by Messrs. Horsman, of Colchester, who have imported this plant in large quantities, and have it now in full flower in their nurseries at Mark's Tey in the open air. There is, therefore, little likeli-

hood of this beautiful plant ever again becoming such a rarity as it has been. It has generally been considered to be a difficult plant to manage, but Mr. Horsman assures us that it thrives perfectly well in the open border in light rich soil. The bulbs should be planted in March or April in some sunnyspot, and if thoroughly ripened, they will soon develop foliage and flowers. After blooming the great point is to get the bulbs thoroughly matured before lifting them in August or September—that is, after the foliage has decayed. No doubt many would like to cultivate it in pots or in frames, which, after all, is the most satisfactory plan, as in that case the plants are better under one's eye. It inhabits the western coast of North America, from South Arizona and New Mexico to Central Mexico.

W. G.

PERPETUAL CARNATIONS FROM SEED.

RAISING these from seed will be found to be as interesting as raising Auriculas. There is the same delightful uncertainty about what you are going to have, as the selected colours sold in collections only guarantee that the seeds were saved from the colours named, which is not much of a guide, seeing that you may have many colours and varieties from the same seed-pod if you grow your own seed. The best time to sow is early in spring under glass, with just a touch of bottom-heat to start germination. The seeds are as large as those of the Sweet William, and the best way is to take the seed-pan indoors, and put each seed in its place with the tip of a quill pen in rows nearly 2 inches apart. Ordinary soil will do perfectly and cover barely a quarter of an inch; just covered will do better if a sheet of glass can be placed over the pan to prevent evaporation. Plenty of air must be given, and the sooner the plants are in the open air the better after the second pair of leaves is formed. The most forward plants should be lifted and potted into 6-inch pots when they have made three pairs of leaves, the holes being filled with fresh soil. The weaker and later ones can be helped with a very weak dose of liquid manure. Genuine Peruvian guano, a tablespoonful to a pail of water, I find to answer well. Perpetual-flowering Carnations assume a variety of habits, and in order to suit these I recommend potting off from the seed pans. When the young plant sends out a number of branching shoots up the stem it will have more or less of a climbing or tree habit, while, if a bush of shoots spring from the collar, the plant will most likely have the habit of continually sending up new flowering shoots; many, however, have the moderate growth of the ordinary Carnation. I have not had any pipings grow so strongly as the seedlings. Strong-growing seedlings want 3 feet each to give room for free development. J. D.

AURICULAS FLOWERING IN AUTUMN.

WE have now arrived at a critical period in the culture of the show Auricula. The plants should be placed where they are shaded from the direct rays of the sun. The north side of a wall or fence is the best position for them; the lights ought to be removed as much as possible, and all this is done to keep the plants from being unduly excited. It is very easy to obtain a strong vigorous growth, but the result of this means a plentiful autumn bloom, the most undesirable state for the Auricula to get into. It is the special dread of the exhibitor. If flower trusses are thrown up now, the plants have time to form a new crown, and they are likely to flower fairly well next spring, though not so well as if they had not attempted to flower. September and October trusses, which are far too common, are even more undesirable. It is a good plan to keep the plants moderately dry at the roots. Alpines require treatment very similar to the others. Any offsets that are sufficiently strong should be taken off now, carefully potted in small pots, and placed in hand-lights. They do not form

roots so readily at this season as they do in spring, and they must also be carefully attended to to prevent damping off. Offsets struck in spring or later must also be potted on into larger pots as they progress in growth. These young plants would keep in moderately good health in very small pots for nearly twelve months, but they make but little progress in growth unless potted on as soon as they require it. Such plants seldom give any autumn bloom, and may probably yield a truss in spring good enough to obtain a premium reward at an exhibition. Seedlings raised early in the year require potting on in the same way. With good culture they will bloom in 3-inch pots and even produce large, well formed trusses. This year's seed, sown a month ago, is now up, at least some of it, but the largest proportion will lie dormant until spring. The little seedlings must be pricked out as soon as they are large enough to be handled.

J. DOUGLAS.

GARDENING IN THE LONDON PARKS.

The flower beds and borders in the London parks have now reached almost their greatest beauty; but before attempting any detailed criticism as regards arrangements, or pointing out where they are successful or otherwise in an artistic sense, there are a few general suggestions that it may be well to make. The most glaring error in all the metropolitan parks is the planting and management of the shrubberies. In town planting we are fettered in a great measure by what will grow, but, nevertheless, sufficient shrubs will succeed in open spaces in cities to furnish picturesque and beautiful groups. The first mistake usually made is that of planting shrubberies in a solid mass. Take seven or eight objects of various forms and heights and pack them together on a table as close as they will stand. Allowing for all the variety that can be got out of such a group by supposing the tall and short objects to be trees and shrubs of varying appearance, very little variation will be visible. Place the same group of objects some little distance apart, however, and much greater variety produced will be apparent. Sometimes a group is solid; at other times one or more objects stand clear, and the rest form a group. In actual planting there would be always vistas—little glades running into the group crossed by cast shadows from the trees—and a far more varied and interesting outline both against the sky and on the ground than can be produced by close planting, while the effect is quite as rich and full as a whole. Happily, evergreens will not thrive in smoke, and thus a fertile source of sombre and funereal effect, and heavy and lumpish outline is removed, but even without these the shrubberies want more light and sunshine let into the heart of them than they now get. Then as to

MANAGEMENT OF SHRUBBERIES, the park gardeners should sit down and ask themselves how Nature manages them, and follow her instructions strictly, or with only a little variation. Nature's management of shrubberies consists of two main points. The plants are never so much crowded as to cause the stronger growing things to smother the weaker, and the ground about the roots is never dug or interfered with in any way. Shrubberies should be thinned out as they become too thick, so as to allow each plant room for full development. There should be no cutting and pruning the plants to keep them small. The ground beneath them should never be dug, hoed, or raked further than is necessary to keep down weeds, and all leaves that fall from the trees on Grass or walks should not be carted off, but should be thrown in amongst the shrubs. Give the latter their natural soil and treatment, and the pretty wild flowers that enliven our woods in the spring will thrive as well in London as in the country, and many exotics of similar habits will not be found wanting under the same treatment. Not only these, but alpine Auriculas, Polyanthus, and many coloured Primroses would thrive under the same culture. Keep the pruning hook, spade, shovel, and rake out of shrubberies, and all possible beauty can be produced amongst the plants. Where shrubs come on to Grass there

could not be a greater blunder than that of defining the boundary line. Where ugly and artificial boundaries are emphasised by strips of brightly coloured flowers, the result is as bad as can be. Designers of these atrocities should seriously ask themselves what a London park should be. Have they forgotten the country in which they were presumably bred? or do they ever visit such natural parks as Epping Forest, Hadley Wood, Bostal Heath, and Hayes and Keston Commons? Should a park which forms the lungs of a great city, and a stroll in which is the one bit of Nature open to many of its inhabitants, except on an occasional holiday, be a piece of meretricious artificiality, in which the effects aimed at are those of a Christmas fairy extravaganza? or should it contain as much of Tree Nature and country gardening as can be carried out in it? I think most people will, with a little thought, arrive at the latter conclusion. What possible interest can ordinary people feel in *Kleinia* this, and *Echeveria* that, and *Musa* something else, all set out in a bed, resembling in outline a boy's mud pie, compared with what they would feel in a bank of Pansies, or a bed edged in a careless way with boulders sunk in the turf, overgrown with *Houseleek*, *Stonecrop*, *London Pride*, and *Primroses*, and filled with *Carnations*, *Columbines*, and *Sweet Williams*?

SUB-TROPICAL PLANTS are not objectionable in themselves, but the only rational use to put them to is to give the denizens of our cold clime a glimpse of exotic Nature. Have the Palms, Musas, Cannas, Bamboos, and succulents by all means, but group them after the manner of the Tropics, and mix them with such hardy plants as have relatives resembling them in warmer climates, or have somewhat of the character of tropical vegetation. No more absurd treatment could be imagined for a tropical plant than to plunge it in well-kept Grass turf, unless it be to make it the centre-piece of a geometric figure in carpet bedding. The Grasses of the Tropics are mostly gigantic, and the groundwork for these plants should consist of dwarf plants and pretty trailers, from amongst which their fine leaves would rise with a look of being Nature-planted. Let the Musas and Palms, for instance, rise from a carpet of *Begonias*, with here and there clumps of *Gladoli*, large-leaved *Saxifrages*, and masses of *Iris* on natural-looking pieces of rockwork set about the edges of the bed. All artificial arrangements should be kept for indoor decoration, flower shows, and public and private receptions; out-of-doors everything should be on Nature's plan, even though we group together a plant from the Rocky Mountains, another from Japan, a third from the Himalayas, and a fourth from New Zealand. The great object should be to hide the artificial character of the surroundings, except in such situations as where a long, straight walk, flanked by straight rows of trees, overpowers any attempt at natural effect. Even this case is, however, not beyond the reach of the picturesque if the trees are wide enough and old enough, as in the great avenue in Kensington Gardens. Here a fine effect might be produced by allowing a few felled trunks, stripped of their smaller branches, to lie in a picturesque group, with great *Mulleins*, *Delphiniums*, and purple and white *Foxgloves* planted amongst them, festooning their huge antlers with climbing plants. In gardening to plant a thing where we think it will look well is, in the majority of cases, the straight road to failure. The first thing to consider is the requirements of the plant; these ascertained, we may plant it in any situation in which it looks best, provided it will grow there. It seems to be an almost universal opinion that flowers look well against

A BACKGROUND OF SHRUBS, and so they do; the neutral greens and deep violet-grey shadows amongst shrubs and trees form the best possible background for all colours. To plant flowering plants, however, and especially those which require good soil and rich cultivation, in any place where the roots of shrubs and trees can reach the same ground is to ensure failure. Especially is this the case where the shrubs and trees have

been planted in unprepared soil. Along one side of my garden is a Hawthorn hedge, and behind that a row of trees and shrubs—white *Poplars*, wild *Guelder Rose*, *Spiraeas*, and *Weigela rosea*. Two feet in front of this hedge has to be left unoccupied to allow of the roots being cut twice a year, otherwise they would stunt or kill everything within 10 feet of the fence. If neglected in spring the roots are at work in the autumn 15 feet off; nothing thrives near the hedge but *Ox-eye Daisies* and *Foxgloves*, there not being as yet any quantity of leaf-mould. Good flower beds for choice plants should not be made near shrubs, but if the ground is level, and the shrubs are not planted on raised mounds, they will appear as a background to the flowers just as if planted close up to them. One of the most pernicious practices ever introduced into gardening, from a cultural point of view, is that of constructing raised mounds with shrubs on the top and flowering plants on the sloping sides. It is a pretty idea that of building up a "bank whereon the wild Thyme grows," but, unfortunately, nothing but the wild Thyme and plants of similar habit will grow on such banks. In hill countries plants which like moisture will often be found growing, and growing luxuriantly, on tolerably steep slopes, but these slopes have rock underneath, and almost always water oozing and flowing below the surface soil, and breaking out in tiny springs or little bits of bog where it meets an obstruction. Sloping banks artificially made only produce over-drainage.

GEOMETRICAL AND PATTERN BEDS.—This is a kind of business that should be modified as far as possible in all public places. If a plant is grown at all, it should be grown naturally and allowed to develop itself freely so as to show its natural beauty and character. Even in the case of the plants used for these geometric beds a far better effect could be produced by grouping them in a natural and picturesque manner in beds of informal outline than growing them as is usually done, but there is no necessity for planting these tender things any more than there is for cutting out beds of formal outline. Hardy plants in public places have been objected to because it is said the public prefer bedding plants, but in what public resort have the public had a chance of seeing hardy plants at their best? Here and there a few weedy plants have been literally stuck in and left to take care of themselves, but nowhere have good things been planted intelligently and cultivated with the care and skill devoted to bedding plants, with the exception, perhaps, of some instances in Battersea Park. Even although visitors to the parks prefer the bedding arrangements, it is a question whether the gardening in such places should not teach instead of pandering, whether it should not aim at cultivating high tastes instead of being guided by low ones. At the very least, if we are to have public gardens, a place, and a good place, should be found for a system of garden decoration which is everywhere fast superseding the bedding system. Room should be found for all plants which have old and poetical associations connected with them, as well as for hundreds of others from the temperate regions of other lands, and from which the public can gather more of the beauty of vegetation than they can from imitations of confectionery and Berlin wool work.

J. DUNDAS.

Telekia speciosa is a very handsome hardy plant of stately growth with showy orange-yellow flowers. It can be highly recommended for growing in rough and windy places, and for keeping its flowers bright and uninjured in wet and stormy weather. It has also the merit of being easily raised from seed, and flowers freely the second year. This plant comes originally from Hungary, but it does not seem to be as well known as it deserves to be from its hardiness and the fine effect it makes amongst Evergreens at this time of year. The flowers grow in large clusters; each flower is 3 inches or 4 inches across with close thread-like rays. On first unclosing it is nearly flat, but as the florets open the centre becomes dome-shaped and

the rays reflexed. The leaves are heart-shaped, prolonged, unequally saw-edged, much wrinkled, and downy on the under side. The lower leaves are 21 inches to 24 inches long by 15 inches wide, and they gradually diminish in size up to the top of the flower-stem. The plant is allied to the *Inulas*.—H. B. H., *Aigburth*.

HELENIUM BOLANDERI.

THIS is a new hardy perennial Composite introduced by Messrs. Vilmorin, of Paris, from California, where it grows naturally in meadows and swamps near the sea. It is described in the "Botany of California" as a striking large-flowered species, the ray florets of which are an inch long



Helinium Bolanderi.

and bright yellow. It has stout stems growing only a foot or two high, and forms a neat habited plant, flowering late in the summer and autumn. It is nearly related to both *H. Hooperi* and *H. autumnale*, and possesses the advantage of not being so tall as either. Should it come into flower just before the favourite *Rudbeckia Newmanni*, it will be a valuable plant.

Madonna Lilies.—There is no doubt these do best in old gardens where the soil has been long under cultivation. They did very well with me at New Cross in shallow soil, which had been an old common, but had been cultivated as a market garden for thirty or forty years. Wherever I have noticed them doing particularly well it has been in soil from 18 inches to 2 feet deep on a hard, well drained bottom. The bulbs I brought here with me four years ago have only flowered this year for the first time; they were planted in soil which had never previously received any cultivation. From a little experience I had this year I should feel inclined to enrich the ground for them with rotted Grass mowings. I had two dozen fresh bulbs last autumn, three of which I could not find places for. These lay out in the box in which they came, covered with the packing material, hay, straw, and wood shavings. In March they were not only alive and strong, but had sent out fresh roots from 3 inches to 6 inches long along the bottom of the box beneath the rotting litter, and were beginning to rise for bloom. I feel sure they should not be planted in a raised bed. I do not think the bulbs of the white Lily are ever really dormant. The new growth begins when the upward growth of the plant stops while the bloom buds are forming.

I had one broken by the wind at that period, and on examining the bulb I found just a few loose scales. Sometimes the scales close in and a new bulb is formed nearly at the same place as the old; at other times one or more bulbs form at the side. With most bulbous Lilies nothing appears above ground but the flower-stem, but with the white Lily the last few scales to form of the new bulbs appear above ground and take the form of leaves. The best time to move white Lilies is just when the growing point is ready to pierce the ground; that seems to be the nearest approach to the dormant period of other bulbs; they assume a sharp-pointed form and then lie dormant while the flower-stem forms inside.—J. D.

Carnation Lady Agnes.—A valuable kind with many good qualities. Very free and easily grown, of good bush habit; colour a beautiful salmon-rose, very sweetly clove-scented. It remains long in bloom, beginning at the end of July and lasting till the middle of September. Two-year-old plants each bear about 250 flowers on from 40 to 50 flower-stalks. It was raised by Mr. Evans, gardener to Mr. Stewart-Hodgson, of Lythe Hill, Haslemere, when in the service of the Earl of Norbury. Mr. Evans tells me it was a seedling from a crimson Clove.—G. J.

* * * An excellent plant, good in colour, prolonged in bloom, free and vigorous, and richly scented—qualities which are not sought by the florist, nor can he show them in his way. We cannot have too many of these good Carnations.

Single and double French Marigolds.

—Of the flowers which I send you, which are best, the doubles or singles? They are from the same strain, out of the same packet, but the singles are regarded as "wastrels" by florists. I consider the singles the most perfect and prettiest; they just stand to the doubles as the single Dahlias do to the double ones.

* * * In this case we think the double flowers handsomest, though the single kinds are also pretty.—ED.

Gunnera manicata.—Have any of your correspondents had experience with regard to this truly noble foliaged plant? If so, I should be glad to compare notes with them as to size of leaf, &c. Our largest leaf this season measured 6 feet, 8 inches across; it has a stem 5 feet long, and there is an enormous flower-spike $3\frac{1}{2}$ feet high. The plant is growing in close proximity to its older congener *G. scabra*, but there is no comparison between the two in respect to grandeur of size or form. The rich emerald green of the immense leaf of the former variety is especially beautiful. Both varieties grow freely from seed, which is produced in abundance. I find that the crowns require a little protection in severe winters; a very slight mulching with dry Fern or litter answers this purpose perfectly. They should have plenty of room in good deep rich soil, not too dry, in which to fully develop their leaves and flower-spikes.—SANGUINEA.

SHORT NOTES.—FLOWER.

Gentiana macrophylla.—I send herewith a Gentian received from Messrs. Froebel, of Zurich, last spring for *G. affinis*. This it clearly is not, but it is *G. macrophylla* mentioned in THE GARDEN (p. 115). The foliage is extremely rich and handsome, and the flowers, when open, have a very distinct beauty of their own.—J. C. L.

Nicotiana affinis has been very fine in our borders, opening late every day like an Evening Primrose, but unlike one in so far that the same flower opens and closes several evenings in succession. When large bunches are cut and put in water, they last several days open without closing at all. Why is this?—J. R. D., *Stamford Hill*.

Helianthus rigidus.—Although we have at this season of the year several good yellow-flowered composites in our herbaceous borders, few, I think, equal this Sunflower. Its blossoms are large, the colour brilliant, and each flower is so well supported on stout rigid stalks as to constitute it a valuable plant to cut from. It is now very attractive in the herbaceous grounds at York. It succeeds perfectly well in ordinary garden soil.—P.

Propagating Carnations.—"J. S. W."

asks why Carnations are propagated exclusively by layers. There is no other reason except that a very lengthened experience has taught cultivators that layering is the best way in which to propagate Carnations. I should say Mr. Charles Turner, of Slough, propagates at least 50,000 every year, and his experienced foreman, Mr. John Ball, told me that they scarcely ever raised a single plant from cuttings. I have grown Carnations a good many years, and layered over 4000 this year, and have not put in a single cutting that I could layer. There are always a few that cannot be brought down low enough for layering, and if the variety should be a scarce or valuable one we invariably put in these as cuttings. They will form roots under close bell-glasses, but they root very slowly, and such plants are not nearly so strong, nor do they give such good flowers as those propagated from layers. What does "J. S. W." want to raise an unsightly hillock round his plants for? We do not raise unsightly hillocks round ours. Could he not remove a little soil from the base and substitute some sandy soil, not raising a hillock at all? A little soot dusted over the surface does not injure the layers, and might keep off birds. We have plenty of the feathered tribe of all sorts, but they give us no trouble. To those inclined to follow "J. S. W.'s" plan, I would say try layering also by way of comparison.—J. DOUGLAS.

FRUIT GARDEN.

OUTDOOR PEACHES.

THE question (p. 123) which are the hardiest, the small-flowered or the large flowered section of Peaches, must, for the present, I think, rest mainly upon assertion, direct proof being difficult to obtain. If large flowers, in their production, take more out of the tree, or from their larger surface and more delicate texture, suffer more from exposure to cold in spring than small flowers, clearly trees with small flowers are best, though of course the raiser of a new Peach or Nectarine cannot, when he plants the stone, tell beforehand whether the seedlings will bear large or small flowers. Some of the best large-flowered Peaches have been raised from the opposite section, and *vice versa*. The flowering habit being then interchangeable, the question is narrowed somewhat; and if, as I contend, the small flowers will bear without injury more frost than the large flowers, the protection of the blossoms in spring involves less difficulty. I cannot say that I have ever met with anyone who has had a long experience with copings and thick curtains of any kind who really felt satisfied with the result. In windy places, no matter how securely fastened, the curtains get loose, and frequently do as much harm as good. I have seen good crops of fruit grown under the projecting eaves of cottages and other buildings with no other protection, but usually in such cases the walls have been lofty and the trees have had plenty of ventilation. But wide copings if fixed permanently—that is to say, if not taken off from the time they are placed there till they are no longer required—may be detrimental to the health of the trees. As there are many days and nights, too, in spring when full exposure to warm showers and a freer circulation of air would be a great advantage, it is often a question perhaps as to choice of evils, and all of us, so far as our own judgments go, no doubt select the least. There is no system of protection against which failure cannot be recorded. And if from the year 1860, or perhaps the bad wet ripening year of 1859 might be included, which is a period of twenty-four years, a balance could be struck, I do not think the heavy coverers would obtain any advantage as regards results. The cost for glass copings and curtains for that period would go a long way towards building a good roomy span-roofed house. The question with me is, "Do large-flowered Peaches require more protection than small-flowered kinds?" I think they do. Again, "Does the production of a large mass of flowers have any tendency to exhaust the tree? the difference in bulk between the mass of petals

borne by a Noblesse or a Malta, or any other large-flowered Peach, and the Royal George and others of the small-flowered section must be considerable?
E. HOBDAV.

CULTURE OF VINES IN POTS.

I AM led to make a few remarks on this subject because we are able to cultivate a few Vines in this way in our new vineries before the established Vines come into full bearing. Years ago we used to grow pot Vines in almost every position in cool or warm houses where the foliage of the Vines could be fully exposed to light. The first essential to successful culture is to obtain strong, well ripened canes, and if they are to be produced from eyes of the same season an early start must be made. Plant a single eye in the centre of a small pot in good turfy loam early in January; about the third week in that month the pots should be plunged in bottom heat, and in a temperature of about from 50° to 55° at night. The atmosphere of the house should be kept moist from the first, but until the young Vines appear above ground they should have no water, as it causes the buds to rot off as they are starting into growth. Indeed, water must be supplied to them very sparingly until they are well started. Of course after the young plants have been potted on and have formed plenty of roots, they need water given freely. As soon as the roots have grown round the sides of the pots, the young Vines should be potted into 6-inch ones. The compost which we use merely consists of turfy loam torn up into small pieces by the hand with a good sprinkling of crushed bones added to it. In this compost Vines are found to grow most successfully, equally so for the first and final pottings. I like the soil round the roots to be moderately moist at the time of potting, and the new potting material should be in the same condition. The newly-potted plants should be replaced in bottom heat, but they ought not to be watered until a week or more after they have been potted, and not then unless they seem to need it. As the young plants show signs of active growth the temperature should be increased, until it gets up to 65°, but it should not be raised higher than that by artificial heat. As the Vines grow they must have plenty of space in which to allow free leaf development, nor must they be stinted for pot room. From 6-inch pots they should be shifted into 9-inch, and ultimately into 13-inch ones. I do not approve of growing them in a heated bed after they are potted into their fruiting pots.

THE BEST POT VINES I ever saw were grown over the hot-water pipes in a Pine house; a staging was placed over the pipes, so that the bottoms of the pots were about 9 inches above the pipes. There were also attached to the pipes evaporating troughs, which were kept constantly supplied with guano water. The Vines grown from these early propagated plants were of the strongest description, and produced bunches of Black Hamburg and Buckland Sweetwater 2 pounds each in weight. The main thing was to get the canes well ripened, and we used to keep them in heat until very late in the season, until they were quite hard and the eyes large and prominent. Turning them out-of-doors to ripen is a mistake. I have seen Vines turned out-of-doors with all the leaves on, and a gale of wind coming soon after made a sad wreck of them, to the material injury of the Vines. To ripen the canes well the temperature should gradually decline as the days shorten, water must not be so freely used, and by the middle of October the Vines will be quite ripe; and here again there is danger of error in the management. The soil in the pots is often allowed to become dusty dry; apparently the Vines do not suffer, but in reality they do. Many of the young fibrous roots are killed by over-dryness, the ball of earth and roots shrink from the sides of the pots, and when the time to start the Vines arrives it is difficult to thoroughly moisten them again. All this is avoided by giving water sufficient to keep the roots moderately moist, and let them be at the driest point when

the Vines are pruned. The Vines do not require a very long season of rest before they are ready to be started into growth again. The canes should be cut back to about 6 feet from the base, and they start rather strongest if the roots are slightly warmer than the tops, although I do not recommend a strong bottom heat.

THE TEMPERATURE of the house should be 45° to 50° at night, and to keep up this temperature the hot-water pipes need not be very hot. If the pots containing the Vines are placed on them they will give quite sufficient warmth. The canes should be syringed overhead twice a day until they start into growth. This causes a regular and strong break, and when a good start is made it is not difficult to keep the Vines in steady growth. On the other hand, when the Vines break irregularly it is a sign of weakness, and they very seldom finish well. During the whole period of their growth the roots should be kept in active growth. As they are so entirely confined in a small space, the cultivator has perfect control over them; it is evident that a few hours' inattention to watering may spoil the prospects of success, and the labours of two seasons would be wasted. Where the Vines have passed the flowering stage and the fruit is set, water may have to be supplied to the roots two or three times daily if the pots are exposed over hot-water pipes. At this time rich surface dressings, applied at intervals of three weeks, will add extra vigour to them, and cause the fruit to finish more perfectly. Weak guano water applied about three times a week until after the fruit is stoned will also be beneficial. When the seeds are perfectly formed, the fruit takes its second swelling and rapidly ripens, and at that stage manure waterings are not desirable.

J. DOUGLAS.

INTERNAL ARRANGEMENT OF VINERIES.

WHAT I wish to make plain in the following remarks is that expensive and elaborate internal arrangements will avail but little if the border for the roots is constructed on wrong principles. Nevertheless, I maintain that a satisfactory internal arrangement is of primary importance in making up the sum of actual requirements for successful Vine culture. What these requirements are, learned from observation and experience, I will briefly state.

DISTANCE OF VINES FROM THE GLASS.—This has often been a bone of contention amongst gardeners. A space of 12 inches between the two is generally considered to be sufficient, and I admit, with careful ventilation, it is so, but for small houses, which become quickly heated by the sun, 15 inches would be better; a vacuum between the leaves and the glass is thus left for the heated air, and the leaves on that account are less liable to get scorched than if nearer, *i.e.*, if there should be any neglect as regards ventilation. It should be understood that even though the wires were 2 feet or more from the glass the leaf-stalks would be no longer than if they were only 15 inches, provided the roof affords a full share of light and the Vines receive proper attention. Therefore nothing is to be gained by holding extreme views on this subject. Room for the foot-stalk to reach its ordinary length and a space of 3 inches or 4 inches between the leaves and the glass are all that is required. The crop will not be materially influenced either one way or the other unless there is a violent departure from the distance here given. As to floors in vineries, I have no hesitation in saying that earth is the proper flooring. Some covering for the sake of neatness may be recommended, but I take it that in the arrangement of vineries, whether internally or externally, the welfare of the Vines is the main point to be considered. Therefore, there should be no covering except it be something in the form of a trellis placed in the most convenient position to prevent treading on the border. Where the floors are covered with flag-stones or tiles the labour required to keep the atmosphere damp in dry, hot weather is very great. These remarks have reference to vineries in which the roots are for the most part outside the house.

Where the borders are all inside, the surface would not as a matter of course be covered. Plant stages should be prohibited unless made portable, so that they could be taken down and put up again when needed. The practice of converting vineries into plant houses is too common, and ought not to be encouraged. There are a few months in the year during which vineries may be used for sheltering bedding plants, but the cleverest Orchid grower would not be expected to grow Orchids well under Vines, and it is equally unfair to expect anyone to grow good Grapes if the house for the greater part of the year is filled beneath the Vines with plants.

PLANTING VINES on back walls of vineries properly belongs to internal arrangements, and I refer to it here for the purpose of saying that I have not yet seen an instance of satisfactory results where the Vines have been planted against the back wall and the whole roof space covered with growth from Vines planted in the front. A reference was made in THE GARDEN a few years ago to some examples of Grapes grown on a back wall of ainery, but as there was 4 feet of glass on the roof of unobstructed light just over the Vines, I do not consider it was a case of growing Vines on a back wall as ordinarily understood. The plan answers fairly well for two or three years, or until those trained under the roof have covered the glass and shut out the light, and then those planted against the back wall gradually lose strength and have to be removed. This has reference to a house altogether newly planted. So far as my experience goes, it is a waste of time to make the attempt in a house where the roof is already covered with Vines. Planting supernumerary Vines is a practice that has much to recommend it when judiciously carried out. For small houses and narrow borders supernumeraries should be grown in pots, but their chief value is simply to prevent loss of time. Let us suppose that a house of Vines has to be planted next March; the Vines then planted will not be in a condition to bear fruit the same year, but by having some Vines already prepared in pots they can be fruited in the same house under the same treatment as would suit the permanent plants, thus saving the loss of one season's crop. If desired the same thing may be carried out the second season, by which time the permanent Vines will have become well established, and will require all the space. In the case of large houses with inside borders, the permanent Vines will necessarily have to be planted near the front wall, and if it is desired, another set of fruiting plants may be put in 2 feet or 3 feet in front of the others, only not in the same line, and be allowed to bear two crops before they are removed. The border will not be much disturbed by taking away the extra Vines. Double the number of Vines are sometimes planted, and when they get established half of them are removed. The only objection I have against this plan is that the roots of the permanent Vines must necessarily be somewhat disturbed in taking out the supernumeraries.

J. C. C.

5038. — **Nectarines cracking.** — "H. H. says he has tried both wet and dry treatment to prevent Prince of Wales Nectarine from cracking, but he does not say whether he applied it to the border or atmosphere, or both. It is a mistake to allow borders in which stone fruits are growing to get dust-dry after the fruit is gathered. It exhausts the roots, and leaves the tree in a half-starved condition to commence the next season. The roots, being weak, are late in starting into growth—a circumstance which causes the fruit to be poor and hide-bound, and either to crack or fall off prematurely. All stone fruits do best in a strong turfy loam mixed with lime rubbish and broken brick, or, better, limestone chippings sufficient to effect free drainage. If the border is deficient in calcareous matter, put a sufficient quantity of fresh lime under cover, allow it time to fall into dust, and as soon as the fruit commences stoning, coat the border over with the lime and water it well in. Never, under any consideration, allow a border to get too dry at any time. There are three essential

points needing attention in the cultivation of all stone fruit, viz., plenty of water, liberal ventilation, and applying all manures on the surface of the border. The premature falling of fruits and cracking of stones is, like shanking in Grapes, caused in most cases by insufficient nourishment. —JAMES SMITH, *Waterdale*.

Derivation of Apricot.—To complete the history of the word Apricot, given on p. 123, the origin of the first letter should be told. The name, after being first Latin, then Greek, became in Arabic Birkouk, or, with the article prefixed, Albirkouk. By the Arabs the name was introduced, probably with the tree, into Spain perhaps 1100 years ago. In Spanish the word became Albaricoque, and in Portuguese Albricoque. Passing hence into Italian and French, it assumed gradually its modern English form. We have in English a good many Arabic words, such as algebra, almanack, but perhaps no other Latin word which has passed into modern European languages through the medium of Arabic.—C. W. D.

Best flavoured Gooseberries.—I should be greatly obliged to any of your readers who would tell me what are the very best flavoured Gooseberries, and I would like anybody who can to go beyond naming the merely well-known kinds. Among the great numbers of Gooseberries that have been raised and shown in England from time to time, there must be some of peculiar excellence as to flavour. I am a peculiar person as regards fruit. I prefer a well flavoured Gooseberry to any fruit in the garden, and I consider it much superior to some of the very popular kinds. I want to make a good plantation of the best, not caring whether they be green, red, yellow, smooth, or rough. I do not know much about the Gooseberry shows in the north of England or anywhere else, but I presume there is a class for flavour. To grow a Gooseberry because it is as big as an egg does not seem to me particularly wise. I believe Mr. Newton, of Newark, has paid some attention to Gooseberries, and perhaps he would kindly help me.—W. H. H.

New industry in California.—A great number of experiments are being made in California with the seed of the Cochín China Grape Vine. Seed has been distributed among 800 persons in various parts of the State, and no pains will be spared to acclimatise this Vine on the Pacific coast. In its native state it has been found in altitudes varying from 100 feet to 3000 feet above the sea level, producing everywhere an enormous crop of fruit. With proper care, authorities in Grape culture believe that the Cochín China variety can be grown in all the wine regions in California and on the Pacific coast. A Vine similar to this, but more vigorous and productive, was lately discovered on the coast of Guinea by Señor Arpore, chief of a scientific mission sent to that country by the Portuguese Government. The plant was found to be about 4 feet high, with a crop of Grapes varying from 90 lb. to 100 lb. on each Vine. The fruit was delicious, and the wine made from it was found to be very good, rich in aroma, in colour, and alcohol. A report is being prepared on the subject for the Portuguese Government. The Soudan and the Guinea annual tuberous Vines are of the same class as the Cochín China, but the first is a dwarf, and the second little better, as compared with the last named. In Cochín it grows in some forests as high as 100 feet, climbing up and around lofty trees, or stretching itself on the soil, and in some places the Vine becomes a wonderful mass of large clusters of luscious Grapes from top to bottom.

Nectarines produced by Peach trees.—We have in a late Peach house here a large Nectarine growing on a Bellegarde Peach tree. We have a Downton Nectarine growing beside it. I think this freak must have arisen through setting, as they were all gone over with the same brush. The Nectarine just alluded to is much larger than Nectarines generally are, and is nearly ripe.—PENRHOS.

African Melons.—As a small mistake has been committed (p. 150) in reference to the award made to the large African Melon which I showed the other day at South Kensington, allow me to state that a cultural commendation was first awarded to it, the committee considering it to be too large and handsome to be cut; but as I expressed a wish for it to be cut and judged on its merits as regards flavour, it was submitted to that test and was awarded a first-class certificate. I shall grow it from the seeds which I have saved, and I quite anticipate being equally as successful another season as I have been this.—F. RUTLAND, *Goodwood*.

5033.—Grapes cracking.—In order to grow the Golden Hamburg Grape well and prevent cracking, we must have a sweet, open, shallow border and liberal treatment till the fruit is stoned, viz., plenty of water on the border, and now and then a mixture of liquid manure made from deer, sheep, or cow manure. This should be used when just made. The foliage of this Vine is naturally thin, and the frequent use of liquid manure, together with liberal ventilation, gives vigour to the Vine and thickens the leaves. As soon as stoning is completed give more air and less moisture, and keep the temperature steady without lowering it. If the border is outside and the weather wet, cover it with wooden shutters to throw off the water; put a brick under each end of the shutters to allow air to circulate under them.—JAMES SMITH, *Waterdale*.

—I was pleased to read Mr. Wildsmith's note on the cracking of the Madresfield Court Grape. I fancy I have a letter of his by me in which he discussed this matter, and one question he put to me was, did I not believe too much moisture at the root to be the cause of the cracking? would I say what was the cause? to which I was obliged to answer, "I do not know," or something to that effect. I think he is now nearer it himself in attributing it to something in the soil or external causes. When he has discovered the real cause, and can tell us how to prevent cracking, I will plant many more Vines of the Madresfield Court, for the cracking is the only reason why we do not trust it. I have always held, both in THE GARDEN and elsewhere, that excess of water at the root had nothing to do with the cracking, and Mr. Crump, of Madresfield, now confirms that opinion. I have read of its cracking where too much moisture at the root was said to have been the cause, and have taken some trouble to find out about it in some of these cases, but have invariably been disappointed. When bottomed they would not hold water. To me the cracking has always appeared to be due to shrinking instead of cracking. I once said it looked like chapped hands, and was due more to external than internal causes, and when Mr. Wildsmith says that root moisture is less mischievous than atmospheric moisture, and that the latter causes the Madresfield Court to crack wholesale, I almost agree with him.—J. S. W.

Sterility of plants.—My experience of the setting of the Alnwick Seedling is the same as Mr. Bell's. We have a fine strong Vine of it here, run up to the roof the first season and left and cropped that length ever since. One year, as I have related in THE GARDEN before, it has set well, and another badly. Last year early I top-dressed the borders inside and outside with a good layer of fresh cow manure and Standen's manure, which invigorated the growth a good deal, and has produced a sensible effect on the weight of the crop this season. In addition, I again put Standen's manure on this season before starting the Vines, and watered at the same time with liquid manure, and we have bunches on the Vine which, for evenness of size, largeness in bunch and berry, and colour, surpass anything the Vine has produced before. If any of your readers have examples grown on the poor soil (sterility principle) to send to you or anywhere else, I will be pleased to send some three or four pound examples for comparison. In addition to trying the experiment of the manure upon the Vine, I tried the effects of two

or three sorts of pollen on the setting. I marked one-half of the bunches with coloured threads, and these I fertilised with the pollen of the Lady Downes, Black Alicante, and Barbarossa every day at noon till all the berries were set, tapping the branches to make the caps of the flowers fly so as to fertilise the pistils at the right moment, the foreign pollen having just been collected on a sheet of paper in the same manner and shaken in plenty over the Alnwick Seedling. Every day the bunches were also well syringed about 3 o'clock in the afternoon. The result was that the artificially fertilised bunches and those allowed to fertilise themselves all set equally well, not the slightest difference being observable between them from then until now. It was easily observable, however, that the Alnwick Seedling flowers produced by far the smallest quantity of pollen. I know of no Grape which produces it so meagrely, but it is apparently enough for fertilisation.—J. S. W.

ROSE GARDEN.

AMONG THE ROSES.

ONE perforce now goes oftener and lingers longer among the Roses than usual. The Rose trade is advancing and extending with such leaps and bounds, that the most casual examination of its area and condition absorbs weeks and months of time. If one would grasp the facts and learn the lessons of but one Rose season, from June to September is hardly long enough to linger among them. Nor is it only, nor chiefly, that the area of Rose culture is being so widely extended. But the Roses themselves, as they grow in beauty, also become more difficult to cultivate and understand. What with mixed or improved blood, soils, composts, stocks, climates, and culture, many of our Roses seem ever on the anvil, and are being moulded into something better, worse, or at all events different from what they used to be. If, as seems probable, culture and climate are the most potential causes of change among our Roses, it may be safely assumed that culture dominated the Rose garden last year and climate this. Not that one or either could absolutely prevail without the other, as everybody knows, but culture may be said to have mastered climate last year and climate culture this. I know this has been denied on high authority; still it can be confirmed on yet higher, that is the Rose blooms and the Rose trees themselves. A few of the characteristics of the Rose season have already been adverted to, such as its lateness, its relative scantiness, its shortness apart from the continuity of bloom resulting from Teas and dwarf maidens. Another characteristic which I think no one can deny is the general lack of substance and of staying power in the blooms.

THE CHIEF CHARACTERISTIC of this season's Roses is that they came forth like a flower, and were withered. In measuring the period of fresh and untarnished life of individual blooms, it was little more than half as long as distinguished that of 1882. I admit there were a few exceptions, and those mostly towards the end of the year, but these only confirmed the rule. Some of the best rosarians have formed a far lower estimate of the flowers of the season than that I have here given. In a letter before me one of the largest growers in the trade says: "There was no weight in the blooms this season, and I do not think they have been a patch on last year, excepting just at the close of the exhibition season." This quite coincides with my own observation and experience, and is also just what might have been expected after several successive freezings of about 20° of frost in March; with the sap of the Roses in vigorous circulation until the moment it was forcibly arrested by frost, young shoots were killed, and much of the older wood ruptured, though it showed little trace of injury at the time. Hurried and unsubstantial flowering of so many Roses was doubtless the direct result of these injuries. The flowers came forth looking much as usual, but had they been put into the scales they would have been found sadly wanting in specific gravity and consequent durability. Neither were these severe

frosts the only peculiarities of the climate of the Rose season about to close; the chief effects of these severities were expended on cut-back or old plants. The frost delayed and shortened the period of bloom, and also deteriorated its quality. The majority of maidens that were not too far advanced to be killed in March possibly took less harm than the cut-backs; hence they broke strongly and grew freely. Unfortunately, however, like so many speakers and writers, they knew not when to stop. The dripping June acted like a whip and spur to growth, and the consequence is that hundreds of maidens on Manettis have refused to bloom, and tens of hundreds have bloomed abnormally late and very imperfectly. The strength that should have developed fine blooms ran away into side shoots, which keep on growing and growing until frost or mildew pulls them up sharp and forces them to stop, though not to bloom. In this abnormally strong and late growth of Manettis this season we have a powerful illustration how climate overmasters culture. True, culture with suitable stocks has done much to check this tendency—never so pronounced as this year—viz., of maiden Roses running wild into wood-making. Brier seedlings and Brier cuttings and standard Briers have bloomed far more freely than Manettis this season; the flowers have also had more substance on the Briers, as might have been expected.

ANOTHER CURIOUS RESULT of the season about to close is that it has given special prominence to several planets rather than increased the lustre of one sun. So pre-eminently prominent was one trade grower last year, that it was called his year. Nearly the whole of the chief prizes were swept off by one firm. The case is widely different this year. Possibly this may have partly arisen from the fact that climate exerts a disturbing influence over a wider area than culture. Be that as it may, while Mr. Benjamin Cant, of Colchester, managed to hold the champion trophy prize against all comers at the National Rose Society's great show on July 3, other great growers, such as Messrs. George Paul, Cranston, Turner, &c., have also run in before him. If it be true—and it is—that there is a tide in the affairs of men, which taken at the flood leads on to fortune, the saying is equally true of every Rose garden. There comes a week, a day, in which the Roses are perfect. Hence the saying, "I was able to cut to a day, almost to an hour, for such and such a show." And hence, too, the result of the victor of to-day being the defeated of to-morrow. While that may explain the wider distribution of honours among the Rose trade this year than last, it by no means diminishes the credit of the unique honour of Mr. Benjamin Cant being able to keep his Rose farm at the highest flood of perfection through the entire exhibition season of 1882, a season much more highly distinguished for perfect blooms than that just about to close. Writing of

THE INFLUENCE OF CLIMATE on Rose blooms, it is impossible to forget what wonderful blooms appear now and again. These stand out among Roses like Paul among the people—a full head and shoulders above them all. Of such were those wonderful blooms shown by Mr. Baker at Norwich in 1880, if I remember rightly, and Mr. Whitwell's shown at the end of July this year. Such exceptional excellence in almost any season sets rosarians a-thinking, and proves that special skill and special sites may often baffle the most adverse seasons, and force the highest successes out of apparently the most impossible conditions. Put your love into them, was Canon Hole's recipe many years ago for success in Rose culture. It has never been bettered, and will do more even to thaw the frost out and put new life into Roses than all the other recipes in the world. D. T. F.

Rosa Brunoniana.—The recent remarks in THE GARDEN as to the beauty of climbing Roses when allowed to ramble over any spare-headed trees, such as old Oaks, refer for the most part to Aimée Vibert, but I may mention that Rosa Brunoniana is a grand Rose so treated. Its growth

is very vigorous, and its large clusters of single white blossoms are borne in great profusion. This Rose is so rambling, that it must not be planted near weak-growing subjects, which it would soon overpower, but for the woodland or wild garden, where there is plenty of room in which to develop itself, no more beautiful object could be found during summer. The flowers, too, are very fragrant.—ALPHA.

ROSE STOCKS.

THE SEEDLING BRIER seems to have been the favourite stock this year, though one trade grower declares he will have no more of it, and another proclaims his preference for Brier cuttings. In the first case ocular demonstration was afforded in plenty of the inferiority of the seedling Brier. Here were thousands of Roses budded on it, and there within sight were as many or more worked on Brier cuttings. The first lot had many blanks; in the second there was hardly a failure. This conclusion seemed logical, and indeed irresistible. Seedlings were nowhere as against cuttings, and yet the cuttings were a much finer and more regular crop to start with, which, of course, told in their favour and against the seedlings. The seedlings, from the greater density of their base, also, as a rule, present greater difficulties to the budder, and consequently the work may be worse done. Again, seedling Briers may vary very much indeed, and a good many sub-varieties, or semi-species, are sometimes huddled up together under the general term of seedling Briers. So particular are some rosarians about their seeds, that, after ransacking the three United Kingdoms, they have gone to Germany, Switzerland, and Italy in quest of seeds, and when all these sources fail, some are planting well selected strains to grow in long lines in their own grounds, with the intention of growing their own seeds. By such or other means of selection, there is but little doubt that more regularity and greater uniformity of growth may be realised among seedling Briers. At present the finest breaks of seedlings lack the uniformity of cuttings. The latter may also be improved by selection, for the most casual observer cannot have failed to note that there are Briers and Briers almost to infinity. In such points as vigour and uniformity of growth such stocks as Manetti, La Grifferaie, and others run away from Briers; but then the Briers have it not only in the more robust health and longer life of the Roses, but likewise in their more abundant floriferousness and the higher quality of their blooms. The wider the experience with Brier stocks in general, and seedling Briers in particular, the more clearly these points are established. And it is their establishment almost beyond the domain of controversy that has given such a powerful impetus to the rearing and cultivation of seedling Briers. Among those who are cultivating these on a gigantic scale may be named Mr. George Paul, of Cheshunt, whose huge plantations, budded on the second week of August, and to bud are the finest and most extensive I have yet seen. Mr. Cant, in his large Rose farm at Colchester, divides his favours pretty evenly between

THE MANETTI AND BRIER CUTTINGS, though I must also add that he grows a good many seedlings. The late and sluggish flowering of Roses on the Manetti this year will probably check its culture to some extent, though it is one of the peculiarities of our Rose industry at the present time that all the stocks that can be pressed into the trade are all too few for the enormous demands made upon it for Roses. Even the tall Briers whom many have thought doomed for some years go off as rapidly as the others, and are always lagging behind the demand. As for Roses on their own roots, they can hardly be said as yet to be popular with the trade. They cannot be produced so rapidly, and hence not so cheaply as budded or grafted plants. By no system of propagation or culture yet devised can own-root Roses be forced to make a yard or two of growth within less than a year of the time of root-

ing; whereas maidens on Manettis become giants in height and breadth within nine months of the time of taking off the first buds. Still, in the case of those who prefer quality of growth and of bloom to mere area of bush or tree, Roses on seedling Briers or Brier cuttings on own roots are to be preferred. And should the latter cost more at first, they will prove more profitable in the end by living longer, reproducing themselves by suckers, and perhaps producing finer blooms. More experience is needed to determine the latter point with certainty. At present, as already stated, the order of quality, as far as that is affected by the stock, seems to be as follows: Manetti, Brier cutting, Brier seedling, the quality being in the inverse ratio of the growing force. Roses on their roots grow very variously, and hence we might reasonably expect an almost infinite diversity of quality among the bloom, some being probably better and others worse than those worked on stocks. As the stocks, on soils equally good, may be expected to root and grow with almost equal freedom and vigour, it follows that Roses worked on any given stock might have a more uniform supply of food than if planted direct in the soil, and so far Roses with foster stocks might have the best of it.

ON THE OTHER HAND, there are Roses not a few that grow more freely than Briers, and these would have the pull when on their own roots. Besides, wider experience with Rose stocks and in Rose culture proves that the stock is by no means the passive agent in the future life and produce of the Rose which it used to be assumed. The difference in floriferousness between Roses on Manettis and Roses on Briers was one of the most striking characteristics of Mr. Cant's Rose farm and other nurseries this year. And this proves conclusively that the battle of the stocks or of stocks *versus* own roots is by no means fought out as yet or authoritatively settled. D. T. FISH.

MARKET FRUITS AND VEGETABLES.

IN the discussion that has taken place respecting the unripe condition in which the best kinds of fruit reach London and other markets there has been some truth and some exaggeration. Anyone who has had much to do with growing fruit and packing it, and, above all, seeing it after it has travelled long distances by the ordinary means of conveyance, need not be told that soft-textured fruits, such as Peaches, Nectarines, Apricots, Figs, and Strawberries, if allowed to get fully ripe before gathering, will not travel, no matter how well packed, and it is only when left on the trees until quite ripe that they attain their highest flavour. It follows, therefore, that those who have to depend on the market for such of these as they require, never get them up to the mark, as regards quality, however good-looking they may be. It is all very well to talk about soft fruits ripening after they are gathered; this they will do in a certain way, but under such conditions they never have the right flavour, the finishing touch in which being more a question of hours than days. Strawberries gathered forty-eight hours before being ripe will not bear comparison in the matter of flavour with those left on the plants until the ripening process is completed, and almost the same may be said of all soft fruits. Melons travel when fully ripe much better than most fruits, but after a Melon is at its best for eating, a couple of days sees much of the flavour gone. Pines, from their harder texture, carry well enough when ripe, and finish out when cut before being quite ripe differently from most fruits. But the market, as at present nine-tenths supplied with foreign smooth Cayennes—at best only a second-rate flavoured sort—is not the place on which to depend in the case of those who require this fruit in its best form. Grapes have been included amongst market fruits not to be had good, but this is not correct, for, with the exception of the earliest English Hamburgs and white sorts, especially Muscats, which the growers push in to sell as soon as presentable, and the Jersey Hamburgs sent as soon as coloured, regardless of their being sour, Grapes as good in quality as they possibly can be are always obtainable. The

same holds good with Apples and Pears; all but a few of the latter of which take time enough to ripen after being gathered to admit of their travelling any reasonable distance without injury. Therefore, with the exception of the last fruits named, the discontent amounts to nothing beyond reminding those who want soft fruits of the best quality that they must not expect to get them in the market.

With market vegetables there is much more room to find fault; of these large quantities are bad, not in condition, but in kind. The big hard flavourless Peas, with nothing to recommend them except size of pods and the number of Peas they contain, and the equally worthless Potatoes, are the kinds which now form the great bulk of what are to be had in the London markets. The causes which have brought about this state of matters are not difficult to detect. The first is the unmerited preference given at shows to size and appearance before quality, consequent upon the new standard set up a few years back, which put appearance first and edible properties second—a new way of gauging merit in things which, if not good to eat, are not good for anything. Next to this, growers found these popular kinds to be heavy croppers, and consequently they suited their purpose. They therefore took the place of better sorts, leaving those dependent on the market little chance but to take such as can be got.

T. BAINES.

NOTES FROM HECKFIELD.

POTATOES.—I regret to have to report that in this district the murrain has set in with great virulence. Up to the 14th the crops were more promising than for years past, but a slight thunder-storm on that day seemed to start the haulm of nearly all kinds into a state of decay, and by the 17th the stench from the haulm was terrible; the tubers, too, are now going just as fast as the haulm, and, what is still worse, a quantity of early kinds that were lifted and stored away, apparently free from all taint, are now badly diseased, so that it is useless to lift with a view of saving the crop. All the tubers will be better to be left in the ground till the worst has happened, or at all events till they are fully ripe, as it is rare indeed that the disease spreads amongst tubers that have been fully matured. It will be interesting to learn results from anyone who may have tried the plan of protective mouldings, as advocated by Mr. Jensen in his pamphlet on "The Prevention of the Potato Disease." I had no faith in the plan myself, and this will account for my not trying it, but I shall be very glad to learn that it has been a success.

EARTHING UP CELERY.—This is a simple enough operation, and, perhaps because of its simplicity, it is often very carelessly done. Perhaps I ought to confess that I once was amongst the delinquents in this respect, and the probability is that had I not been, this note of warning would never have been penned, for the very obvious reason that I should never have experienced the error I now wish to warn others against. That grand proverb, "Whatever is worth doing at all is worth doing well," did not always appear to me of such importance as it now does; many jobs used to be "scamped" that to-day would have the greatest care imaginable; and why? because the lessons as to the difference between good and bad treatment of even the simplest garden duties have been noted, and whilst the first pay with much interest, the other yields nothing but reproachful thoughts, that one should have been so thoughtless. But now as to the right way—according to Wildsmith—of earthing up Celery. After a heavy rain, or else a good watering artificially, the suckers or side leaves are pulled off; each plant is then tied up closely with bast matting to keep the soil from getting between the leaves; the soil is then chopped down from the sides with a spade and pressed closely amongst and against the plants by the hands to such an height only as that the young leaves springing from the heart of the plants shall not be in any ways crippled by it; the matting is

then cut off and the operation is complete. We have tried Celery collars for the purpose of keeping out the soil from the heart of the plants, and also the plan of letting one man hold the plants whilst another put in the soil, but tying with matting has proved to be the best way, though it takes longer to do. I give preference to successional earthing, rather than that the earthing should be left till the plants are full grown. The quality and blanching by the former treatment are a long way in advance of those by the latter.

MUD EDGINGS TO FLOWER BEDS.—I agree with you, Mr. Editor; mud edgings are indeed an abomination. I was recently in a public garden, the bedding out of which was as perfect a sample—I mean as well done—as any I have ever met with, with the exception of hideous mud edgings, that confronted one at every turn, and sadly marred the otherwise excellent effect. *Echeveria secunda glauca*, planted 9 inches apart, on raised edgings of about 6 inches in height, and nothing but baked mud, cracked with drought, between them, was a sight ugly enough to cause anybody to consider and mend his ways in this respect; and how to do it is not difficult, as there are abundance of plants suitable for planting raised edgings to flower beds, but none better than *Herniaria glabra*, a plant that grows so flat and close to the ground that but little attention in the way of clipping is ever required; we like it so well here, that all other plants but this have been discarded for the planting of raised edgings. It is also quite hardy, and looks as well in winter as in summer. Another of its merits is that it will stand for two or three years without being renewed; some of our edgings are in their third year of planting, and they are just as fine as are those that were planted in April last.

PICKING OFF SEED-PODS FROM PLANTS.—Yes, "S. D." (p. 145); picking off seed-pods does "entail a considerable amount of time and labour." None know it better than myself; but can anything worth the having be had without labour? But in regard to picking off the seed-pods of Sweet Peas, the labour is not such a nightmare as you would have us suppose. Why, by going over the rows once a week, as advised, a boy can pick over—has done this day, August 18—a row 15 yards in length in 1½ hours. How much quicker would the land be prepared and a new sowing made than this, not to take into account the cost of seeds, the difficulty with some of us of finding, or at any rate of affording, fresh ground on which to sow successional at regular intervals to maintain a supply of flowers throughout the season, which for "S. D.'s" information I consider to be from early in May to the end of October. We have had good flowers in continuity from one sowing for this long period, and therefore thought our treatment worth recording. In regard to plants of nearly every kind, there can be no doubt but that we are all of us far too negligent in this matter of keeping them free of seed-pods, that is if we are desirous of obtaining the best results both as to appearance of beds or borders and duration of flowering. Take *Violas*, for instance. I have known gardens in which they have failed season after season, and where they have at last been given up as reprobate, and every reason but the right one assigned for their failure. Why, no plant will bear seed with impunity and flower continuously at the same time; and yet this I know to have been expected of *Violas*, and to some extent we all are unreasonable enough to expect the same of other plants, else we should be more diligent to remove every dead flower or seed that would be likely to impair the continuous flowering of all plants, and particularly from bedding plants, the season of which is all too short without curtailment by neglect of the attention here specified.

W. WILDSMITH.

Poisonous fungi.—Is the enclosed *Agaricus* (or *Marasmius*) oreades? It looks very like the descriptions in books of it. It grows in dense clumps, but not in circles, as oreades is generally described as growing. If not oreades, I would like to know what fungus it is. I am afraid to eat it

without the opinion of a competent judge. Since writing the above I have had one fried and tasted it. It had a strong flavour of Mushroom, but there was also a bitter taste which was not pleasant.—D. K., *Virginia, Ireland.*

* * The fungus sent herewith is *Agaricus fascicularis*, a bitter and probably poisonous species, which differs in every way from *Marasmius oreades*, the Fairy Ring Champignon. The latter is small and biscuit-coloured, whereas that sent is brown; the gills of the Champignon are almost white, whilst those of *A. fascicularis* are dark purple-brown. The Champignon grows in rings in short pastures and by grassy roadsides, whereas *A. fascicularis* grows on or about rotten stumps and wood. A good plan with doubtful fungi is to taste before cooking. Had you done this, you would have found your plant bitter and nauseous in a high degree. Cooking has the effect of disguising, and indeed of sometimes dissipating, the poisonous principle of fungi.—W. G. S.

PUBLIC GARDENS.

NATIONAL PARKS.

SOME of us must have been tempted when we read the account in the *Times* of the wonders of the Yellowstone National Park to envy its happy possessors. It was not so much the extraordinary natural features of the district that aroused this feeling as the fact that they all belong to the American people. But for this, we know by experience what would in the end become of them. The shores of Niagara do not belong to the people, and the consequence is that every day sees them worse disfigured. From the greed of the speculative builder, or of the owner whose one object is how to exact a toll from the traveller for permission to use his eyes, the Yellowstone district is for ever free. When Lord Lorne visited British Columbia last year he urged the inhabitants to follow the example of the United States in this respect. Wherever, he said, you find some region of unusual loveliness, I advise you to make a national park of it. In years to come, when British Columbia becomes populous, you will have cause to rejoice over what you have done. Great Britain is a country not less populous to-day than British Columbia or the United States will be in fifty or a hundred years. The need to exchange the crowded city, or the scarcely less crowded suburb, for the real country, for the solitude of the mountain-top or the cheerful silence of the fells, is as great in England now as it is likely to be in America a century hence. Yet the possibilities of supplying that need are constantly becoming fewer. Though enclosure is a harder process than it was—thanks to the Commons Preservation Society—it is still a great deal too easy, and much can be done to deprive the public of country to which they have heretofore had access without going the length of enclosure. Footpaths can be stopped up; bridle-roads can be diverted; land which has never been common, but of which the use has been virtually free to the public, is turned to account in ways which are of more benefit to the owner; and against all this, the Commons Preservation Society can do but little. Then there is always the possibility that the lord of the manor and the commoners may agree upon terms which, while they make the enclosure less obnoxious to those who have private rights in it, leave it as much a source of annoyance as ever to the public at large. The law, it must not be forgotten, knows nothing of the public at large. It protects the minority who have specific rights in a common, but it does nothing for the majority, who only ask that the common shall be kept open. Thus the cause of

COMMONS PRESERVATION is exposed to two great dangers; one, that the public interest in their maintenance is necessarily less watchful than the private interest in their destruction; the other, that the public interest in their maintenance can only be defended in roundabout ways. Those who most feel that interest may have no title to be heard in behalf of it, and those who have such a title may have been induced to part with it.

Of late, indeed, enclosure has for the time ceased to be the enemy that commons have most cause to fear. A new railway asks leave to take a very small piece of a common, and the request is sure to be supported by the whole railway interest in Parliament. Now, this little fraction of the common which the railway company wants to have commonly happens to be so placed as to destroy the beauty of the remainder. Indeed, what was a common before often ceases after the railway has been made to be anything more than two strips of waste land, divided by a cutting or an embankment. It is difficult, however, for the Commons Preservation Society to be as much on the alert as the company which is directly concerned in getting the railway made as cheaply as possible. This Session, indeed, the guardians of the public interest have been remarkably successful; but we can hardly doubt that they will some day be found napping when some railway project is before Parliament, and only wake to the extent of the mischief when the time for averting it has gone by.

Why should not England follow the example of the United States, and convert some of the districts which most lend themselves to this treatment into national parks? Probably the suggestion will almost take away the reader's breath. The tremendous compensation which the transfer of large tracts of land from private to public ownership would seem to involve will be thought to be a conclusive argument against such a scheme. But then, in the way in which we should propose to effect this transfer, there need be no very large sum spent in compensation. We do not propose that any of the rights of ownership, as they are at present exercised, should be interfered with. All we ask is that no new development of these rights should be permitted. Let us take, by way of an instance,

THE LAKE DISTRICT—the one, perhaps, of all England that, by its manageable size and its surpassing charm, would have the first claim to be put to this use. There would not be the least need to expropriate the existing owners of land. If the face of the country is simply left as it is, there will be ample room for any number of visitors in search of natural beauty. All that is really required is that it should be left as it is. Mansions, cottages, parks, woods, gardens, and sporting rights of all kinds, as they now exist there, are found not to interfere with the full enjoyment by the public of all that the district has to offer. What threatens to interfere with this enjoyment is the extension of these rights. That more houses should be built, that more land should be enclosed, that game preservation should become stricter, that paths that are now open should be shut up, that railways should be made where none exist—these are the dangers before which those who know and love the lakes feel helpless, and it is precisely these dangers that the scheme of converting the district into a national park would meet. But when once the change had been effected the landowners in the district would not be the worse, except prospectively. They would not be able to do anything that they have not done heretofore, but everything that they have done heretofore they would be able to do still. The single operation of the change would be to stereotype the existing order of things, to leave that enclosed which is enclosed, that open which is open, that public which is public, and that private which is private. No doubt the destruction of these contingent rights would involve some compensation to the owners, but it would be very trifling in comparison with the compensation that would be required if it were proposed to take from them anything that they now enjoy. Deprive a man of a mansion and a park that have been in his family for centuries, and you take away something which to him may be all but priceless. Say to him that he must never turn his park into building land, and you forbid him merely to do what, unless he should be cursed with a spendthrift heir, he would never think of doing. So, again, if it were proposed to throw open the woods which are now consecrated to the production of pheasants, the owner might feel that his property no longer possessed the quality for which he chiefly

valued it. But if he were merely forbidden to shut up woods in which the passer-by is now permitted to roam at will, in order to breed more pheasants, the quality which the property would lose would be something purely contingent and future. The basis, therefore, on which compensation must be calculated would be altogether different from that which must be taken in the case of an extinction of actual and long-exercised rights. We do not say that the plan could be carried out without cost or without difficulty. But when it is considered how impossible it will be to preserve some of the most beautiful districts in England at any less expenditure, whether of money or trouble, and how great the loss of these districts will be to the next generation of Englishmen, we feel that some strong effort should be made to keep them, and that the best chance of making it to good purpose must be looked for in the direction which has now been indicated.—*Spectator*.

NOTES FROM FRANCE.

LARGE POPLAR.—There is a very fine specimen of *Populus nigra* growing in the Botanic Garden at Dijon, and, with the exception of a little decay at the bottom of the trunk, it is otherwise in fine condition. It is well clothed with leaves, but, owing to its great age, they are not much larger than those of the common Canadian species. The bole is uniformly proportioned until about half the height or a little more is reached, when it forks into two branches, the leader being almost upright, the other branching off at an angle of about 45°. Its age is stated to be probably 500 years. Its height is about 130 feet, and at 2 feet from the ground it measures 26 feet in circumference.

COMPOSITE FLOWERS luxuriate here. The double yellow annual *Chrysanthemum* is extensively used for ribboning along with *Pelargoniums* in the town gardens. It lasts a very long time in bloom, and, being very floriferous, makes a good substitute for *Calceolarias*. Five or six species of *Coreopsis* are sprinkled freely amongst shrubs in borders, and their rich golden and brown flowers make quite a display. When out of bloom they are succeeded by *Cosmos bipinnata*, *Pompones* and large-flowered *Chrysanthemums*, and *Anemone japonica*, plants which keep up a perpetual show well into November. *Leucanthemum latifolium*, a native of the Pyrenees, is also grown extensively here, and its flowers are lovely. In one clump I counted over 100 blooms of this grand Ox-eye Daisy, $\frac{3}{4}$ inches in diameter. At first sight they looked like blooms of *Chrysanthemum frutescens*, but the foliage is different, being slightly spear-shaped and serrated. It is quite hardy and worthy of extensive culture by all lovers of *Marguerites*. *C. tenuifolium*, as an autumnal pot plant for market, is an exceedingly graceful species, with Erica-like foliage and studded all over with a multitude of miniature *Michaelmas Daisy*-like flowers. When I was in Nancy last November several hundreds of these met with a ready sale in the early morning market, as well as a snowy-white double form of the large-flowered Indian *Chrysanthemums*. Some new unnamed

TEA ROSES at Lyons I found to be exceedingly rich in perfume and delicacy of shades—fawns, pinks, and golds, with several yellows beautifully shaded with pink. *Etoile de Lyon*, a rich golden yellow of the *Maréchal Niel* type, but having more substance in the petals, has been awarded several medals for distinctness and beauty.

SCHINUS MOLLE, a South American tree, is extensively grown at Nice; the graceful and slightly drooping Fern-like leaves are very handsome, and towards October it is covered with pretty panicles of bright red berries. At Hyères les Palmiers the avenue from the railway station to the town in a few years will be exceedingly fine. Several species of *Eucalypti* have been planted alternately with *Phoenix canariensis*, a much handsomer species than *P. dactylifera*, and *Callistemons*, and various *Acacias* were in full bloom in July, some of them being of large size compared with what are generally seen about London. *Musas* grow very freely

in sheltered places, but the district is exposed to a bitter south sea breeze which cuts their foliage to pieces. A very fine specimen tree about 20 feet or 25 feet in height of *Parkinsonia aculeata* was literally covered with golden yellow blooms, resembling those of a *Verbascum*. At Nice the beautiful Privet-like hedge of *Atriplex Halimus* which surrounds the front shore is very fine and strong; it seems to flourish under full sea exposure, but I fear it would be too tender for our coasts.

THE VINES towards Cette and Perpignan are promising well this year; those about Montpellier seem to be suffering most; but if the weather holds out as fine as it has recently been, an unusually fine harvest is expected. An American species is being tried extensively here, and up to the present it has been proof against the disease, but the berries are too fleshy to be as productive in the shape of wine as the ordinary species, and it is only resorted to where the disease has been worst. I was just in time at Hyères in July to see the great *Dasyliro longifolium* in full bloom; this is the first time it has flowered in Europe.

J. MURISON.

GARDEN FLORA.

PLATE CDII.

BEGONIA ROEZLI.*

THIS is a very beautiful and distinct species of *Begonia*, and without doubt the handsomest of the shrubby kinds. The first information we had of it came from Mr. Ernest Benary about four years ago; he had received seeds of it some time previously from Mexico, sent by the well-known collector whose name it bears. The accompanying plate is a good representation of both flowers and leaves, though the latter are of course much smaller than those of a properly grown plant. The colour is well rendered, though, if anything, less bright and rich than it should be. It has strong fleshy stems 3 feet or more in height, and smooth succulent leaves 10 inches or more in length, which under full light assume a reddish tint; they have strong veins, red beneath, and there is a deep blotch of red on the upper side of the blade at its junction with the petiole. The plant is very ornamental even when not in flower. Few plants are more valuable for winter flowering, and the flowers continue long in good condition. It is like no other kind in cultivation, except in a general sense, and it is remarkable for the large size of the bracts which enclose the young flower-heads. We were indebted for our first plants of this *Begonia* to the Rev. Mr. Law, of Little Shelford.

CULTIVATION.—The treatment which is successful in the case of other shrubby *Begonias* will answer well for this one with the exception of a few points which require to be considered especially in relation to it. It produces naturally a few stems only, which are not inclined to branch, and this habit must not be extensively interfered with, for if by cutting back at a wrong time, or by stopping, a greater number of branches are formed than are needed, they are sure to be weak and the masses of flowers will be thin and comparatively poor. Its habit is somewhat leggy—its chief, or only fault—and this can be combated only by growing it in full light and giving it a proper amount of room. The finest specimens I have seen were grown in a house which faces the south, and I believe that no shading had ever been given them. As it flowers at all times between October and May, no time can be mentioned for cutting it back or starting it afresh. We cut back our plants

* Drawn from plants in the Cambridge Botanic Garden, in May last.



BEGONIA ROEZLI

soon after they have flowered, in order to give them time to make vigorous stems before the next flowering season. Sometimes there are young shoots growing up, and if so they should not be touched, as they generally bear the greatest quantity of bloom. After the first cutting back it is useless to think of cutting back or stopping again; the earliest shoots produced should be grown on without check of any kind. The plants appear to lose vigour after about three years, and they should then be renewed. I have had no opportunity yet, I regret to say, of planting this *Begonia* in a bed of soil, but I intend doing so, and doubtless the result will be satisfactory. Other shrubby *Begonias* benefit very much by such treatment. The proper temperature for *B. Roezli* is that of an intermediate house, and if it faces the south so much the better. The soil for it should be rich and well drained, as a free supply of water is necessary during its season of growth. Peat is undesirable, except so far as may be necessary for giving porosity to the compost. For this purpose grit is very good, and it may consist of either finely broken pots or bricks. Cuttings of *B. Roezli* do not strike so freely as those of most other kinds, but seeds of it grow freely.

R. IRWIN LYNCH.

SEASONABLE WORK.

FLOWER GARDEN.

THYME.—Though strictly speaking all the plants belonging to the genus *Thymus* are herbs, there are several of the varieties which for use in the flower garden cannot be excelled by any other plant of similar habit and hardiness. *T. corsicus*, *hirsutus*, *tomentosus*, *Serpyllum*, and *lanuginosus* make good rockwork plants, and the two last-named kinds will flourish in the driest positions. The gold and silver variegated varieties are generally used for edgings in summer bedding, and when kept trim by frequent cutting they are excellent plants for the purpose, but a far better use may be made of them as well as of the common green variety, and that is as edgings and groundworks in winter bedding arrangements. The density of their root formation is favourable to their transplantation at almost any season; indeed, we have on many occasions at the height of summer made good with these a failure in summer bedding plants, and as our beds have all to be as fully furnished in the winter as in summer, there was so much the less to be done when the general clearance and replanting began. Seedlings of the common green kind make the best plants. Sow in pans in March, transplant to the open borders early in May, and the plants will be ready for the following winter. The variegated kinds can only be had from cuttings, which strike well at any season under handlights or in cold frames. The kinds for rockwork are increased by division in autumn or early in spring.

SUB-TROPICAL AND FINE FOLIAGED BEDS.—Besides tying to supports as a prevention against injury from wind and heavy rain-storms, and the removal of leaves and shoots that overhang the turf to its injury, there is little else needed just now in this department. Growth of late has been profuse and the beds will never be better; hence the present is the time to take note of what to repeat or what to avoid in future arrangements. We have marked the following for repetition, viz., a bed of tall Sunflowers and Castor-oils in combination; one of single Dahlias, Marguerites, and *Acacia lophantha*; and another of *Solanum robustum* and *marginatum* (a row of each), with Eucalyptus and tall Cannas in the centre. The variegated Abutilon and crimson-stemmed Chilian Beet in combination are also very pretty. Amongst the fine dwarfed foliaged plants succulents at present bear the palm. *Sempervivum arboreum*, *arboreum purpureum*, and

arboreum variegatum, large-leaved *Echeverias*, and American Agaves are the principal large kinds used, the carpeting plants for the same being *Mesembryanthemum cordifolium variegatum*, *conspicuum*, and *cœrulescens*; all the attention that these beds now need is to keep them free from weeds. Pick the seed-pods off the *Mesembryanthemums*, and give an occasional press down with the hand to keep the growth right under the taller plants. When thus trimming up the beds advantage should be taken of the opportunity to take the necessary cuttings for next year's needs. All succulents strike best in pots; no bottom heat is needed, but full exposure to the sun and protection from heavy rains.

HERBACEOUS PLANT BORDERS.—Now, whilst herbaceous plants are in flower, is the time to weed out all worthless or curious species, and replace them by increasing the stock of such kinds as not only make the best show in the open borders, but are most useful in a cut state. The *Achilleas*, Japanese *Anemones*, *Phloxes*, *Galegas*, *Actæas*, *Potentillas*, *Pentstemons*, and *Poppies* are at the present time in grand blossom; they have had about the same amount of attention as to watering, picking over, and tying up as has been given to ordinary bedded-out plants. Both sections are valuable in their respective places, but neither one nor the other will make a creditable display if left to take care of themselves, and yet many people appear to think so, more especially in respect of herbaceous plants. Many of the kinds may now be propagated freely by means of offsets, and *Phloxes* and *Pentstemons* by cuttings, but those that need to be increased by division must be left until later in the year. Keep the borders free from weeds, trailers well to their supports, seed-pods picked off Sweet Peas, and if there are any vacant spots, sow hardy annuals for early spring flowering.

GENERAL WORK.—Water shrubs, Roses, and climbers on walls that rain cannot reach. In the case of these a good wash with the hose or garden engine is also desirable. Clip Privet and Yew hedges, and give a final trimming for this season to Box edgings. Propagate bedding plants at every opportunity, and also prepare spring flowering plants by pricking off seedlings, splitting up *Polyanthuses*, *Primroses*, *Forget-me-nots*, and similar material.

INDOOR PLANTS.

CAMELLIAS.—These are better under glass than in the open air after their buds are set; but, nevertheless, turning them out frequently becomes a necessity with plants that bloom early, and which have made their growth correspondingly early, otherwise there is often danger of their blooming sooner than may be wanted unless there happens to be a house with a north aspect at command, where, by throwing it open, they may be kept as cool as out of doors. Treated in this way, there is much less danger of their getting dry at the roots than when set outside. The injurious effect that over-dry treatment at the roots has on these plants is proportionate to the more or less advanced stage the flower-buds are in. If only about setting, or little more, a dry condition of the soil does little or no harm; in fact, with vigorous examples, it is frequently necessary to allow them to get dry with a view to insuring their setting flower-buds in place of making second growth. But where the buds have attained any size, if allowed to get too dry, more or less, falling is all but sure to follow, although it may not take place for as much as a couple of months or more after the soil has been so dried. Plants in the open air should have particular attention whilst the weather is dry in the matter of water, to avoid the consequences here pointed out. Camellias, if fairly treated, grow better than most plants even in the vicinity of smoky towns, but there is one evil connected with their cultivation in such localities, and that is that dense foggy weather in winter frequently causes the bloom buds to drop in quantity, especially those of the white kinds that are de-

servedly so much prized. Many of the semi-double or irregular formed flowers are much better able to resist injury in the way described, and on that account are more suitable for growing in places so affected. We have also noticed that the buds are much more likely to drop from the cause named when late, through not being sufficiently advanced in the autumn; consequently, although it is desirable to have as much succession as regards the time of flowering as circumstances will permit, it is better in such neighbourhoods to get them well forward in the summer and autumn for early blooming than to attempt, as is often done, to keep the greater portion for flowering in February or March. Wherever these plants are underpotted, and the foliage, through being deficient in deep green colour, exhibits want of sufficient sustenance, manure water ought to be given. Whatever enriching material is used in this way, a liberal amount of soot should be included; even soot water alone is one of the best things that can be given under such conditions. Not only have Camellias a special liking for soot, but it likewise benefits them by ridding the soil from the presence of worms.

AZALEAS.—Like Camellias, these plants may be had in bloom during much the greater portion of the year if a sufficient stock is at command and they are properly treated. At no time are their flowers more useful for cutting or the ordinary purposes of decoration than through the last two months of the year, when such flowers as are forthcoming under glass have to be wholly depended on. But though Azaleas bear forcing much better than most plants, it is far the best to regulate their time of blooming by the length of time they are kept warm under glass after the season's growth is completed and the buds are set. Where wanted to come up in about the time mentioned, the buds can scarcely be too large and prominent before they are taken out of heat; but, in speaking of heat, through the summer months no more is required than keeping them in a house where the sun's rays are made use of by not giving too much air through the day, and shutting it off completely early in the afternoon. Plants so treated until the buds are as large and prominent as those of Camellias in their early stages can later on when required be induced to open their flowers with half the heat and in half the time that is necessary when turned out of doors or put in cool quarters under glass before, or as soon as the flowers have set. Where Azaleas are required to bloom early, and to be freely used for cutting, the old white kind and Fielder's White, a slight improvement on the former, should find a place, for though some of the newer sorts have better formed flowers, still the much longer and more vigorous shoots which the old varieties named make permit of the flowers being cut with a correspondingly greater length of wood attached, a matter of great importance in cut flowers. Such examples as were kept for blooming late, say up to June or July, will only now be making their growth, and to do them justice should for eight or ten weeks yet be subject to warm treatment, otherwise many of the shoots will never set flowers at all, or be so insufficiently developed as to go blind through the winter. In most cases where this latter mishap occurs it is directly traceable to the buds not being sufficiently formed before the cessation of growth. The whole stock of Azaleas should be frequently examined to see that they are free from their greatest enemy, thrips, also red spider, which latter sometimes makes its appearance through a deficient use of the syringe, in not getting the water well to the under-sides of the leaves. Dipping and washing with Tobacco water involves much more labour than fumigation, but it is far more effectual for the destruction of the thrips, and, what is of quite as much importance, it does not injure the leaves, which fumigation often does. Where red spider as well as thrips exist it is only necessary to add two or three ounces of Gishurst per gallon of the Tobacco water, which will destroy the spider, that Tobacco water alone seldom does effectually. Azaleas in all their stages require to be much more liberally supplied with water at the root

than almost any other genera of fine-rooted, hard-wooded plants; they enjoy a moist condition of the soil, such as would kill the small feeding fibres of most hard-wooded greenhouse subjects.

PIMELEAS.—These distinct and beautiful plants are quite as suitable for greenhouse decoration as they are for the purpose for which they are usually grown—to exhibit; or even more so, for so free is their natural disposition to flower, that they bloom profusely when no larger than occupying 7-inch or 8-inch pots. Another matter of importance when for ordinary use is that they require next to no artificial training, or the use of numerous sticks and ties, as if sufficiently cut back each season after blooming they will all but support themselves without sticks. The elegant drooping habit of the flower-shoots bearing their distinct heads of bloom makes them contrast well with most other plants. The principal cause of their not being more generally grown we take to be the unsatisfactory condition they usually get into through the ravages of red spider, which in the summer months is almost sure to attack them if means are not taken to keep the pest down. Regular drenching daily with the syringe is indispensable to keep the plants clean; not simply sprinkling them, but getting the water in quantity to the undersides of the leaves. Ordinary attention in the other matters of potting, air-giving and general treatment, such as found to answer for other hard-wooded greenhouse stock, is all Pimeleas require, with the addition of much more water to the roots in the growing season than will suffice for others of a hard-wooded character. Being mostly spring flowerers, Pimeleas whilst young often get their potting deferred through a supposition that it will interfere with their blooming; where such has been the case, and they are at all underpotted, they should at once have a shift, for if kept too long cramped at the roots they get into a stunted condition, which stops their future progress.

PREPARATION FOR WINTER.—Whatever has to be done in the way of repairs to plant houses, re-adjustment of heating apparatus, painting, and other things of like nature, this is the best time in the whole year for carrying it out, as now whilst a good many plants are undergoing their hardening process in the open air, the different structures may, by exercising a little judgment, be cleared in succession, so as to admit of the necessary work being done, which it can be so much better and expeditiously than when the houses are encumbered with occupants. Where the woodwork can be well dried, such as permitted of when the houses are cleared, painting is more preservative in its effects than when done, as often seen, with the wood in a half saturated condition, in which state it is of little use. The advantage of doing such work at this season in place of deferring it until autumn or spring, as frequently happens, cannot be over-rated.

FRUIT.

PINES.—Although we have had a short period of hot weather, the season is not much in advance of last year, and Pines, owing to the slow progress they made through the cold spring months, are still rather backward. To make up for lost time, plants intended for early planting next spring should now receive every encouragement in the way of heat, moisture, and stimulating food, consisting of weak guano water, or diluted liquid from the manure tank. When the pots are well filled with roots and days decrease in length, root-watering must be more carefully performed, atmospheric moisture may be decreased, and a liberal supply of warm air must be kept constantly playing amongst the foliage, in order to secure perfect maturation of the plants without producing a sudden check. Let the heat for the present range from 70° at night to 85° or 90° by day. Give air on fine mornings at 80°, and run up to 95° after closing. A bottom heat of 85° to 95° suits Pines in all stages of growth. Some growers like a much higher figure, but the little they gain

in time is lost in weight. Smooth Cayennes, Jamaicas, and that excellent winter kind Lord Carington, now swelling off for winter use, if kept close to the glass to prevent the crowns from becoming too large, cannot easily be overdone with solar heat, stimulating food, and moisture. Avoid fire-heat as much as possible by running down the blinds, or covering with mats on cold, chilly nights. Remove ripening fruit to a dry, warm atmosphere to finish. Take off strong suckers, pot, water, and plunge at once, and shift any that are well rooted from 8-inch to 10-inch or 11-inch pots.

VINES.—Houses of late Grapes intended for keeping through the winter will now require liberal ventilation, with gentle fire heat, in order to secure the perfect maturation of fruit and wood by the end of September. Reduce strong laterals where they have been allowed to run to a considerable length, but at the same time guard against exposing the bunches to the sun, as black Grapes always colour best under a good canopy of healthy foliage. Black Morocco and Madresfield Court Muscat, two varieties liable to crack if heavily watered or allowed to hang in a damp, stagnant atmosphere, should be heavily mulched to prevent the escape of moisture from the borders. An impression prevails with some growers that their success this season is entirely owing to the extension of laterals, but several fine examples of this noble Grape having come under our notice, we have found upon enquiry that they have been grown upon the close-stopping principle—a fair proof that the secret of success must be sought for in the management of the roots and the maintenance of a circulation of dry, warm air. Muscats, now quite ripe, must be closely watched, and, if necessary, slightly shaded with Haythorn's hexagon netting through the hottest part of the day. If the roots are in external borders, some kind of covering should be held in readiness for throwing off heavy falls of rain. Gradually reduce the temperature of the house, using no more fire heat than is absolutely necessary to prevent the berries from damping, and ventilate freely on fine days. Follow up the lighting and relaying of the roots of early and mid-season Vines before the leaves fall. Keep them well up to the surface and encourage the formation of new spongioles, by syringing and shutting up with sun heat on fine afternoons. In cold, unfavourable situations, Vines should always have the run of internal, as well as external, borders, which should be well concreted and drained. Use new turf, with an admixture of old lime rubble, crushed bones, and burnt earth. Apply manure as a mulching in preference to mixing it with the compost, and aim at narrow borders well filled with roots, which can be easily protected or excited, as circumstances may dictate, always bearing in mind that Grapes invariably set and colour best when the latter are under the control of the cultivator.

CUCUMBERS.—Plants raised from seeds or cuttings early in the current month will be growing fast, but they must not be stopped until they have covered three-fourths of the trellis, neither must they be allowed to carry fruit until they are thoroughly established in the pots or hills. If the latter, keep adding fresh turf and old lime rubble as the roots show through the sides, and use nothing but pure water for watering or filling the evaporating pans for the present. Also avoid the use of fire-heat by keeping the fermenting bed frequently renovated, and by closing about 3 p.m. with sun-heat and moisture. Where several compartments now occupied with Melons have to be planted with Cucumbers, two sowings should be made in August and one in September, the first to succeed the summer frames, the last to be kept clear of male and female blossoms until the end of the year, when they will be in a fit state for fruiting through the succeeding spring and summer. Old plants in full bearing must be liberally supplied with warm liquid at every watering, and the quantity of fruit they are allowed to carry must be regulated by the quality of that which they are now producing. Pay particular attention to the bottom-heat, as it is to neglect of this im-

portant point that many ills, including canker and mildew, may be traced.

STRAWBERRIES.—By this time the latest plants will have become well established in their fruiting pots, and the most important point will be the formation of plump ripe crowns with plenty of healthy roots under them for forcing up the flower-stems in the spring. In low, damp situations more favourable to the growth than to the ripening of the crowns medium-sized pots, which quickly become filled with roots, answer best, and when this stage has been reached it is a good plan to elevate them on planks, dwarf walls, or platforms 1 foot or more above the ground, where by full exposure to light and air, and careful attention to watering with water which has been for some time exposed to the influence of the atmosphere, the most backward plants may be made fit for storing away in cold pits by the end of October. Keep the general stock of plants free from weeds and runners, and move them occasionally to prevent the crock roots from striking into the ground; also keep a sharp look-out for worms, red spider, and mildew. The best remedy for the removal of the first is clear lime water, and the others may be destroyed by dipping the leaves of the plants in a mixture of sulphur and water. If very early forcing is contemplated, the first batch of Vicomtesse Héricart de Thury and La Grosse Sucrée, which is equally early and produces finer fruit, may now be taken to an open, airy situation where they can be partially plunged for the better protection of the roots, which should now be almost forcing the balls out of the small pots, as well as to economise time in watering. If not already done, get the surplus runners planted out on good ground conveniently situated for water. Mulch and encourage a vigorous growth, as these plants will give the earliest runners for next year's forcing.

KITCHEN GARDEN.

The rains which we have had have made the inmates of the kitchen garden look cheerful and bright. Celery, Coleworts, and Broccoli now cover the ground with foliage; one more hoeing will be sufficient to carry them through the season. Onions in some places are somewhat mildewed; we are therefore taking them up, leaving them on clean land to dry. Immediately the land is clear we set the line, and begin to plant Cabbage without any digging; when the young plants get fairly started, we give the soil a good stir up with a cultivator, which does a great deal of good. Lettuces, which we require in large quantities, we plant between the young Strawberry plantations, for both Strawberries and Lettuces enjoy a good rich larder. Endive is now getting ready for putting in its proper place. Keep sowing winter Lettuces and Spinach, cut all the old flowering stems from Globe Artichokes, and if the autumn is a fine one a second crop of smaller, but quite as good, flavoured heads will be the result. General kitchen garden work will consist in eradicating all seedling weeds. There is no time when a good salad is relished more than just now. Our Paris Cos Lettuces growing between Celery ridges, manured with old Mushroom manure, are simply unique. They want no tying, are crisp and cool, and most refreshing.

The breath of trees.—Surely of all smells in the world the smell of many trees is the sweetest and most fortifying. The sea has a rude, pistoling sort of odour that takes you in the nostrils like snuff, and carries with it a fine sentiment of open water and tall ships; but the smell of a forest, which comes nearest to this in tonic quality, surpasses it, by many degrees, in the quality of softness. Again, the smell of the sea has little variety, but the smell of a forest is infinitely changeable; it varies with the hour of the day, not in strength merely, but in character; and the different sorts of trees, as you go from one zone of the wood to another, seem to live among different kinds of atmosphere. Usually the rosin of the Fir predominates. But some woods are more coquettish in their habits; and the breath of the forest Mormal, as it came abroad upon us that showery afternoon, was perfumed with nothing less delicate than Sweet Brier.—R. S. STEVENSON.

GARDEN IN THE HOUSE.

THE SILKY LADY'S MANTLE.

IF by this name "Veronica" means the little roadside Silver-weed, with glossy green, serrated, and pinnate foliage, the underside covered with silky white hairs, pale yellow flowers, somewhat resembling those of *Ranunculus acris*, and a plume-like habit of growth, I quite agree with all he says about its value for cutting purposes. It is one of the prettiest native leaves we have, and in rather dry situations the plant will produce them nearly a foot long, bending like an ostrich plume. In some districts in the north it forms a fringe to the footpath along the country roadsides, and submits so well to the continual chopping of its roots, necessary to keep the edge of the footpath sharp and defined where it falls to the road, that if it was only evergreen it would be far and away the best plant one could employ for edging walks, as, unlike its brother, the common Cinquefoil, it shows little tendency to ramble, and it seems to prefer trodden ground. But it has other capabilities not noticed by "Veronica." I remember noticing a quantity of it growing at the top of the beach at Wormit Bay, near the south end of the Tay Bridge. It had been growing rather freely, but was becoming starved from want of nourishment and moisture, and the leaves were fading. These as they faded changed from green to pure deep grey, and from that through the colours of a piece of iron as it becomes heated to redness to bright crimson, scarlet, and yellow. Many leaves were almost self-coloured; others shaded from green at the base to crimson at the tip, and all the colours contrasted beautifully with the silvery reverse of the leaves, which did not change. Most beautiful wild bouquets could be made of these leaves with Poppies, Ox-eye Daisies, Corn Marigolds, blue Cornflowers, and the large-flowered pale lavender Scabious so common in that district, with a tall stem or two of Hairbell and some Grasses interspersed. These plants were fading in mid-July. In ordinary situations one can occasionally pick a coloured leaf, but our autumns are usually so wet, that many leaves only fall down and rot, which in a drier climate would colour as brightly in fading as the Virginian Creeper. With the Silver-weed the experiment of dry treatment in autumn is worth trying. J. D.

BOUQUETS AND BASKETS.

WE are now in the midst of our local flower shows, and the exhibits thereat offer a fair opportunity for criticism with a view to alterations and improvements. To those who believe in the "eternal fitness" of things, the bouquets and baskets form pleasing objects on the exhibition table, while to me nothing can be more objectionable. The bouquets are as a rule a vile combination of really good flowers, cotton wool, and wire. Anything like natural grace and real art is utterly despised by our modern bouquetists. The flowers are all shackled and fettered like so many evildoers, and with such a parade as if the only object of the operator was to show how cleverly he could harpoon a spray of *Stephanotis* or a piece of *Pantratum*. The cotton, too, is most offensively pushed into notice; so much so, that even in some of the so-called best bouquets it sticks itself up by the side of an Orchid, as if the beauty of the flower depended upon the presence of such an intruder. If some zealous policeman was to come across a stray prize bouquet in a box, we should be startled in the next issue of the local daily by a paragraph announcing the discovery of an "infernal machine" composed of explosive cotton and many mysterious looking wires.

BASKETS OF FLOWERS are open to the same objections, their stiffness and formality being almost equally bad. Many of them, too, could not be carried (which, I apprehend, is the chief reason why flowers should be put in a basket), as they have no handle, or if there is one, it is usually so covered up with Moss and flowers and the protruding ends of wire, that one would require a

pair of hedger's gloves before it could be attempted to be touched with safety. Even half the beauty of high class dinner table decorations is lost through too prominent indications of mechanical genius. The first prize epergne at our great local show contained, in the top trumpet, a pip of the blue African Lily, ostentatiously sticking itself out on wire about 9 inches from the edge of the glass. Such practices as this are a disgrace to gardening. When will some exhibitor have the courage to stage a basket of Roses, accompanied by their own foliage or some such simple and artistic arrangement, as opposed to the mechanical arrangements now prevalent? and, when the accepted order of things has been thus set aside, will the judges be bold enough to reward him with a prize? Depend upon it, as long as judges go on awarding prizes to the present class of abortions, exhibitors will continue to furnish them. I have seen children in the fields make better bouquets of Dog Daisies and Corn Cockle than the most accomplished of our so-called bouquetists do, even with the aid of their gum, cotton, and wires. The children's arrangements were always much more natural. ANDREW FAIRSERVICE.

Mere Knolls, Monk Wearmouth.

NOTES.

WILD GARDENING.—How rarely do we meet with a really beautiful bit of wild gardening—more rarely still with a garden of any sort which, to use a rather hackneyed phrase, is "invested with artistic merit" of any kind. At Newry the other day, however, we were delighted with Mr. Hoey's garden, in which are sloping banks made most lovely with rambling white Roses, Funkias, Spiræas, and other beautiful vegetation. A pond is artistically margined with Spiræas, the rosy *S. palmata* especially being luxuriant and full of colour, while Lilies, both American and Japanese, were springing up among the Iris and Funkia leaves. In one place the graceful *Sparaxis pulcherrima* waved its tall flower-stems in the breeze, like a slender Bamboo shoot wreathed with velvety crimson bells. Even if not hardy, this species is so charming and distinct in habit as to be worthy of careful pot culture. In some places a clean fresh turf had been made of the wild Heaths by simply paving the earth with sods of peat cut from the moors or bogs, having the *Ericas in situ*. Among the *Ericas*, Plantain Lilies, Marsh Saxifrages, such as *S. Hirculus* and *S. diversifolia*, had made themselves quite at home, while mossy stones were made lovely with mats of dwarf Cotoneaster and the golden *Hypericum reptans*.

THE WHITE MAURANDIA.—This is one of the most graceful and floriferous of all greenhouse climbers, and as such well deserves a place. I saw it yesterday intermixed with *Thunbergia alata*, both yellow and white, and the effect was charming in leafage and in blossom. Both are easily raised from seeds sown in February or early in March in a little artificial heat. Indeed, of all graceful greenhouse annuals, these are two of the most useful and most easily grown.

THE PORCUPINE RUSH.—One of the most distinct of all the Japanese variegated plants is this slender *Juncus zebrinus*, which, although barely hardy, really does exist in some sheltered localities out-of-doors. As a pot plant it is very pretty, and its culture simple if treated as a sub-aquatic, by placing the base of the pot in which it is grown in a shallow pan or saucer of water. It is quite at home along with *Disas*, *Sarracenias*, and other cool house exotics, and amply repays a little careful culture. Sometimes it is known as the "Banded Rush," but in reality its name is *Scirpus Tabernæmontani* var. *zebrinus*.

ANEMONE NARCISSIFLORA.—"F. W. B." in writing on this in THE GARDEN, p. 109, inadvertently stated that "it belongs to that race of Wind-flowers which bear long-awned or Clematis-like seeds." I need scarcely say that such is not the

fact. A friend sends me a small packet of seeds just newly harvested showing the so-called "seeds" to be smooth, flattened achenes of a light brown colour, nearly a quarter of an inch long, and ovate in form—indeed, not unlike *Parnassia* seeds in shape and colour and size. As a species this *Anemone* has a wide geographical distribution, extending from Switzerland and Austria to Siberia, and as a garden plant it is so distinct and beautiful that the wonder is that it is so rare even in good collections. But it is a shy seedling plant in our dull climate, and it does not lend itself very readily to propagation by division, facts which doubtless account for its rarity.

GARDEN FLOWERS.—Carnations are now at their best, both single and double, of all colours, from white through all shades of rose and salmon-pink until the deeper and richer scarlet-purple kinds contrast with the rich velvety maroon tint of the old Clove, than which, as I imagine, none of the entire family of these popular blossoms can well be more fragrant. Grenadin varieties come as near pure scarlet as it is possible to be, much brighter indeed than the so-called scarlet or Tom Thumb Clove. A Picotee we grow here, called Painted Lady, is always much admired, its blossoms being daintily fringed, of a bright reddish scarlet above on a white ground colour. I believe I am right in saying that the florists formerly made a separate class of these Painted Lady forms, distinguishing them from selfs, bizarres, and flakes, by reason of the colour being superficial, only not penetrating through to the back of the petal. We raise a batch of seedling Carnations every year, and they are now the freshest and sweetest of all garden flowers.

TALL EVENING PRIMROSES.—Those who appreciate their gardens during the evening hours should, of all things, grow these stately Evening Primroses, which are most beautiful immediately after sunset, or even far into the gloaming. Their great soft yellow petals open out so fresh, and the blossoms exhale such a delicate fragrance, so peculiarly their own, that their culture supplies quite an additional attraction to the garden. Along with them should be cultivated the different varieties of *Mirabilis Jalapa*, or Marvel of Peru. These are of many shades of colour, white, lilac, yellow, crimson, and rose, and their blossoms are, as I think, most deliciously fragrant at eventide. The common Musk plant, *Mignonette*, and the Night Scented Stock are also especially recommended for culture in beds or borders near to the dwelling-house for the sake of their refreshing fragrance.

ANÆTOCHILI, OR KING PLANTS.—Beautiful dwarf-growing Orchids with daintily variegated leaves; so beautiful are they, indeed, when well grown, that we have often wondered why they are so rarely to be met with, even in those places where most other Orchids find congenial homes. That they are rather difficult to grow ought to be an inducement rather than a drawback to their culture. Many failures are no doubt due to the "bell-glass" or "close-case" kind of treatment. Our own plan is to grow them in shallow Orchid pans suspended beneath the shaded roof of a little plant stove, in which *Nepenthes* grow fairly well. The little plants are potted in a well-drained compost of loam fibre, to which a little Sphagnum Moss is added. There is another little secret in their culture—one must always be putting in cuttings. Whenever a piece begins to root above the surface of the pan cut it off below the root, and treat it as a cutting. Such little pieces soon develop other roots and new leaves, and to my mind are even more interesting than are older and larger plants.

GLADIOLUS LEMOINEI.—This beautiful variety is flowering here for the third time, and, like its parent species, *G. purpureo-auratus*, it is perfectly hardy, being, moreover, a more robust and effective garden plant. Two or three of the newer hybrids raised by M. Lemoine, of Nancy, are also

showing bloom. Seeing that everyone who sees these distinct and charming hybrids admires them, the wonder is that they are not more common in all good gardens. They possess a vigorous habit, and do not die out with us, as do the named seedlings of the florist or show section, both French and English alike. G. Lemoinei and G. Marie Lemoine were figured in THE GARDEN a year or two ago, and well deserved the honour, for they are most beautiful. In northern localities or on cold wet soils, a sunny position close to a warm wall suits them best, with plenty of sand around their bulbs as a preservative from too much wet during the winter.

*
PRIMULA OBCONICA.—This Primrose has merit of a particular kind to which, so far as I know, no allusion has hitherto been made. It is evergreen, but, what is more, ever-flowering also. We obtained a plant from Messrs. Veitch in November, 1882, and it has never been out of flower since that date, having now seven or eight spikes upon it, covered with the pretty lilac-tinted white blossoms. It forms a pretty companion for the rosy Sultan's Balsam, another ever-blooming plant worthy of note, as one of the most useful of all soft-wooded plants of recent introduction. But the Balsam must have heat during the winter season, whereas this pretty Primrose grows and flowers quite freely in a cool greenhouse. It is one of Mr. Charles Maries' introductions from the Tchang Valley of China, and is sometimes known as *P. poculiformis*.

*
CHRYSANTHEMUM LACUSTRE.—Those fond of white Marguerites should grow this strong growing species, which is a sort of Ox-eye Daisy, but of stouter and nobler habit than our own species. It is now in flower, each bloom, 3 inches in diameter, having a pure white ray with a golden centre. Each flower is produced singly on a long stalk, and so is handy for cutting, and, what is more, the flowers endure long in a fresh state indoors. A tall vase full of these big Daisies with a few sprays of the crimson Sweet Pea among them is very pretty. Some years ago when this plant, as also the taller later-flowering *C. (Pyrethrum) serotinum*, were comparatively rare in gardens, I was surprised to see it quite common in cottage gardens in Cambridgeshire. This peculiarly local distribution of garden plants is very interesting to travellers at home.

*
HELIANTHUS RIGIDUS.—This is one of the finest of all perennial Sunflowers—indeed of all composite plants perhaps the best now in flower. Where flowers are grown for cutting it proves most useful, and it grows quite freely on all soils. It forms dense masses here 4 ft. high, the individual flowers being 4 inches in diameter, of a deep rich Narcissus maximus kind of yellow, with a black or dark brown centre. The contrast between the rich golden ray florets and the dark olive-green buds is very pleasing. If the plant has a fault, it lies in a love for travelling about, especially in loose, rich soils. Alongside *Helenium pumilum* and *Plagius grandiflorus* it is just at this season very beautiful, defying the rains and winds now too prevalent.

*
THE SEA HOLLIES.—Various species of *Eryngium* are now most attractive in beds and borders alike, the best of all being *E. amethystinum*, which grows about a yard in height, forming a noble spreading tuft of dark green palmate leaves and tall blue flower stems. Each flower-head is surrounded by a conspicuous whorl of steel-blue bracts of quite a distinct and ornate character. *E. giganteum* is a robust grower, with broader, silvery veined bracts also shaded with blue. Not the least ornamental is *E. Bourgati*, with dense globular heads and stems of quite an ultramarine tint and of elegant or slender form. Even our common sea-side species forms quite a pretty object, its glaucous foliage and bracts being distinct and effective as seen in company with other umbelliferous foliage plants, and the Continental shore species (*E. campestre*), with its pinnatifid leaves, well deserves culture. The roots of *E. ma-*

ritimum were formerly dug for preserving or candying in sugar under the name of Eryngoos, as alluded to by Shakespeare: "Let the sky rain Potatoes; let it thunder to the time of green sleeves, hail kissing comfits, and snow Eryngoos." ("Merry Wives of Windsor," act v., scene 5.)

*
NO ORCHIDS.—Those amateurs who are so fortunate as to have no hothouses in their gardens, and to whom the culture of Cattleyas and Lælias is therefore an impossibility should procure a collection of Irises and Pæonies of all kinds. The Irises

good collection of Irises well can afford to smile at the fate which forbids his indulgence in Orchids or rare hothouse plants of any kind.

VERONICA.

TREES AND SHRUBS.

THE SWEET GUMS. (LIQUIDAMBAR)

The geographical distribution of the Sweet Gums is singularly interesting, there being but two species, one of which is confined to the United



Liquidambar styraciflua; full grown tree, 50 feet high.

are especially lovely, quite as pure in colour and as quaint in form as are the choicest Orchids, with the advantage that most of the best kinds defy our bitterest winters with impunity. The Flag Iris or forms of *Iris germanica* are all hardy and very variable, and to these evergreen kinds may be added the best of the deciduous or bulbous section (*Xiphion*). Some of these (as *X. reticulatum*) bloom with the Snowdrop, while the English and Spanish kinds are at their best during May and June. The Japanese varieties of *I. Kämpferi* are most lovely by brook margins or pond sides, producing great blossoms 8 inches or 9 inches in diameter, and of the most varied shades of lovely colour. The man who plants a

States and the other to the continent of Europe. Of all the genera of flowering plants in the United States flora there is only one other, the Hop Hornbeam (*Ostrya*), which comprises but two species, the one being peculiar to the New and the other to the Old World. Two or three plants, one of which is mentioned by London in "Arboretum et Fruticetum Britannicum," formerly Sweet Gums, are now placed in the genus *Altingia*. The name *Liquidambar* is a mongrel one, being derived from *liquidus*, fluid, and the Arabic *ambar*, amber, in allusion to the fragrant terebinthine juice which exudes from the tree. Both species are hardy enough in this country, and one at any rate is eminently suitable for planting for landscape

effects, both on account of the bright green of the starry leaves during spring and summer, and the splendid tints assumed by the decaying foliage in autumn.

LIQUIDAMBAR STYRACIFLUA*.—The long-stalked smooth and shining leaves of this tree are deeply five to seven-lobed, the lobes being serrate and sharply pointed. The bark is grey, commonly

144 feet; length of trunk to first branch, 70 feet; circumference of stem at 3 feet to 5 feet from ground, 17 feet. It is further stated that the Sweet Gum is "the tallest tree in the Lower Wabash Valley in proportion to its girth. The largest shafts are probably over 100 feet, and the greatest circumference about 17 feet or 18 feet, while many trees no doubt exceed 160 feet in height."



Liquidambar styraciflua; branch in flower.

with corky ridges on the branchlets; the leaves are fragrant when bruised, and in favourable seasons turn a beautiful deep crimson in autumn. After dull, sunless summers, however, the wood probably does not get so thoroughly ripened, and dull purples are the prevailing shades.

In Sargent's "Catalogue of the Forest Trees of North America" the wood is said to be reddish, compact, fine-grained, moderately tough and solid. The height attained by the tree is there given as 40 feet to 60 feet, and the diameter of the trunk at from 3 feet to 5 feet. That the Sweet Gum, however, sometimes attains much greater dimensions than those given by Professor Sargent is evident from the data supplied by Ridgway in a communication on the "Vegetation of the Lower Wabash Valley,"

Catesby, in his "Natural History of Carolina," published in 1754, quaintly describes the Sweet Gum and its uses, &c., as follows: "The wood is good timber, and is used in wainscoting, &c. The grain is fine, and some of it beautifully variegated, and very fit for curious works in joinery, but when wrought too green is apt to shrink and fly from the joints, to prevent which no less than eight or ten years is sufficient to season its planks; yet the regular form and beauty of this tree deserves the regard of the curious, none of the American trees affecting more our soil and climate. From between the wood and the bark of this tree issues a fragrant gum, which trickles from the wounded trees, and by the heat of the sun congeals into transparent resinous drops, which the Indians chew, esteeming it a preservative of their teeth. The bark is also of singular use to them for covering their houses, which has frequently given me an opportunity of gathering the gum from trees so stripped of their bark, one of which would yield a hatful of gum. This gum smells so like the Balsam of Tolu, that it is not easy to distinguish them."

Bromfield, in the *London Journal of Botany*, vol. vii., p. 144, sums up in a few words the value of the Sweet Gum from an ornamental standpoint, and also definitely enough states the conditions most favourable to its development. "It is to be regretted that this stately tree, with its ample aromatic foliage and depth of shade, is not oftener seen in England. Its exclusive natural attachment to deep alluvial soils may perhaps disqualify it for universal cultivation in our parks and pleasure grounds, where, however, appropriate situations might generally be found for the display of its perfections. The rapidity of its growth would compensate for the inutility as timber, in which last respect it would only be on a par with some of the most cherished ornaments of our plantations, as the Horse Chestnut, Lime, and Plane. In low, rich ground, by the side of artificial water, no tree would be more desirable than this."

Loudon heads his list of statistics by giving the measurements of a tree at Syon: height 59 feet, diameter of the trunk 1 foot 7 inches, and of the head 36 feet. Mr. Woodbridge has kindly furnished me with details respecting the largest tree now at Syon, but could not ascertain whether this is the one which Loudon measured; height 80 feet, circumference at 2½ feet from the ground 6 feet, spread of branches 48 feet. At Kew, near the Pagoda, in soil anything but good, on a

dry gravelly bottom, a number of trees were planted about fifteen years; these were about 5 feet high when placed in their present positions, and they are now about 25 feet in height.

LIQUIDAMBAR IMBERBE*.—This is a much slower grower than the last-named species; it makes a neat, compact bush, and is suitable as a single specimen on a lawn. The largest Kew plant is nearly 10 feet high, with a head about 12 feet in diameter. It must have been in its present position a long time, as I can ascertain nothing definite about its age or history. Like the Oriental Plane, this is the solitary outlier of a small genus, the other species of which occur



Leaf of
L. imberbe.

Leaf of
L. styraciflua.

only in North America. Moreover, there is every reason to believe that both the Liquidambar and the Platanus were prevalent in Central Europe during the Miocene period. In a wild state the Liquidambar imberbe seems to be confined to a strip of the coast of Asia Minor, opposite the island of Rhodes; at any rate there are no wild specimens in the Kew herbarium except from that locality. The cultivated ones differ in the leaves being wholly glabrous, that is, without the tufts of rusty-coloured hairs in the axils of the principal nerves on the lower surface of the leaf. *L. imberbe* furnishes the Storax or Styrax, now com-



Storax (Liquidambar imberbe).

paratively but little used, though formerly in much repute in medicine.

GEORGE NICHOLSON,
Royal Gardens, Kew.

Forestry in the United States.—The American Association for the Advancement of Science has addressed a memorial to the various

* Aiton, "Hortus Kewensis," vol. iii., p. 385; *L. orientalis*, Miller, "Gardeners' Dictionary;" Hooker, "Icones Plantarum," 1019, n.s., 1, p. 13.



Young *Liquidambar styraciflua*; 11 feet high.

published in the *American Naturalist*, 6, 664. The following figures are copied from a table of maximum size according to tape-line measurements, given in the work just mentioned: Total height,

* Loudon, "Arboretum et Fruticetum Britannicum," vol. iv., p. 2049; Gray, "Manual of North American Botany," p. 174.

State governors on the importance of preserving and increasing the forestry supplies. The memorial recommends the protection by law of all trees planted along the highways, and the reduction of taxes for encouraging such planting; also the exemption for a time from taxes of bare land, which shall be planted with trees, and the appropriation of money as premiums for successful tree planting. It also suggests that prizes should be offered for the best reports and essays on practical forest raising, to be published and disseminated. With regard to the timber supply of the United States, it appears, from estimates of the amount of White Pine standing in locations available for the markets, that the price of Pine lands in many sections has been greatly advanced. It is stated that no forest of Pine-wood on American territory now remains unexplored, and the entire supply does not exceed 80,000,000,000 feet. The annual production of White Pine is not very far from 10,000,000,000, and the demand is growing beyond the capacities of the forests.

INDOOR GARDEN.

HEXACENTRIS MYSORENSIS.

THERE are few handsomer plants, and none more distinct, than the Mysore Hexacentris, which when it first bloomed produced quite a sensation. Its curiously shaped crimson and yellow flowers, in long, pendulous racemes, are seen to best advantage drooping from the roof of a moderately cool stove. It is one of the freest of free growers, and will even thrive under conditions as regards treatment which would be fatal to plants of a more delicate constitution. Although a free grower, however, it is easily kept within reasonable bounds, inasmuch as it will bear pruning better than most plants. It is not very generally cultivated, and the reason for this probably is that, being a native of Mysore, many have been led to suppose that it required more heat than has proved conducive to its blooming freely. With it, as has frequently occurred in the case of other plants, cultivators have been left in the unfortunate position of knowing nothing about the locality in which it is found wild; but I should suppose, from its evidently doing better with somewhat cooler treatment than many things we have from the same country, that it must have come from an elevated district. When well grown, its drooping flower-spikes extend to as much as 15 inches in length. It is best adapted for draping the rafters of the house in which it is cultivated, or it may be trained during the growing season on thin twine near the glass, where it will be fully under the influence of light, and then trained on a trellis similar to the twining Clerodendrons. It is a quick grower, and can be got to a considerable size in a single season. It may either be planted out or grown in a large pot. The latter I prefer, as so managed it attains a size sufficient for all ordinary purposes, and being a free rooting subject, it quickly exhausts the soil, which, under pot culture, can be more readily renewed than when planted out. It appears to be a plant that under cultivation has no fixed season of blooming. I have had flowers in abundance through the winter and early spring months on growth produced the preceding summer, well ripened up during the autumn and slightly rested. I have also succeeded in having plenty of flowers during the late summer and autumn on the current season's growth without any previous rest; but, to effect this, it must be in a thoroughly light house, with little shade, more air, and less moisture than the majority of stove plants need, and also not too much heat, otherwise it keeps on growing without seeming to have time to flower until checked.

THE RIPENING PROCESS should be effected by a drier state of both the atmosphere and soil. Plants that have been rested through the autumn or winter in a temperature of about 55° at night, when subjected to 5° or 10° more warmth, soon commence to grow, producing abundance of cuttings. These should be taken off with a heel of firm wood attached to them when about 6 inches long, inserted singly in small pots, drained, and two-

thirds filled with sandy loam, the remaining portion pure sand, kept moist and covered with a propagating glass in a temperature of 70°. They will root in a few weeks, when they may be gradually inured to the full air of the house, and when sufficient roots have been formed, which will be by the beginning or middle of May, they may be moved to 6-inch pots, well drained and filled with good fibrous loam, to which should be added enough sand to allow the water to pass freely through it. I may here remark that the plant appears to grow equally well in either peat or loam, but I prefer loam through all stages of its growth, as in it has a less disposition to make wood, and is more inclined to flower. When the plants have attained a foot in height, pinch out the points to induce the production of several shoots, which should be kept regularly trained round four or five tall sticks inserted in the pots for the purpose. Keep them now tolerably near the glass in an ordinary stove temperature day and night, or if they can be accommodated in a temperature a few degrees cooler, all the better. From 60° to 65° at night is sufficient with 80° in the day, but a few degrees either way matters not, provided the plants are where they can receive a little more air with a dryer atmosphere than the generality of stove plants are treated to at the present day. Syringe freely overhead every afternoon, and use a slight shade in the brightest part of the day if the leaves are found to scorch, not otherwise. By the middle of July the roots will have filled the pots, when the plants can be moved to others 3 inches larger, using the soil now a little rougher than before, but of a similar nature. Keep the shoots regularly trained round the sticks; if this is not done they are sure to get entangled. Continue the same treatment as before until the beginning of September, when syringing should be stopped. More air ought to be given now and less water at the roots, so as to gradually induce a

STATE OF REST. Through the winter keep them at about 55° by night and a few degrees higher in the daytime, with no more water than will just prevent the leaves flagging. About the middle or end of February increase the temperature 5° day and night, and as soon as the plants begin to grow they may have a large shift—a 16-inch or 18-inch pot will not be too much—using the loam in a lumpy state; if destined to be grown as roof climbers the shoots should be trained under the rafters, or in whatever position they are to occupy. Be careful not to over-water, as it will take some time for the roots to fairly enter the large body of new soil. Give sufficient air during the day through the spring, but avoid cold draughts, syringing freely at the time of closing the house in the afternoon. As the sun's power increases give a little more heat, but no more shade than seems absolutely necessary. Continue to

TRAIN the shoots as they advance in growth, treating the plants in other respects through the summer as in the preceding year; in autumn give more air, withholding atmospheric moisture, as well as reducing it at the roots, so far as can be done without injuring the foliage. Let the treatment through the winter be the same as before. Again, as the days lengthen in spring increase the heat and give more water, which will at once induce the plants to break freely from the greater portion of the last summer's shoots, from the points of which before they extend far the flower-spikes will make their appearance. From this time liquid manure twice a week will be of considerable assistance. The syringe must now be used with caution, or it may cause the flower-buds to fall off. Do not keep the plants too hot whilst flowering, and when the blooming is over allow them to get dry at the roots sufficiently to cause the leaves to flag at intervals of a fortnight or so, after which they must be cut freely back, at once turning them out of the pots, removing half the old soil, and cutting in the roots freely. This, from its free-rooting character, the plant will bear as well as an Allamanda. They may be either returned to the same pots, or, if required to fill a large space, transferred to others a size or two

larger, after which encourage them to make plenty of growth during the summer, to stimulate which give manure water once a week. Manage through the autumn and winter as before. Again, when the

SPRING FLOWERING IS OVER, repeat the cutting back and partial disrooting, with renewal of the soil. Should the plants be required to flower on trellises, all that is necessary is to take the shoots down from the position where they have been grown near the roof and train them on the trellises before growth commences in the spring. After blooming cut back and repot, and place them where the shoots can be trained near the glass as previously. This Hexacentris is a plant so easily raised and quickly grown to a considerable size, that it is not advisable to keep old specimens too long, younger examples being far more preferable.

H. LUTEA has lighter coloured flowers than H. mysorensis, to which it forms a suitable companion, requiring the same treatment.

INSECTS.—Hexacentris is somewhat subject to red spider if the syringe is used insufficiently, but if the plants are freely damped overhead every day during the growing season, as advised, this insect will have little chance of gaining a footing. If affected with mealy bug or scale, dip and wash in a strong solution of insecticide when the plants are cut back after flowering. T. BAINES.

LISIANTHUS RUSSELLIANUS AND L. PRINCEPS.

L. RUSSELLIANUS is a good old plant, and not difficult to manage when its culture is understood. I grew it very successfully about ten years ago when at Loxford Hall. It is a plant seldom seen, but when well furnished with a score or more of lilac-purple Tulip-shaped flowers open at one time it is very effective. Most seedsmen can supply seeds of it, but I bought a good many packets before I was able to procure plants. The seeds are very small—similar, in fact, to those of the Calceolaria. A successful raiser of Calceolaria seeds would get the Lisianthus to vegetate in the same way, but we sow our Calceolaria seeds in a cool house or frame, and the Lisianthus in heat. Sow the seeds in sandy peat, scarcely covering them with silver sand, and place the pot on a shelf near the glass in a house in which there is a stove temperature. A piece of glass placed over the pot prevents evaporation, but if the soil becomes dry dip the pot in water three parts of its depth for a few seconds to slightly wet the mould; if it gets soaked the seeds perish. When large enough to be pricked out I would place three plants in a small pot, repotting into 5-inch pots. Good, tough, fibrous peat is the best material in which to pot them. I would sow the seeds at once and winter the plants in 4-inch or 5-inch pots, shifting into larger pots as may be required; 9-inch pots are the sizes in which they ought to flower. Some growers recommend cold pits as the best structures in which to grow and flower this Lisianthus, but I could not get on with them under such treatment. Our plants were wintered on a shelf near the glass where the temperature was 65° at night. They became fine specimens which quite filled the 9-inch pots with roots and produced flowers in great abundance. We had to shade them from bright sunshine during the hottest days in March and later.

L. PRINCEPS.—Has anyone succeeded in flowering or even growing this Lisianthus? About the time I was growing the other species there was a considerable fuss made about this truly handsome plant. It is found in the mountainous districts of New Grenada, whence it was introduced by M. Linden. The date 1848 is given as that of its introduction. About ten years ago fresh seeds were introduced, and I well remember a high price being given for a small packet at Mr. Stevens' auction mart. The tube-shaped flowers are drooping, about 5 inches long and more than an inch wide at the centre. By the descriptions, coloured plates, and engravings that have appeared, one can quite believe that this is a very desirable

plant to grow. Has anyone been successful with it? Can Mr. Baines give any information about it?
J. DOUGLAS.

TOXICOPHLEA THUNBERGI.

In this we have a very distinct and desirable plant, differing considerably from most stove subjects. Its habit is bushy, the branches partially erect, but not very stout, leaves pale green, tough, and leathery. It is a remarkably free bloomer; the flowers are tube-shaped, five-lobed, and in general aspect individually not unlike those of a medium-sized *Bouvardia*. They are white, deliciously fragrant, and produced in corymbs at the extremities of the shoots and also at the axils of the leaves so freely as to form sprays of inflorescence. It comes from South Africa, and thrives freely under ordinary stove treatment. It is propagated from cuttings of the young shoots taken off in spring, when these can be had in sufficiently firm condition, inserted singly in small pots in sand. Kept warm, shaded, moist, and confined under a propagating glass, they will form roots in the course of a few weeks, after which disperse with the glass, and when growth has fairly begun move them singly into 3-inch pots, using good peat and a little sand; pinch out the points of the shoots to induce them to make additional branches. It is necessary with this *Toxicophlea* to be more attentive in this matter of stopping than with some other things, as it has a disposition to grow up somewhat spare and thin, to correct which timely stopping is needful, otherwise the plants never get sufficiently clothed in their early stages—a defect that cannot afterwards be corrected, unless by heading down. Let the young plants have plenty of light, but a thin shade will benefit them when the sun is powerful. During summer they will bear as much heat as is required for the generality of stove plants, and as the pots get filled with roots move into others 3 inches or 4 inches larger, after which nothing further is required but to pinch out the points of any shoots that are taking an undue lead. Cease shading in September, and as the autumn draws on reduce the temperature; through the shortest days a heat of 60° in the night will suffice.

THE *TOXICOPHLEA* will flower when very small, but with plants of this description it is best to look more to getting them larger than to blooming for a time, so as to let them gain additional size. With this view cut out the points of all the strongest shoots about the end of February, and in the ensuing month move them into pots 3 inches or 4 inches larger, increasing the temperature gradually, and treating in other respects as through the summer previous, using the syringe daily. If the plants have made good progress by July, they will require a little more root-room, but as they never attain the size that some of the stove occupants do, it is well not to give more root-space than is necessary. Twelve-inch or 13-inch pots should be large enough to suffice, now using the peat a little more lumpy than in the first stages of growth. At all times mix enough sand with the peat to keep it open. This is the more necessary with plants of this character that do not require or bear shaking out and the soil renewing in the way usual with coarser growing subjects. Treat as before through the autumn and winter, and in the spring increase the heat in accordance with the advent of more sun. If all has gone well they will bloom profusely, during which time, if they can be kept in a little drier atmosphere than heretofore, their flowers will last longer. They are useful for cutting. After blooming is over, cut the shoots back a little, and when they have started into growth they may be shifted into pots an inch or two larger. The subsequent management required will be of a routine character similar to that advised hitherto. If in the growing season a liberal application of weak manure water is given once or twice a week, healthy growth will be secured without having recourse to large pots. The plants will last for several years, and if the soil gets exhausted, the balls can be partially reduced and new material given in place of the old; this should

be done when they have just broken into growth after being cut in when the flowering is over, keeping them close and warm for a few weeks until they again get established.

INSECTS.—The worst species of insects will live on this plant, but the stout nature of the leaves makes their destruction by the aid of insecticide comparatively easy; dipping or syringing is the best remedy as often as they are found to be affected.
T. BAINES.

UNHEALTHY POT PLANTS.

THIS subject may appear to be somewhat uninviting, but I believe the hints which I intend to convey to be needed by numbers of growers, especially the inexperienced. Some fail with one thing, some with another; even the best of men are at times in a fix with some particular class of plants. It is not always the grower that is in fault; for instance, the houses or pits may be unsuitable, or the soils may be bad. More often, however, failures result either from over-potting, over-watering, defective drainage, insufficient water, lack of liquid manure, too much or too little shade than from any other cause. Thanks to our gardening papers, a widespread love of horticulture has been engendered, and a great improvement has thereby been effected. Never was the cultivation of flowers especially so extensively and enthusiastically practised as now. The progress in most cases is naturally step by step—that is to say, the beginnings are humble enough, but as experience is gained they become more ambitious, and, in addition to a greenhouse, a plant stove is soon erected. It is then more especially when mistakes in culture are made and when advice is needed. Amateurs who love a button-hole bouquet soon decide to grow

GARDENIAS, these being extremely popular for the purpose. Unfortunately, they are not of easy culture, and more than one set of plants is frequently bought before beginners thoroughly understand their requirements. When received they are generally in a healthy state, and being in comparatively small pots and well rooted, the first proceeding is oftentimes to give them a liberal shift, and that is about the worst thing that could be done. Gardenias succeed best when well root-bound, provided they receive careful watering, and either a very light sprinkling of such artificial manures as Standen's or Clay's, or an occasional supply of soot water. During one season we have cut twenty-four blooms from a plant growing in a 6-inch pot, and others in proportion up to 100 blooms off a plant in a 10-inch pot. Repotting is always risky, and ours always go two and sometimes three seasons without receiving a shift. A rich loamy soil does not suit them; they will not root into it. A compost consisting of equal parts fibrous peat and good leaf soil, with plenty of charcoal and silver sand added, should be given them, and into this they root freely and may then be well fed. Any now in a sickly state are most likely not rooting into, but only merely existing in sour heavy soil. Carefully remove much of this and repot in the mixture just recommended, using as small pots as can be conveniently given. Placed in a brisk heat and shaded from bright sunshine, syringed lightly occasionally and watered carefully, they will yet recover slowly, but surely. Gardenias will not succeed in a house where the temperature frequently falls below 60°. I prefer a night temperature of from 65° to 70° with a day temperature of from 70° to 75°, closing the house early so as to run up the thermometer on sunny days to 95° if possible. *G. intermedia* and *G. florida* are our favourites, as both are good growers and floriferous.

DIPLADENIAS, again, are difficult to manage, but they are so very attractive when grown well, that numbers are annually tempted to commence their culture. *D. boliviensis* is the most vigorous variety, and will succeed in a compost consisting largely of fibrous loam; not so the beautiful *D. Brearleyana*, *D. amabilis*, and *D. profusa*. These must be grown in a compost consisting of roughly broken peat—Orchid peat I prefer—charcoal, and broken crocks, and also good drainage. If a little

charred, turfy loam is added, so much the better, as this, when once the plants are well rooted, will enable the grower to give frequent supplies of liquid manure without the risk of making the soil sour. They do not require large pots or frequent repotting. Once get a good pot full of roots, they will, provided a brisk stove temperature is maintained and the plants are trained thinly near the glass and kept clean, grow and flower abundantly. Treat any plants in an unhealthy state as advised for the Gardenias, and do not attempt to dry them off at any time. *D. boliviensis* is in flower all the year round, and the others nearly so. Water should be given sparingly during dull wintry weather, though the plants be still growing slowly. The newer *D. profusa* is certainly more profuse flowering than either *D. Brearleyana* or *D. amabilis*. The colour is good, but it does not grow so freely. Old plants of *Dipladenia* seed freely, and several new and beautiful varieties are being raised. The wonderfully showy and easily grown

ALLAMANDAS are occasionally to be met with in a bad state. These, again, do not require frequent repotting. The best specimens I have seen this season had not been repotted for three years. When pruning specimens only ripened wood should be retained, and in the case of those flowered on the roof, they should be cut back either like a Grape Vine or down to near the commencement of first growth. When breaking afresh in rather small pots the balls may be loosened, slightly reduced, and given a moderate shift, using a compost consisting of two parts roughly broken, turfy loam to one of peat or leaf-soil and plenty of sand. When well rooted, they require abundance of water and liquid manure frequently. If the growth is kept thinned out, with good attendance, they will continue blooming from May to January. Failures occur where unripened growth is retained instead of cutting back hard, or if fine soil is employed, and a big shift given. Where plants have been thus treated, in the former case cut back much harder next season, and in the latter reduce the ball and repot in fresh compost and smaller pots. *A. Hendersoni* is a free grower and flowers well, but the most beautiful variety is *D. nobilis*. Anybody can grow

BOUGAINVILLEA GLABRA provided they give their plants a light position and liberal treatment. A strong heat is not required; in fact, they bloom magnificently in a conservatory. They must be closely pruned in and all spray taken out in spring, and if in small pots a fairly liberal shift should be given into good loamy soil. If flowering in small pots, they require abundance of water and liquid manure; should they suffer for want of the former, they quickly shed most of their leaves. Those whose plants are thus injured should water carefully and gradually ripen them off, so as to be able to start them early next spring. If induced to break afresh this season, the probability is they will not ripen their growth properly for next season's blooming.

CLERODENDRON Balfourianum and Thomsoni ought never to be rested in a cool house during the winter months. Those who have attempted it, and I know of several who have done so, either lost their plants, or they broke badly, and never recovered their former vigour. They ought to be gradually ripened, but never allowed to become dust-dry in a stove temperature, and should not be potted every season. When growing they like to be near the glass, but always shaded from bright sunshine and syringed frequently. Several unhealthy plants I have seen this season were either badly affected with red spider or had been exposed to bright sunshine for a day or two, and this causes their leaves to drop. With us they succeed best in a peaty compost, and when well rooted receive plenty of moisture and liquid manure at the roots. *Clerodendron fallax* is seldom seen in other than an unhealthy state. I find seedlings answer our purpose the best. Seed cannot be bought, and we save our own seed; this germinates freely in heat, and the seedlings are grown on and soon attain a good size. They are flowered in 9-inch pots, and we get grand spikes of bloom from them. Red spider is their greatest

enemy, and in our case we cannot keep the old plants in a satisfactory state. I have recently seen a number of flowering

BEGONIAS in a bad state, and in each instance they had received liberal shifts and fibreless loamy soil. If loam is employed for Begonias it ought to be full of fibre and roughly broken up, and at the rate of two parts to one each of good peat and leaf soil, with silver sand freely added. Once they go wrong, Begonias are not easily recovered, but where over-potted and doing badly, by reducing the balls and carefully repotting into smaller well-drained pots, some at least may be saved. Begonias do not require much pot room, and if liquid manure is ever given them, it must be in a weak state. Stopping spoils the tuberous rooted kinds, but may be practised slightly with the branching fibrous-rooted sorts. Dry heat and thrips are responsible for innumerable failures with

GLOXINIAS. They ought to be grown where possible on a slate stage covered with ashes, the latter being frequently moistened, but the Gloxinias not to be syringed overhead. A light, peaty soil and moderate shifts best suit them, and when established they are benefited by occasional supplies of liquid manure. They should also be carefully shaded from bright sunshine, and mildly fumigated on the least signs of thrips. Those whose plants from various causes are in a bad plight are advised to gradually dry them off, and when this is accomplished to shake them clear of the soil, wrap them in paper, and winter in a stove temperature, all decayed growth to be removed, and this will better insure a clear start next season. They should be repotted in February or March.

INDIAN AZALEAS are killed by hundreds, I may say thousands, every year, and overpotting is the principal cause of the failures. To give these loamy soil and a liberal shift in most cases means death, yet how many annually perpetrate the costly blunder. Plants overpotted and badly rooted should either be kept under glass and very carefully watered, or have all the soil unoccupied with roots picked off and the plants repotted into carefully drained pots much smaller in size and in a compost consisting of good peat, leaf soil, and sand. The soil should be well rammed about the roots, and be finished off firmly and evenly. They should be returned to the greenhouse and carefully watered whenever dry, and as Azaleas are still rooting freely they may yet root into the fresh soil this season. Every third season is quite often enough to repot healthy Azaleas, and by trimming off some of the soil and roots pots only a trifle larger may be employed each time. Those now standing in the open ought to be housed before cold wet weather is anticipated, and worms must be kept out of the pots. Where worms have taken possession harm will soon result, as they are certain to make the soil sour and unfit for the roots. Mustard and water will fetch them up to the surface, and will not injure the roots in any way. Much more might be written in the same strain, but for the present I will conclude my remarks by relating my experience with

ADIANTUM FARLEYENSE. More fail than succeed with this beautiful Fern, and the failure dates from the time of repotting. It seems very shy of rooting into fresh soil, and great care has to be exercised in watering, as if either the fresh soil gets sour or the old ball dry failure is certain to result. When repotting we bury the carefully moistened ball rather below the level of the surrounding soil, so as to form a shallow basin, and this admits of watering the soil about the plant without saturating the surrounding fresh soil. Deep potting also encourages rooting from the crowns. Should the old balls be found too dry at any time, they are pierced with wire and frequently lightly watered till moistened again. We use turfy loam principally for this Fern, and large plants will succeed better for not being disturbed for three or more years. Well-established plants frequently get a supply of liquid manure. The best method of renovating sickly plants is to shake them nearly clear of the sour soil, divide where large, and repot into much smaller pots. We have

recovered numbers in that way. Grown in full light, but shaded from bright sunshine, the young fronds of *Adiantum farleyense* are wonderfully attractive. W. J. M.

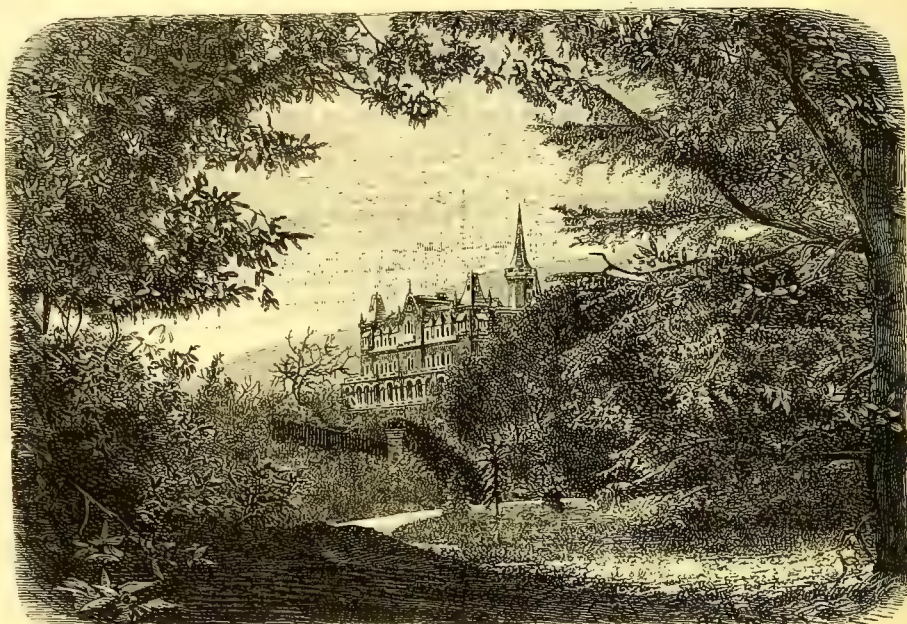
Camellias from cuttings.—"T's" remarks on this subject (p. 111) are doubtless the result of experience, and will be useful to those who have the time and convenience for raising Camellias at home, but I prefer buying plants three or four years old. Camellias with from three to five shoots on each plant ready for flowering can be bought at 18s. a dozen, and that is, I think, cheaper in the end than raising them from cuttings. My own experience is that the best varieties do not strike at all satisfactorily, and unless one has a suitable house in which to raise them the attempt is almost sure to prove a failure.—W. Z.

Bowiea volubilis.—This Cape bulb cannot be called showy, yet it is very interesting and indeed pretty when allowed to fully develop itself. The bulb, which thrives best when only

very successfully grown in the cool end of the Cactus house, as well as in the temperate house. In both houses it grows freely, and requires little or no attention beyond that of watering and potting occasionally. It flowers best when pot-bound and fed now and then with a little weak manure water.—G.

A GERMAN CHATEAU GARDEN.

OUR superiority in gardening is so generally and fully impressed on ourselves and others, too, that it is not quite a hopeful task even to recall a few points in German gardens that struck one as interesting. I should say, however, that I never had a chance of seeing any but a small part of the country, and therefore am little competent to speak. Holding, however, the belief that one may learn facts about the quite inexhaustible art of gardening beside a cottage by the road, or in any place indeed where green leaves may unfold in



A German chateau and garden.

half buried in the soil, is large in size, often reaching a diameter of 6 inches, and from its apex are produced in spring several fleshy shoots, which develop into branches of considerable length. These succulent branches are totally devoid of foliage, but they are bright green in colour and so much sub-divided as to become a dense mass. The flowers are small, and being green are scarcely noticed unless inspected closely. The flower-spikes or branches lengthen to such an extent, that the plant must be treated as a climber; indeed, it will attach itself to anything within its reach by clasping it with its finger-like branchlets. A specimen of it which I have is trained up a greenhouse rafter, which it furnishes with a tangled mass of greenery, bright and cheerful to look upon, the upper part being thickly studded with flowers. Seeds, which are readily produced, germinate freely, and their produce soon becomes strong enough to assume a climbing character.—H. P.

5045.—*Iris sinensis*.—If by *I. sinensis* is meant the species that is often known under the name of *I. fimbriata*, I fear Mr. Poë will not succeed in flowering or growing it successfully in the open air at Riverston, as it requires greenhouse culture in gardens about London. At Kew it is

peace, my short visit to that country showed me several things that remain in the memory, apart from those forgotten.

The severe German winter prevents the Germans from indulging in the ridiculous practice of dotting a lot of extinguisher-shaped young Conifers over their pleasure grounds and parks. With us they live long enough usually to become sickly and ugly; in Germany they die the first winter. So the expensive folly is not indulged in, and people are obliged to depend only on the handsomest trees in the world—the summer leafing trees of Europe and America. I have very pleasant memories of stately groves and superb forms of trees, from those of great Willows to Black Walnuts, all in the place of honour, and not merely a neglected background to a plantation of mean pyramids. And what delicious colour in the autumn, from Norway Maple, Black Walnut, and Beech—the leaves no doubt ripened by the rather constant sun. Even those of the common Spindle Tree (*Euonymus*) seen across a glade shone like fire.

What pleased me most in the flower gardening of Germany was the abolition of the hard clay edging of the British garden. I did not notice it anywhere. Even in small town gardens the plants were allowed to grow naturally on the edge of the shrubbery, and to thrive in a happy, easy way; but, in addition to the natural fringe of the shrubbery, many groups of plants were put a little away from its edge in a natural manner. Here a group of Roses; there one of Dahlias; next one of mixed greenhouse and fine-foliage plants put out for the summer, and for the most part growing very well indeed. They were generally dotted about in a free and picturesque manner. The greenhouse ones were plunged, and were planted so openly that one could walk easily between them. I shall never forget the effect of certain tall plants of the Cape Plumbago treated in this way. The Dahlias, too, were pretty standing in the Grass. I also remember bright small groups of scarlet Geraniums planted in an irregular way, and which gave a brilliant effect, no other flower being seen near, and the little dazzling groups backed by the green of the shrubbery only.

Remarkable in some cases was the attention paid to annuals and other plants supposed to be of slight account in our gardens. For instance, the Zinnia is among the annuals neglected with us. When not deliberately neglected it is badly grown. I was pleased to see single plants as large as Dahlias and with very handsome large flowers. The strangely beautiful colours shown by a variety of Zinnias should lead to their better culture with us.

I also have a pleasant memory of some natural rock gardening in South Germany and Austria, the natural stones prettily placed and well planted with choice things and tastefully kept. There must be many readers of THE GARDEN who could tell us much more about this subject, and it would be well if they did so. Some of the city gardens of the nobles are freely opened to the public on certain days, which seemed a very graceful and useful concession to the city folk.

J. H.

KITCHEN GARDEN.

LIFTING AND STORING POTATOES.

FROM now onwards for the next two months this is work which will require much attention. Many midseason Potatoes are ripe now and quite ready for lifting, but we cannot fix on any day, week, or definite time for taking them up, the main guide being the weather and the condition of the soil. Of all mistakes made in dealing with Potatoes none are greater than working amongst them, and especially digging them up when it is raining overhead or when the soil is spongy under foot; and all who wish to have their Potatoes in the best possible order throughout the winter must have nothing to do with them while in a wet state. We never think of beginning to lift any of ours until a few dry days have followed rain, and this plan should be generally observed. In light, sandy ground the tubers, as a rule, turn out clean and free from any deposits of soil, even though the latter may be moderately wet, but in heavy land the soil will not fall away from them as it should do unless tolerably dry. It is always an advantage to have the tubers free from soil, but this is not the only benefit to be derived from dry digging, as, apart from the soil adhering to them being very undesirable, a dirty Potato is never easily dried, and while those dug up dry and clean may generally be stored away the day following their being lifted, the soil-covered ones will take some days or a week to dry, and then, unless the soil is rubbed off them before storing, it is almost impossible to observe any spots of disease

or blemish on them; consequently, those showing any defect are put past with the sound ones, and many good ones are caused to decay in this manner. If we put away a lot of Potatoes which had been dug in the wet, and only partially dried with a good deal of soil about them, we would never feel comfortable about their condition, as we would know full well that they would soon begin to decay, and that they would require much more attention than the dry, clean-dug, and stored ones. We would not feel satisfied unless the first lot could be looked over a fortnight or so after storing and again at frequent intervals, but the dry ones would be safe for weeks or months to come.

IN DIGGING, we would only choose fine dry days for the operation. As many as possible should be taken up in the forenoon, bringing them well to the surface, and spreading them out to dry as digging went on. Then in the afternoon they should all be collected together, and covered over on the ground so that rain cannot get at them; and it is better still if at the end of each day they can be taken into an open shed, and be spread out to dry there. In this case much time will be saved, and the tubers may always be had in the finest condition. In field cultivation the plough is generally used for digging; but in the garden only the fork is used, and nothing answers the purpose better, as one man, or two or three, as the case may be, will dig a large quantity in a day or week, and with the fork they can always be taken up without leaving any behind or injuring any of the tubers. With careless digging many may be left behind and not brought to the surface, and others, and very often the biggest and best, will have the prong of the fork run into them, but this should never happen, nor will it either if ordinary care is observed in doing the work. Some diggers pull up all the stems before beginning to lift the roots, but this is a thoroughly bad plan, as there is nothing left to guide them or make it known where each set of roots are, and the consequence is that an innumerable quantity of them are split up and spoiled with the fork. There is no better way of dealing with them than pushing the fork in behind each set and throwing it forward. A few inches must be allowed for the crowd of tubers which cluster near the base of the stems, but this is easily understood. We do not like to get right on the top of them with the fork, but prefer to see it going in a little from the side. When a quantity has been dug up and lie spread out on the surface of the soil the different batches should be selected. Unless in a very poor Potato year, we do not put high value on the smallest of the tubers, and use them for little or nothing else but for pigs; then a few of the nicest of the second size are taken and put away by themselves for seed. The main crop is then picked up to store away for future use and only the diseased roots remain on the ground. These are considered of no value, and may be taken up any time, but we do not approve of allowing them to remain on the soil or dug down either, as they are bad for the soil in a decayed state and if pieces of them happen to live they prove a nuisance the following year, as they grow up like weeds amongst other crops where they are not wanted. This is the case, too, where many or any tubers are left in the soil after digging, and they cannot be too well looked after. In whatever kind of place it may be convenient to dry them, after digging they should never be put away in their

KEEPING QUARTERS until it is quite certain they are thoroughly dry, and then there is no danger of any great loss or deterioration taking place. Here we dry them in an open shed, and afterwards they are stored away in a dark place where air and light are only admitted in very small quantities. It is an advantage to have them dried and stored away as quickly as possible, as when left in the light for many days they soon become green and badly flavoured. Those we select for seed are not so carefully dealt with in this respect, as we like to see them green and hardy looking, and no effort is made to keep them in the dark, but the plan of allowing the seed to lie on

the soil for days or weeks, exposed to the hot sun, with the object of "greening" them, is not viewed with favour, as we have often found tubers so treated injured by the heat, and never so sound and good as those kept in an open shed, loft, or some such place.

J. MUIR.

QUESTIONS.

5047.—*Strelitzia Reginae*.—I have a well-grown plant of this plunged in a stove, but it does not bloom; should it be partially dried off and exposed to more light in order to induce it to do so? I shall be grateful for information on the subject. Perhaps Mr. Groom will be so kind as to tell me how to proceed.—S. NISBET.

5048.—*Mowing machines*.—Will those readers of THE GARDEN who have experience be so good as to give their opinions upon the respective merits of horse-power mowing machines? Is not the discharging mechanism of Shanks' machine better than that of Green's? Are they otherwise of equal merit? Those who have had both can give useful testimony, no doubt, as I find it far from being a fact that one machine is as good as another.—R. I. LYNCH.

5049.—*Peach stones cracking*.—Can any reader of THE GARDEN inform me of the cause of my Peach stones being cracked and the kernel inside diseased and black? I have seldom seen finer fruit than most of them are. Some which have their stones diseased are injured in flavour, and some not. Is it not unusual to see Peaches, all that can be desired to look at, affected in this manner? I am of opinion that if the trees are suffering in any way from the roots having got into bad soil, they would not be in such a healthy, luxuriant state of growth as they are.—CONSTANT READER.

5050.—*Exhibiting fruit*.—I exhibited six varieties of fruit at our local show and was disqualified for including three varieties of Grapes, viz., Black Hamburg, Muscat of Alexandria, and Foster's Seedling. The wording of the schedule is "six varieties, distinct." The judges would admit two varieties, viz., Muscats and Hamburgs, but not two varieties of white Grapes. I am of opinion that if they admit two varieties as distinct fruits, there is no reason why they should not admit three varieties. Perhaps some of your readers will favour me with their opinion on this subject.—W. B.

5051.—*Scalded plants*.—Will some of your readers kindly favour me with their opinion concerning the following matter?—The leaves of my Pelargoniums and Ferns are quite brown and dead. All the plants were healthy and green at 7 o'clock; they began to turn brown at 8.15, and at 10 a.m. were all spoilt, excepting two plants of *Hoya carnososa*, and, lastly, Grapes, Cucumbers, &c.; in fact, the whole house was a wreck. The house faces full south, and yesterday morning the gardener was rather late, not opening till 7 or after, by which time I fancy the temperature would be about 130° or 140°. He proceeded at once to water copiously with cold water. Would that bring about the foregoing result.—M.

5052.—*Imported Lilies*.—I imported a number of Lilies from Japan this spring; they were planted in March in ordinary garden soil of a rather sandy nature, trenched and enriched with stable manure. They have grown well and among them some fine varieties of *L. elegans*, *L. Leitchii*, *L. odorum*, and many of *L. auratum* have bloomed. I shall be glad if any of your correspondents can tell me how to preserve them for another year, as I find that imported bulbs are very apt to die off after flowering, even if not allowed to seed. Is there any special food which can be given to them to make the bulb roots grow? and would it not be advisable to transplant them all to fresh soil directly they show signs of dying down? I may warn your readers of the danger of peat for Lilies in pots, as I have lost many rare ones this year through their having too much peat in the soil, which caused the latter to turn sour and rot the bulbs, although there was charcoal about them. A little peat of a good kind, however, helps some kinds, no doubt.—R. R. W.

** Our readers will greatly oblige by replying so far as their knowledge and observation permit to these questions. The title and number of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

ORCHIDS.

Cattleya crispa.—There is a plant of this in a 10-inch pot at Cuerden Hall, Preston, carrying thirty-one flowers, being eight less than the variety *superba* noted in THE GARDEN (p. 83) as having flowered at Messrs. Thomson's, Galashiels. A plant in a small pot bears a spike with seven flowers.—T. M.

Grammatophyllum Ellisi.—A spike of this handsome Madagascar Orchid has been sent to us by Mr. Denny, from Sir William Marriott's garden, The Down House, Blandford. It is 15 inches in length, and carries thirty blossoms in quite a crowded cluster. The flowers are remarkable for their depth of colour. It is a singular fact that records of the flowering of this Orchid have been more plentiful this season than for many years past.

Orchid baskets.—Those I use consist of a round piece of common brick clay, burnt like flower-pots, 8 inches long, half an inch in thickness, round, with a hole about an inch from either end for a wire. It represents part of a common Orchid or Fern basket, put together like those sold in the streets with hardy Ferns in them, made of sticks, and held by a wire at each corner. My baskets, made of these clay rods or pot rods, have been in use several years. I can recommend them as cheap, durable, home made, and, what is of the most importance, much liked by all Orchid and Fern roots. They are easily made at any brick-yard, and answer the purpose far better than wood baskets. For Orchids the clay rods absorb and hold moisture, and the drainage is perfection. I use mine made of twenty-one of these pot rods, viz., four on two sides, five on the other two sides, and three to form a bottom. Any other form is made by a difference in length of material, say 8 inches, or 6 inches, or 4 inches, more or less. They cost me 2s. per 100. A little wire is wanted besides to go through each end hole, and I give the wire a twist on the top and bottom of the basket, and it is ready to stand on the table, or, if to be hung, add four wires for the purpose. In repotting, the whole can be put into a basket a size larger without disturbance of roots. I use a great many for Orchids, Ferns, Begonias, and all kinds of plants for hanging baskets, and all do well. They are strong, and no more liable to breakage than a flower-pot.—J. G. K.

BOOKS RECEIVED.

The Preservation of Fish Life in Rivers, by Hon. W. F. B. Massey-Mainwaring. William Clowes & Sons, Charing Cross.

Our Railway Rates and Fares, by Edward J. Watherston. J. Lindsay, Edinburgh.

Sowerby's English Botany (third edition), No. 85, by J. T. Boswell. G. Bell & Sons, Covent Garden.

CATALOGUES RECEIVED.

Vilmorin-Andrieux & Co.'s (Paris) Bulbs, Spring Flowers, and Strawberries.

Dicksons & Co.'s (Waterloo Place, Edinburgh) Autumn List of Flowering Roots and Spring Plants.

Dickson, Brown, & Tait's (Manchester) Dutch and French Bulbs

Veitch & Sons' (King's Road, Chelsea) Hyacinths and other Bulbous Plants.

Webbs' (Wordsley, Stourbridge) Bulbous Plants.

Sutton & Son's (Reading) Bulb Catalogue.

Dickson & Son's (Chester) Bulbous Flower Roots.

Leighton's (Union Street, Glasgow) Dutch Flower Roots.

Bruce's (Market Street, Aberdeen) Bulb and Spring Flowering Plants.

Pearson's (Chilwell) Hyacinths, Tulips, and other Bulbous Roots.

Dixon's (Hull) Bulbous Roots and Spring Flowering Plants.

May's (Leeds) Flowering Bulbs.

Ireland & Thomson's (Edinburgh) Dutch Bulbous and Spring Flowering Plants.

Smale's (Torquay) Hyacinths and other Flower Roots.

Veitch and Son's (Exeter) Dutch Bulbs and other Flower Roots.

De Smet Frères' Catalogue of Specialities.

HEATED WALLS.

THIS subject is one well worth consideration again in reference to the culture of tender fruits like the Peach, Fig, and Apricot, &c. I see that an excellent authority, Mr. Robert Marnock, says he has no faith in heated walls. For my own part, I have no doubt about their utility, whether they take the form of properly heated garden walls by means of hot-water pipes, or flues, or cottage walls kept warm by household fires. True, they have fallen into disuse, not because they have failed, but only because glass has become so cheap and common. If we look into the subject of wall culture of fruit trees narrowly, it will be seen at once that the same reasons advanced for the use of unheated walls alone apply to heated walls also. Shortly, if heated walls are useless, so are unheated ones; but as we go on we shall see that the value of heated walls has been demonstrated practically often enough. No fruit cultivator would think for a moment of denying that Peaches and other tender fruits can be grown and ripened out of doors on unheated south walls. It was the realisation of this fact which caused fruit tree walls first to be built and used; and it was the discovery, in the colder parts of the kingdom, that an unheated wall was not quite warm enough by itself that caused them to be heated by means of flues, and finally covered in by glass. The difference between unheated and heated walls and glass houses is only one of degree, and the question is purely one of temperature. An unheated wall is warmer than the open quarter; a heated wall is warmer than one that is not heated; and a glass house is warmer than either; but none of them differ from each other in any other way, and those who condemn heated walls are bound to condemn warm walls of any kind to be consistent. Mr. Marnock relates experiences as far back as 1822, and speaks of examples in Yorkshire of heated and unheated walls, and the trees on the latter, he says, "were not less fruitful and much less troublesome to keep clean than those on the heated walls. There never," he adds, "appeared to be any marked gain in the results in flued walls over those not flued." There have probably been exceptions to the rule, and this may have been one of them. Perhaps other circumstances connected with the trees or the border might account for the difference, but I am confident such experience has not been general. I believe I am quite correct in stating that, not more than nine miles distant from the garden of which these things are recorded, there was another garden situated 700 feet above the sea that, at or about 1822 and before that time, contained one of the most famous Peach walls in England, and on which the crops were constant and good, and were attributed principally to the heated walls on which they grew. This was at Wortley, near Sheffield, where Peaches could never be grown successfully on the open wall, because the wood of the trees never ripens sufficiently, unless in exceptional seasons, at such an altitude in the north, as anyone may guess. There are those still alive, I suppose, who remember these crops, and I believe all about them is told in Harrison's book on fruit trees; but the crops were sufficiently extraordinary to excite the interest of the Royal Horticultural Society of the day, who sent one of their members down either once or twice to examine and report on the system of culture pursued, and the report will be found in the "Transactions" about 1820 or 1822. In speaking of the merits of flued or heated walls, Mr. Marnock very wisely observes that retarding growth is wiser than promoting growth in spring, but heated walls do not do that. As has often been stated, heated walls were never intended to bring the trees into flower and leaf early in the year, but only to protect both after they appeared naturally, and to ripen the wood in autumn. I have seen and heard of so many examples, great and small, of the good effects of heated walls for tender fruit trees, that it would be hard to persuade me that they were not better than cold walls. The only Fig tree I am acquainted with out-of-doors in this cold and elevated region, that grows and bears freely in the

open air, is one very large tree against the heated wall of a factory in the gardens of Mr. Jno. Kaye, near Huddersfield. I have not seen it this year, but last year the crop was splendid, and has generally been. The tree, if I remember rightly, is about 20 feet high. Success like this from an unheated wall in high inland districts is simply out of the question. As regards the comparative merits of heated walls v. unheated glass structures, I would rather have the former, as there is no danger of pushing the trees into growth too soon by them, as they cannot be devoted to anything else than the trees. I have an impression that the results under glass not heated have been of a very disappointing character in many instances.—J. S., in *Field*.

Stupid packing.—Many people send a few flowers packed as if a Nordenfeldt gun were on its way to a mountain station in India. It requires much time and an effort almost heroic to undo the terrible bandaging. A few flowers, weighing in all three ounces, were sent to us on Tuesday in a nailed box, and over the box was a casing of strong brown paper, fixed down with many tacks. They might have been sent in a small, but stout paper box which would open and shut without effort. We have seen a promising young crocodile weighing 16 lbs. sent to a zoological garden with a less formidable amount of packing than some people use for a few delicate Orchid blossoms.

Hardiness of New Zealand Flax.—In reference to the notes on this subject (pp. 28 and 38), I would mention that we have *Phormium tenax* Colensoi in our winter garden in bloom at the present time—a fine plant with a flower-stem 9 feet high. It was planted out three years ago, and is now flowering for the first time. It has never, I believe, bloomed out-of-doors before in this district. In company with this plant are two specimens of *Dicksonia antarctica* doing equally well. *P. tenax* and its variegated variety grow luxuriantly with us, and during the past winter suffered no injury whatever.—G. MADDEEN, *Tre-widden, Penzance*.

Cucumber roots (W. R.).—The warts on the roots are probably the work of some insect, though I could find no trace of one on those sent.—G. S. S.

A nice little Gooseberry comes to us from Coolhurst about the size of a large Black Currant. The flavour is excellent. We wish everybody would take to raising good varieties of Gooseberries.

Naming plants.—Four kinds of plants or flowers^s only can be named at one time, and this only when good specimens are sent.

Names of plants.—J. C. (Peterborough).—*Gypsophila paniculata*.—S. W. C.—*Pleione Wallichii* is an Orchid requiring an intermediate temperature; the other is a stove plant.—*Lady K.*—*Campanula bononiensis*.—R. F. W.—1, *Nephrodium* sp. (specimen too poor for identification); 2, *Aspidium macrophyllum*; 3, *Caladium pictum*; 4, probably *Russelia juncea* (cannot be certain without flowers).—B.—1, *Phygelius capensis*; 2, *Lychnis Haageana* or a hybrid near it.—J. W. K.—*Hypericum androsaceum*.—G. S. W.—1 (Grass), *Setaria viridis*; 2, *Hepatica triloba*; 3, *Dryas octopetala*, dwarf evergreen; 4, probably *Anthericum ramosum*, specimen poor; specimens should be numbered.—N. H. P.—*Celsia Arcturus*.—Mrs. F.—*Eucharidium concinnum*.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of fruit.—*Anon*.—Unknown to us, but known in Covent Garden under the name of Spitalfield's Maria, and said to be worthless.

Canned fruit poisonings are too frequent in America. People should not use canned fruits at all; if we cannot get fresh fruit, dried is the next best.

The Bo tree, in Amarapura, Burmah, is said to be the oldest tree on earth. The date of its planting, 238 B.C., rests, it is claimed, upon historic documents.

No. 615. SATURDAY, SEPT. 1, 1883. Vol. XXIV.

This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

PEACHES ON OPEN WALLS.

It is not unusual to hear the remark made that Peach culture on open walls is so uncertain as to make it advisable to cover the walls with glass, and this in localities where the climate is fairly favourable for Peach production. There are, however, plenty of instances where, under ordinary conditions, Peaches rarely fail. At Ditton Park, near Slough, one of the seats of the Duke of Buccleuch, in a good, old, and well managed kitchen garden, there is a large extent of wall devoted to Peaches and Nectarines, concerning which, as regards the condition of the trees and the excellence of the crop, it would be difficult to speak too highly. The trees are mostly old, some of them having been planted twenty-five years. They have attained a large size, are even in growth, and completely free from the bare places that appear where branches have died off. In a season like the present, when Peaches are plentiful in most places, the Ditton Park crop might be taken as evidencing little to support those who believe that, with good management, the despondent cry against outdoor Peaches is groundless; but I understand that a failure here is rarely known, such not having occurred for nearly a score of years. It is well to notice, too, that the situation lies somewhat low and much subject to the fogs usually accompanied by spring frosts. In the blooming time coverings are used when there is a likelihood of frost, but here, as in other places, where failing crops are a rarity, it is to the general treatment of the trees that success is attributable. The foliage is kept free from insects, shoot thinning is constantly attended to, and the wood is as regularly laid in, with syringing overhead, and plenty of water to the roots as if the trees were under glass. The latter there is none on the place, except in a big old house that looks as if it had been built for an orangery. Consequently, there is nothing to depend on except the open walls. The trees are almost wholly standards, yet the walls are covered with good bearing wood down to the bottom as well as if dwarf trees were grown.

T. B.

Golden Elder and Foxgloves are employed with charming effect in shrubberies at The Cedars, Harrow Weald. Throughout the whole of the summer months a new character is given to banks and beds of shrubs by the bright golden leaves of the Elder, and the tall spikes of the Foxgloves appearing above the more sombre-tinted foliage of the other shrubs, thus breaking in a very pleasing manner that sameness of appearance which generally exists both summer and winter where dense masses of shrubs are employed. The effect when viewed from a distance is equally good as when seen near at hand, the golden tint of the Elder looking bright as far off as the eye can reach. As the leaves fall the Foxgloves are cut down; therefore, there is no undue crowding or spoiling the shape of the shrubs, and even where the golden Elders are growing the knife is unsparingly used to keep them within bounds. What,

too, used once to be an awkward corner of this fine old garden has been transformed into a pleasant cool retreat by the formation of a rockery furnished with Ferns, Foxgloves, and other hardy plants, and overhead are a few rustic arches covered with Roses and Woodbine—a charming combination.—J. O'B.

A border in Hyde Park has been very prettily covered with sweet Alyssum and Mignonne of late. Here and there a few Zinnias came through the mass and varied it a little; both colour and odour were good. The same idea carried out with other annuals would be excellent. It is the thoughtless repetition of the same notes that does the harm. By choosing annuals and different mixtures and combinations of them, endless charming effects might be obtained, but the borders should be cultivated and exposed to the sun as this border is. It does not want much trouble or thought to introduce annuals in a really effective way in our gardens. They would help both the bedding plants and the hardy flowers proper, and come in very well in early autumn and late summer.—V.

Autumnal Raspberries, or kinds that fruit from this time until frost stops them, are hardly so well known as they deserve to be. For dessert they make a welcome change, and for culinary purposes Raspberries can hardly be in fruit at the wrong time, as they impart an agreeable flavour to almost any kind of fruit with which they are mixed. All kinds of Raspberries delight in rich, moist soil, but in light, poor ground good supplies of manure and heavy top dressings must be resorted to. In order to get the best autumn supply, the old canes should be cut down close to the ground in spring; they will then come into bearing after the summer kinds are over. Belle de Fontenay and October Red and Yellow are good sorts, but where birds are plentiful, it is necessary to net them up securely, or they will be taken as fast as they ripen.—G.

A Peach case.—One of the best contrivances of this kind that have yet come under my notice I saw the other day at Hewell, in Worcestershire. It is 136 feet long and 5 feet wide. The whole of the glass is moved by machinery, so that the ventilation is perfect. Under this covering the trees, when in blossom, were stated to have safely withstood 14° of frost. This case was built by a Birmingham firm and is substantially done, the cost being about £1 per foot run. In the winter the lights, if desirable, may be removed in order to thoroughly expose the trees, but probably this will not often be done, as the front space will be so useful for the production of salads.—H.

Indian Lilacs, as the Lagerstromias are sometimes called, are handsome stove or warm conservatory plants, easily grown, easily flowered, and not difficult to procure, as a packet of seeds can be had from any large seed dealer, and if sown early in spring may be had in flower in 6-inch pots by the following autumn. At Kew we noticed several pretty little plants bearing good sized bunches of rosy flowers, and these, we believe, were grown as here recommended. As the plants increase in size they may be made to form handsome shrubs, or by training them against the side of a warm conservatory they form equally beautiful wall plants. In order to flower large plants of this charming shrub a good rest in

winter is necessary. In addition to the pink-flowered form, there are also white and red varieties of the plant in cultivation.—B.

Passion-flower fruit.—How good the fruit of *Passiflora edulis* is when preserved whole in sugar. It should be gathered before it is quite ripe. It is also useful as a dessert fruit when freshly gathered if permitted to become fully ripe. It has generally been thought to require the heat of a stove, but it succeeds very well in a light, warm greenhouse. I saw a heavy crop in a light span-roofed greenhouse at Hewell, trained closely to the glass. Of course, without forcing it does not ripen so early. In a very low temperature the rind thickens and the amount of pulp decreases. There is no difficulty as regards cultivation.—H.

NOTES ON NEW PLANTS.

Cycas Beddomei.—At a recent meeting of the Linnean Society a new *Cycas* was described under the above name by Professor Dyer, and as the plant possesses good horticultural properties in addition to its botanical interest, it may be worth while directing attention to it. In the stove at Kew we noticed several small plants of this species, and were struck with the delicate grace of its fronds and its perfectly distinct appearance. The leaf segments are as narrow as in *C. revoluta*, with which it has been confounded, but in the Kew plants they are not nearly so revolute as in *C. revoluta*. It is also easily distinguished from that species by its singular petiole, which is clothed with light brown hairs or tomentum, and by the leaf segments being much flatter and not so bright a green as in *C. revoluta*. In the stem, too, *C. Beddomei* differs from that of *C. revoluta*, but until the Kew plants are better developed it may not be well to rely on this character as a permanent one. Professor Dyer thinks from the habitat of *C. Beddomei*, together with its botanical affinities, that it is most likely a diminutive form of *C. circinalis*, "though it differs from it in many striking particulars." *C. Beddomei* is apparently a free-growing plant, and one which, if the juvenile form of the plant may be taken as an indication of what it will be when large, is likely to prove a valuable addition to our fine-foliaged stove plants. Southern India is the home of this new plant, where it and *C. circinalis* and *C. squamosa* form the only representatives of the genus *Cycas*.

Leea amabilis.—As is the case with many other ornamental foliaged plants, this *Leea*, which is so beautiful when young, loses much of its rich variegation as it becomes older. Therefore, in order to have it in its greatest beauty, it is necessary to keep up a succession of young plants, or, what amounts to the same thing, to take off the heads of old plants of more than 1½ feet high and strike them; and as it strikes as freely as a *Croton*, there need be no fear of losing one's plants by resorting to this practice. When a foot or less in height there are few if any plants more beautiful than this new *Leea*.

Pinanga Veitchi.—I do not know whether Mr. Burbidge has ever written anything about this rare Palm, but if he has not, I, for one, should be glad to learn what are the conditions under which he found it growing naturally. It is a most difficult plant to manage; the only treatment that appears to agree with it even moderately, so far as my experience goes, is plenty of heat, shade, and moisture—a regular Turkish bath, in fact, with its roots in a mixture of Sphagnum and cow manure; and, indeed, one may say almost as much concerning all the true *Pinangas*—they are handsome Palms, but very unsatisfactory under cultivation.

Begonia socotrana will now be pushing through the soil, and should therefore be repotted into a good loamy soil, and placed in a warm conservatory or pit where it will make steady growth, and be in bloom by the beginning of next year. B.

PLANTS IN FLOWER.

The fringed Pink (*Dianthus superbus*).—The charms of cut flowers in August are not complete without this, but in a bunch its delicate fringe is very pleasing in look, and the odour takes one back, so to say, to the Lilacs of the spring.

The old crimson Clove from Yorkshire has a delicate and refreshing odour—the true Clove odour, but very strong. Mr. E. Woodall sends it to us from Scarborough. It appears to be better in the north than about London, larger, and the scent stronger.

Two fine Tea Roses for autumn blooming in the north are Madame Lambard and Comtesse de Nadaillac, of both of which Mr. Woodall, of Scarborough, sends some admirable blooms to show their vigour and floriferousness in a northern garden in August.

French Carnations.—Clarisse and its rose sport are beautiful kinds, especially the sport, a fine red-pink. It seems to be an excellent border Carnation. This sport will, we hope, be propagated extensively. Mr. E. Woodall kindly sends it to us with many others from Scarborough.

Dahlia Floret.—At the Cheshunt Nurseries, Messrs. George Paul have this singular new Dahlia in full beauty. The flowers are about the size of those of an ordinary show variety, but the shell-like florets have a secondary floret inside which gives the bloom a singular appearance. The colour is crimson-red.

Heliotrope Mons. Boncharlat is a first rate and little known variety. Its flower clusters are large and intensely deep purple in colour; the perfume, too, is unusually strong and sweet. Mr. Woodall sends us some sprays of it, and remarks that he has now masses of it in full beauty in his garden.

Belle Halliday Carnation.—This is the prettiest deep primrose-yellow Carnation that has come to us, and apparently the freest bloomer. Stems of it, sent by Messrs. Dicksons & Co., of Edinburgh, are full of buds in all stages, and beautiful buds too. All who care for garden Carnations should get it and grow it well.

White Tiger Flower.—Some very fine blooms of this variety have been sent to us by Messrs. Henderson, Pine-apple Nursery, Maida Vale, under the name of *Tigridia speciosa* alba. It is, of course, the same as that which Mr. Burbidge praises so highly at p. 175, and the flowers sent bear out all that is there said respecting this white Tiger Flower.

Sweet Peas.—A splendid Sweet Pea comes to us from Farnborough Grange. We are sparing in the use of this term and apply it justly in this instance. The flower-stem is very long and strong, quite 10 inches. Mr. Crook should save plenty of seed. He seems to know how to grow Sweet Peas; many have not learned this simple art. A very clever gentleman with whom we met the other day did not know that anyone sowed Sweet Peas in autumn. Unhappily, the mice know it sometimes. The colour of this variety is crimson, scarlet, and cerise. We have never seen anything finer than its brilliancy—the wonderful effect of the vivid crimson and purplish hues.

Poe's striped Carnation.—This is one of the finest Carnations we have seen, because it gives a rich effect of cerise, while examined closely it is seen to be striped with plum-purple. It has in no way the poor effect of the stripy heads generally, and is excellent both for the garden and in a cut state. The colour is peculiar and very good. It comes from Mr. E. Woodall, but is, we suppose, one of Mr. Poë's raising or finding.

Hydrangea pubescens is a handsome species, judging by a specimen sent to us by Mr. Gumbleton, Belgrove, Queenstown. Its leaves are ovate, pointed, and sharply toothed; on the upper surface they are bright green, while beneath they are covered with a white down. The flower clusters are flat like those of the Elder, and of the same colour and size, but there are also a few white sterile blooms around the edge of the cluster. It is, Mr. Gumbleton says, a most profuse flowerer. A native of Japan.

Anigozanthus Manglesi.—Flowers of this peculiar and rare Australian plant have been sent to us by Dr. Paterson, who evidently grows it finely. It is a tufted growing perennial of the *Hamodora* family. The leaves are long, narrow, and glaucous green; the flower-stem, which is erect, is branching and about 2 feet high. The flowers are tubular, about 2 inches long, and curved and clothed with crimson velvety-like hairs. It is an interesting plant for growing in a botanical collection.

Hydrangea quercifolia.—Of this uncommon and handsome shrub a fine specimen comes from the garden at Belgrove, Queenstown. The leaves are as large as those of the Fig tree, being some 8 inches or 10 inches long, and in shape like those of the Champion Oak. The panicles of bloom are very dense, carrying myriads of tiny perfect flowers, accompanied by a few sterile blooms as large as those of *H. paniculata* and of a creamy white. Mr. Gumbleton remarks that it is a shy bloomer. It is a native of Florida.

Hardy Cyclamens.—These Cyclamens are flowering most profusely with us just now. Our plants occupy two snug corners at one end of our herbaceous border, and the effect is very pleasing. As soon as the flowers are over the leaves will appear, and from their marbled aspect and the carpet-like manner in which they cover the surface, the effect for several months is little inferior to that made by the flowers. About once in six years we lift the bulbs in the spring, and remove a portion of the old soil, and replace it with new; this is all the attention they require.

Rosa rugosa.—Flowers of this Rose, both white and crimson, together with some very fine clusters of their fruits, have been sent to us by Lady Parker, from her garden at Stawell House, Richmond, Surrey, where this Rose is now in great beauty. The fruits or hips are particularly handsome; they are as large as the largest sized Cherries, but more depressed in form, and of a bright orange-red colour, which contrasts strikingly with the deep green of the broad foliage. These are by far the handsomest Rose hips we know of, and even if this Rose did not bear such beautiful flowers as it does, it would be well worth growing for the beauty of the hips alone.

Carnations from Preston.—The Rev. Charles Wood, of Preston, sends us a very brilliant series of self-coloured and Clove Carnations. Mr. Wood says: "An exhibitor of Carnations, of course, would not look at such flowers; nevertheless, I find them very useful for cutting. Some of the kinds I have had five-and-twenty years. They are covered with bloom, and some of the roots are 2 feet in diameter and quite hardy. I am very fond of Clove-scented Carnations, and am pleased that you take every opportunity of bringing them before the public." The selfs that we like best are the following: King of Cloves, deep purple-crimson; Fire Eater, cardinal; Harrogate, rose-pink, shaded with purple, very fine; Lord Beaconsfield, plum-purple; Elysian Beauty, rose-pink; Gertrude Teiguir, delicate flesh pink; Imperial Purple, deep purple; Jeannie, rose-pink; Old Scarlet, scarlet; Favourite, purple, semi-double; Old Red, deep crimson-red; and W. P. Milner, white.—Our correspondent must have a beautiful autumnal garden. We hope he will take no notice of what exhibitors think. The true show ground is the garden.

Vallota purpurea.—There is no more showy occupant of the greenhouse at the present time than this bulbous plant, which, with very simple treatment, flowers profusely every year, and at a time, too, when a change amongst decorative plants is most acceptable. This *Vallota* greatly dislikes to have its roots disturbed, and, like another beautiful class of plants, the *Nerines*, flowers best when the pots are filled with a mass of bulbs, with their roots thoroughly matted together. A good loamy soil without manure is best; stimulating material can always be supplied in the shape of weak manure water.

Bouvardia corymbiflora Humboldtii.—This beautiful white-flowered variety, with long Jasmine-like blooms, thrives well in the open air at Scarborough, judging by a handful of flowers of it sent to us by Mr. Woodall, who has in his garden at St. Nicholas House a fine display of it just now in full beauty. In the bed with it is a crimson *Phlox Drummondii* in front, and at the back the yellow *Marguerite Comte de Chambord*—a charming combination. Those who nearly stifle *Bouvardias* in a hot and moist stove should take a hint from Mr. Woodall's success. His flowers are finer by far than any we have ever seen

produced in a stove or greenhouse. Mr. Woodall's plants are quite bushes, carrying as many as thirty heads of bloom. This *Bouvardia* is certainly worth growing out-of-doors wherever plenty of water can be given it, but without that attention it does not succeed.

New hardy Heath.—We send you some sprays of a new hardy Heath, which we sent out last season under the name of *Erica cinerea superba*. It appears to have been a chance seedling from *E. cinerea coccinea*, but is undoubtedly superior to it. It is a most profuse bloomer, and sends up long spikes of flowers suitable for bouquets. The colour is brighter than that of *coccinea*. We send you also some sprays of the last-named for comparison. The plant is of very quick growth and has a bushy habit, and just now there is a bright display of this Heath in our nursery.—ISAAC DAVIES & SON, Brook Lane Nursery, Ormskirk.

* * *E. cinerea superba* is indeed a beautiful Heath. Some of the branches sent are wreathed for about 6 inches of their length with whorls of bright magenta blossoms.—Ed.

Crinum Powellii.—We had no idea that this new bulbous plant, of which we have heard a good deal during the last year or so, was so handsome until we received some blooms of it from Mr. Gumbleton, where, in his garden at Belgrove, Queenstown, it flowers in the open border. He sends flowers of a variety of it named *roseum*, cut from a spike 3 feet 2 inches in height, and which bore from sixteen to eighteen flowers. The plant bore three such spikes. Its colour is a rich, deep, rose-pink, much darker than we have seen in any *Crinum* of the ornatum type, to which this variety evidently is allied. The length of the leaves is 4 feet 6 inches. A pale form of *C. Powellii* is also sent, the colour being exactly that of *C. Moorei*. It is, we believe, a hybrid from the hardy *C. capense*, and if it approaches it in hardness will prove a most valuable plant. We should welcome any further information respecting it.

Seedling Dahlias.—A gathering of Dahlias, all single flowered and good, has been sent to us by Mr. D. T. Fish, Hardwicke House, Bury St. Edmunds, who seems to be paying some attention to these popular flowers. All the sorts sent are beautiful, but we picked out the following as being the most striking and distinct. These are, Mrs. D. T. Fish, a fine sort, with the florets white, broadly edged with scarlet, and apparently the same as Mr. Ware's Union Jack; G. M. G. Cullum, flower large, with broad, thick florets of a deep velvety maroon-crimson, one of the finest; Eva Fish, florets large, flat, and rounded, forming a finely-shaped bloom of a delicate mauve-lilac; and Mrs. Sydney Robertson, colour a bright orange-scarlet, deepening towards the centre, and very showy. Some of the others were well worth naming, though without comparing them with existing named sorts, we could not give an opinion respecting them.

Tree Carnations out of doors.—I send you a culling from a bed of seedling Tree Carnations which I planted out last fall—the first trial I have ever given Tree Carnations out of doors. They have been, for the past month, a complete mass of gorgeous colour. Nos. 1 and 2 I have had in bloom continuously since January in pots, and they are still in the greenhouse, a mass of buds and flowers. As to habit, these two are all that can be desired in a Tree Carnation. No. 3 has been a perfect beauty. It is an excellent habited kind and very free flowering. I think it well deserves the name of Queen of Whites, which I mean to bestow on it. I am at present giving Tree Carnations much attention, and so far have met with great success.—JOHN KNIGHT, *The Oaks, Epsom*.

* * A very welcome communication. This is the sort of man we want in the Carnation garden. Most of the kinds sent are good in colour—not merely a streaky, spotty lot, the selfs being admirable. Would Mr. Knight kindly tell us how much longer the Tree kinds bloomed than the ordinary Carnations under the same conditions?—Ed.

FLOWER GARDEN.

BORDER CARNATIONS.

A FEW days since a box of Carnation and Picotee blooms reached me from The Priory Gardens, Warwick. In a letter which accompanied them Mr. Greenfield said they had been raised from seed, and he pertinently asked, Can anyone desire anything better? The varieties were all large and double, and they differed in colour greatly; among them were crimson, purple, rose, violet, pink, salmon, and white selfs; flaked flowers, edged flowers; and two or three yellow Picotees were very fine. They were all richly fragrant, and Mr. Greenfield said they were very free of bloom. There is certain to be a number of single and semi-double flowers among them, but that is characteristic of the finest strains of seed. It is best to pull them out if it is desired to have the best double varieties in a bed. Then any choice varieties can be increased by means of pipings or layers, the last method for choice, as it is surer and produces fine plants more quickly. Now is a good time to sow some seed, using pots of light sandy soil, or a small box or two filled with the same. Press the soil down as firmly as possible, then place the seeds on the surface; press them into the soil, cover with a little fine sand, and then place the pots or box in a cool frame with a piece of glass over each, and keep the surface moist. The seeds will soon germinate, and as soon as they can be handled, let them be pricked off into pots and encouraged to grow. It is a little late to sow, but with extra care plants can be had large enough to flower next summer. It is perhaps best to sow in May or June, and then very strong plants can be had in time to flower the following year, and these can be put out in the autumn in a prepared bed, which is a great advantage.

The position of the bed cannot well be too open, provided the soil is suitable. A strong, sandy loam suits the Carnation best; it is a mistake to put out the plants in a light dry soil in a sunny position. The bed should be deeply dug and a dressing of manure added, and whether the planting be done in autumn or early spring, the soil should be pressed or trodden firmly about the roots. This is a matter of considerable importance, and in spring a mulching of manure and leaves may be added with great advantage. Keep the bed clear of weeds; stake the plants as they throw up their flower-stalks; water, if needful, in very dry weather (though a good mulching in spring will go a long way to prevent this). Let these matters be attended to, and a fine and most acceptable head of bloom will reward the labours of the cultivator. R. D.

White Tiger Flower.—I send you a sketch of the white Tiger Flower which opened with us this morning. It is a great beauty and a real gain to all who admire the ephemeral beauty of the older kinds, *Tigridia Pavonia*, *grandiflora*, and *conchiflora*. But few novelties of recent times have given me greater satisfaction, simply because the plant is what its introducers said it was, a white *Tigridia*; and so it is, milk-white, with rich lake blotches in the centre. Ah! if all new plant introducers knew the magic force and potentialities of truth, the good seed that ever lives and grows for ever, as Longfellow says, it would be better for us all. We are often led astray by a florid array of words, descriptions that mislead rather than inform; but this white Tiger Flower came so simply and unforced, that for once the eloquence of a plant's own loveliness takes us by surprise. I feel as if I should like to shake hands with the man who raised it from seeds. But, now I come to think of it, who did raise it? Who will tell us of this new beauty's birth? Who had the original stock? For once word-mongers seem to have been left in the lurch, and so a "sweet, pale beauty" comes to us and marks out a right royal road for herself by, as it were, regal right. We shall call this the queen of all

the Tiger Flowers, and give her a royal welcome.—F. W. B.

CALOCHORTUS FLAVUS AND FUSCUS.

DURING the last two or three seasons several hitherto rare bulbous plants have been rather



Calochortus flavus.

largely re-introduced from California and Mexico—such, for example, as *Milla biflora* and *Bessera*



Calochortus fuscus.

elegans, to which we have lately alluded, besides several species of the beautiful genus *Calochortus*, of which the two illustrated herewith are among

the most remarkable, though perhaps not so valuable, as garden plants as some of their larger-flowered congeners. *C. flavus* is certainly a pretty plant, elegant in growth and delicate in colour. The size and form of the flowers are fairly well indicated; their colour is a citron-yellow, and numerous blackish hairs of a bristly character cover the inner surfaces of the petals. The stems on which they are borne range from 6 inches to 12 inches in height, and the flowers are pretty numerous. This species has a peculiar tendency to produce numerous bulbils in the axils of the branchlets on the stem, by which the plant may be propagated.

C. FUSCUS has been a good deal written about in THE GARDEN lately; therefore there is little need to say much respecting it. It is not a showy plant, the colour of the flowers being a sort of brownish chocolate. Like the preceding, it also grows about a foot high, and is sparingly branched. There are four species of *Calochortus*, the flowers all of which resemble in colour those of *C. fuscus*, according to Mr. Sereno Watson who has so thoroughly worked out the Liliaceæ of North America. These four species are *C. Hartwegi*, *C. Bonplandianus*, *C. fuscus*, and *C. spathulatus*, all of which appear to be so near to each other as to favour the supposition that all are but geographical forms of one plant. There is but little doubt, however, that the plant here illustrated is the same as that figured long ago by Sweet, under the name of *Cyclobothra purpurea*, which is given by Watson as a synonym of *C. Bonplandianus*. Both *C. flavus* and *C. fuscus* are natives of Mexico; they do not reach so far north as California, and all seem to be found in the neighbourhood of Oaxaca. Our specimens were supplied by Mr. Stevens, of Byfleet, and Mr. Ware, Hale Farm Nursery, Tottenham. At the latter place both are successfully grown in an unheated house or frame planted out in free soil of a light description. W. G.

NEW ZEALAND VERONICAS.

IN New Zealand the *Veronica* forms our largest genus of flowering plants; it contains about sixty species, many of which, especially the shrubby ones, are very beautiful and well worthy of the most careful cultivation. I have long given much attention to the genus, and have cultivated most of them in the Botanic Garden here. I therefore propose to give your readers a few notes on the best sorts, confining myself principally to those likely to be hardy in England. By most botanists here this genus is divided into three sections, which in most parts of the world would be regarded as distinct genera, but, owing to the extreme variability of New Zealand plants, they are here regarded as sub-genera only. The first section—that containing the true *Veronicas*, resembling the English *Speedwells*—contains about a dozen species, few of them equalling the British ones in beauty. The second section consists of species of the *speciosa* and *stricta* (*salicifolia*) type, and contains many beautiful shrubs. The third section, known as *Pseudo-Veronica*, is confined to New Zealand, and consists of a number of peculiar shrubs having their leaves reduced to petioles, and some of them so much resembling *Conifers* when not in flower, that Sir W. Hooker described one of them as a *Podocarpus*, and they have frequently been mistaken for *Cypresses* by travellers. The whole of the following species are worthy of cultivation in any garden, and, excepting those indicated as tender, should prove hardy throughout the United

Kingdom, seeing that many of them come from the ice-clad slopes of the New Zealand Alps.

First Section.

V. LINIFOLIA (Hk.).—A small alpine herb, about 6 inches high, with small, linear bright green leaves and large flowers, white streaked with rosy purple. Grows in sandy places at from 3000 feet to 5000 feet in altitude; very neat and easily grown.

V. BIDWILLI (Hk.).—A creeping herb with stout branching stems and minute dark green almost black leaves. From the stem arise at intervals numerous slender, many-flowered peduncles, the flowers being small and white with pink or violet stripes. The plant forms dense carpets on mountain river beds, and in the wild state flowers abundantly throughout the summer and autumn; a fine rock plant.

V. MARTINI (Armstrong).—A handsome little species lately discovered in Otago; it has solitary large white flowers produced on stout pubescent branches and small ciliated leaves.

Second Section.

V. LEWISI (Armstrong).—This is a large shrub, intermediate in appearance between *V. speciosa* and *V. elliptica*. It blooms abundantly throughout the winter months (May, June, and July), and sparingly throughout the rest of the year. It grows wild on the east coast of this island, and should be hardy in the south of England, but I fear it will require the protection of a conservatory in the north. Plants of it are in the possession of Mr. Anderson-Henry.

V. RAOULI (Hk.), one of the best plants in New Zealand, is a dwarf shrub about 2 feet high with dense sub-erect habit and pretty shining spathe-shaped, small red-edged leaves. The flowers, which are very numerous, are arranged in a thyrses and are of a beautiful lilac colour. It grows on rocky situations, reaching 2000 feet altitude or more. This, and, indeed, most of the species mentioned here, have been raised from seeds by Mr. Anderson-Henry, of Edinburgh.

V. LAVAUDIANA (Raoul), a small prostrate shrub growing on volcanic rocks at 1000 feet, is like *V. Raouli*, but the leaves are much broader, the flowers much larger, and the colour white and rose, or white and purple. The plant is extremely beautiful when seen on its native rocks, but I fear it will be rather tender in Britain.

V. MACRANTHA (Hk.), the largest flowered species of *Veronica*, is strictly alpine, growing at from 3000 feet to 6000 feet, and covering large extents of ground. It forms a rigid shrub about 2 feet high or prostrate with thick, bright green, toothed leaves 1 inch long, and pure white flowers 1 inch across.

V. AMPLEXICAULIS (Armstrong) is one of the best things in the genus, and is a dwarf shrub of most distinct appearance, having stout branches densely clothed with broadly oblong, very glaucous stem-clasping leaves. The flowers are produced in dense short spikes, and are pure white with blue anthers.

V. DECUMBENS (Armstrong) is related to *V. pinguifolia*, but more prostrate, and the leaves instead of being glaucous are bright green with red edges, and the flowers, which are larger, are pure white with rose-coloured anthers.

V. PINGUIFOLIA (Hk.), lately figured in the *Botanical Magazine* as *V. carnosula*, is a low-spreading shrub, with intensely glaucous small leaves, common on the mountains in this province, and *carnosula* differs in its habit, being more

erect, in having larger foliage, and in the capsules being much longer than the calyx; whereas in *V. pinguifolia* they are of the same length; the character of the capsules, being glabrous in *V. carnosula* and pubescent in *V. pinguifolia*, is not reliable.

V. GLAUCO-CERULEA (Armstrong) is a plant of very striking appearance on account of the intense glaucous colour of its leaves, and the effect thus produced is much improved by the abundant flowers which it bears. The latter are bright blue when they first open, but their colour gradually deepens until the term *cœrulea* becomes inapplicable. It is a dwarf shrub about a foot high, and spreads considerably. The leaves are obovate-oblong, and less than half an inch long. On account of its fine glaucous tint, it is one of the best rock plants with which I am acquainted.

V. CANTERBURIENSIS (Armstrong).—This forms a fine contrast with the last, being similar in size, but the leaves are green and shining and the flowers snow-white, with blue anthers, and most abundantly produced.

Third Section.

V. HECTORI (Hk.).—A round dwarf bush of vivid green colour, with the leaves reduced to scale-like bodies, and closely adpressed to the very stout branchlets. The flowers are white or pink, but are rarely produced. It is sometimes found as high as 7500 feet, and is easily cultivated.

V. ARMSTRONGI (Kirk) is similar to the last, but of a golden tint, and the flowers are pale blue or white, and freely produced.

V. CUPRESSOIDES (Hk.) is another plant of similar habit, but the branches are extremely slender and the colour greyish green. At first sight it looks much like a *Cypress*. Related to this are *V. lycopodioides*, *V. salicornioides*, and *V. tetrasticha*. All dwarf kinds.

I may add that I have not gone into the matter of cultivation, as the whole of the species are as easy to grow as those *Veronicas* already in England, and the whole strike freely from cuttings made of young wood.

J. F. ARMSTRONG (Curator).

Botanic Garden, Christchurch, New Zealand.

ALPINE AND OTHER HARDY PLANTS.

ANDROSACES.—Because these are not so easily grown as most other hardy plants, should not, to my thinking, be a sufficient reason for hearing or seeing so little of them, but rather the reverse. Most alpine plants have been proved to be capable of being cultivated not only in the hilly parts of this country, but also in our lowlands; and though the proper treatment of some would seem as yet undiscovered, and many growers have tried long and hard to keep them in health, there are not many desirable alpine plants compared with the great number successfully grown that remain to be battled with, and experience teaches that what may be wanting in natural conditions may in the end be overcome by patience and perseverance. "Delta," who has grown

ANDROSACE SARMENTOSA so finely, may have flowers in plenty next spring, as only the crowns or rosettes of the previous season bloom, and of those only such as become well set before the outer leaves begin to turn sere. About a month ago I severed the stolons of several dozens of the strongest, and transplanted them into gritty peat and loam, where they have formed plump hearts, and are now turning brown; like many *Primulæ*, they are liable to flower in autumn if then the weather is wet and warm. I prefer to prevent this if possible by covering them with glass shelters, for these abnormal bloomers seldom live through the winter. The charming

A. LANUGINOSA is not only a free grower and bloomer, but its half-branch-like and half-stolon-like stems may be put in gritty peat and rooted like *Wallflower* slips. I am inclined, however, to think that it can endure our worst frosts, so far as its roots are concerned, but the down-coated tufts of foliage for the most part rot off. Even when sheltered with glass, our fogs keep them much too damp, and in that state the frost gets a strong grip of them; still, one rarely finds the roots killed. I consider that this species has the finest flowers of the eight or ten kinds which I have bloomed. The habit, however, is sprawling.

A. CARNEA I always found difficult. The last specimen I lost of it was found to be infested at the root with the *Auricula* pest—woolly aphis, I think some call it. *A. carnea eximia* I have never seen; but I have proved the free and pretty *A. Lagerri* to come in lovely variety from seed, of which it produces plenty, and ripens it in June and July; so, perhaps, *A. carnea* may yield varieties under suitable conditions.

A. LAGGERI is a hardy kind, and grows with me like a *Saxifrage*; its stems, which are 2 inches or 3 inches long, are furnished with *Heath*-like leaves, forming tufts of shining green. Its flowers, which are numerous, are rose coloured, in neat heads, produced on scapes 2 inches and 3 inches high.

A. CHAMEJASME is broader in the leaf in proportion to its length than any I know, and so proof against damp that I have for two years left it out plunged in sand without shelter. Its flowers are its charm; like those of *lanuginosa*, they pass through various and pleasing shades of the richest colours—white, orange, and carmine; and when flowers of such varied tints are seen on the same minute scape, they have a striking effect.

A. LACTEA, with its slender scapes of pure white flowers and shining linear leaves, reflexed and arranged in crowded tufts, is not only desirable on the score of its distinctness, but from the absence of down is not so liable to rot from damp as some of the others. I find that this genus of plants enjoys a breezy situation and plenty of moisture at the roots with perfect drainage; in short, to be dry at their tops and moist below. My garden is on a hillside and slopes to the south. In the bottom, where I have a bed of ashes for plunging purposes, I never could grow *Gentiana verna* or the *Androsaces*, whilst at the top end, perhaps 30 feet or 40 feet high, they do fairly well; but this fact applies to many other plants of alpine origin. As regards

GENTIANA VERNA, I have not the least trouble with it; in fact, it is the most easily managed *Gentian* I grow, not excepting *G. cruciata*. Moist silky loam and good drainage will prove as good as anything, but good roots should be had for a start. Acclimatised roots of all the above alpine are much to be preferred, provided they are perfectly healthy. Has anyone healthy specimens of *Eritrichium nanum* two years established? if so, I for one should be glad to learn under what conditions it is thriving.

BRODIAEA COCCINEA, so shy as regards flowering in ordinary soil, has proved freer in light vegetable mould somewhat dry, and in a sunny position. It would appear that this native of the Californian mountains has enough moisture in this climate in the driest quarters we can find for it, and not too much sunshine in the most exposed situation.

B. CONGESTA, though a well known and less beautiful species, is a useful plant. The scapes have been over 3 feet high, and some of the heads have had sixteen flowers on them compacted together. The compost for it should be leaf-mould, loam, and fine charcoal, and it should be on rock-work.

A. DAHLIA left out all last winter, which, being at the end of a border, also escaped the spade when *Tulips* were being set in the same part, has not only lived, but is in every way a better specimen than those raised in the usual way. I may explain that as soon as the *Tulips* were planted, they had a thick dressing of longish litter laid over them, and this would also cover the *Dahlia*

tubers on the boundary of the bed. I hope to test Dahlias further in this direction, for if one can get at the desired result of keeping the tubers healthy in the ground, the care will be more than repaid by the extra vigour and woodiness of the stems as seen at the present time in the example just named, to say nothing of the drying, labelling, and starting of old tubers.

SOLDANELLA MONTANA.—This charming alpine from the snow-line is in every way an accommo-

it bears; the soil is of a vegetable character, but never lacks moisture. The less common

G. AFFINIS is a most distinct and beautiful form; its stems, which are nearly black and shining, are 2 feet high, bearing flowers single and in pairs, which come with short foot-stalk and a pair of bract-like leaves from the axils of the larger stem leaves, the latter being very distant from those near the top. The flowers, which are chubby, are darker blue than those of any other

must be seen *en masse*, say in a bed 6 feet square, and it never looks better than when placed in a retiring nook, not too shaded, on a lawn surrounded by greenery, and rising from a carpet of Grass. It is a plant which does best in a moist loamy soil, and which well repays good culture. It is a perennial, and quite hardy enough to last several seasons, and the best plan is to raise seedlings of it in autumn and plant them out the following spring.

W. G.



Mimulus cupreus Brilliant.

dating little plant, flowering and seeding profusely in moist parts of rockwork. I wish to say that seed of the present season, turned directly out of large decanter-shaped capsules into moist gritty peat, has vegetated like Mustard seed in about ten days; the seed pot was plunged in sand and fully exposed to the sun, but it should also be said that the weather during germination was most favourable, being showery with sunshine.

GENTIANA BRACHYPHYLLA, I find, does better in pots, or, at any rate, gets better attended to, than when planted out, where it is pretty sure to get overrun. The solitary flowers, large for so small a plant, have very short foot-stalks, seeming almost to nestle in the somewhat glaucous leaves, which are much less, but broader in proportion, than those of *G. verna*. The long, tubular blossoms are of such a blue, that it may be as well not to try to describe it beyond saying that it is a Gentian blue. Respecting

MONTBRETIA POTSI, I find the leaves to always turn sere at the tips, beginning to do so about the time the flower-spikes begin to colour. I grow it both in pots and in the open border, both being without protection all winter with the exception of the old tops, which are both ample and persistent. It likes rich earth and plenty of moisture during the growing season. A root given me by Mr. Ewbank last autumn is now in finer form than two and three years' established tufts, owing, I fancy, to a better condition as regards ripeness which the corms would receive in the sunny climate of the Isle of Wight. The spikes are nearly 3 feet high, all having two side shoots furnished with handsome orange-scarlet blossoms.

GENTIANA ASCLEPIADEA is one of the kinds anyone may grow with ordinary care, which is more than can be said of most Gentians. In a dip on a bit of rockwork, made cool by the side shade only of shrubs, it grows like a Willow to the length of nearly 3 feet, and is top-heavy from the mass of purplish blue Campanula-like flowers which

Gentian with which I am acquainted; the divisions of the calyx are lance-shaped and inclined to leafiness. This description applies to a young specimen only two years grown in a fully-exposed bed; the soil is ordinary blackish loam, but well enriched. It is possible the plant may grow much taller when older, but it could not well be more floriferous.

JOHN WOOD.

Woodville, Kirkstall, Leeds.

MIMULUS CUPREUS BRILLIANT.

THE pretty little coppery red *Mimulus* has been a favourite with most people ever since it has been introduced from the Chilian Andes, and the attention bestowed upon the raising of it from seed has resulted in obtaining several distinct and beautiful varieties. The older forms of it are *tigrinus* and *variegatus*, both with flowers quaintly and brightly spotted, and the double variety, or rather a Hose-in-hose kind. All these are distinct from the type itself, an extremely pretty plant, but all are surpassed in brilliancy, neat and compact growth, and floriferousness by the new variety which Messrs. Carter have obtained and named *Brilliant*. We lately saw a broad mass of this *Mimulus* in full flower at their St. Osyth seed grounds, and thought at the time that we had rarely seen a more glorious bit of colouring, viz., a glowing crimson-red inclined to orange as near as one can describe it. There were thousands of plants in the quarter just alluded to, all without exception being not more than from 4 inches to 6 inches in height, spreading, and forming a dense tuft, profusely studded with flowers. It is, indeed, a valuable plant, and one that could be made to produce a bright effect in a garden if properly placed; but to obtain the best results from it, it

Carnations.—The end of August is late to have good Carnations in the south of England, but a stand containing some very pretty blooms was exhibited at Maidstone on the 22nd. Three blooms were deftly tied together and backed with sprays of their own foliage. A dozen bunches were placed in a box, surrounded with green Moss, and had an excellent effect. One feature was overlooked at the exhibition of Carnations, held in Mr. Turner's nursery, at Slough, on the 31st July last. None of the reporters seemed to notice a tall, trumpet-shaped glass vase on one of the dining tables. It was furnished entirely with Carnation blooms, cut with long stems, the fronds of *Pteris serrulata* and Maiden-hair Ferns being used along with them for effect—a pleasing combination indeed. I have grown in my time many varieties of the scarlet or crimson perpetual flowering Carnation, but I think the very best we ever had is one named *Worthington G. Smith*. It is now in flower and showing a plentiful succession of buds. The flowers are very perfect; the petals are well formed, rich in colour, and quite fill the pods without bursting them.—J. DOUGLAS.

THE TWIN FLOWER.

(*LINNÆA BOREALIS*.)

IN many a northern Pine wood this modest little evergreen trailing plant is just now displaying its delicately tinted blossoms; no wonder that such a lovely plant is such a favourite with all who love flowers, for it spreads and forms a dense cushion-like tuft, which becomes thickly studded with tiny pinkbells. It is a rare native and not at all a common plant in gardens, though it is not so difficult to cultivate as many imagine; like



Spray of Linnæa borealis

the Edelweiss, another reputedly difficult plant, it flourishes like a weed if placed under the necessary cultural conditions. All that is needed is to plant healthy young plants in a moist sandy

border, rock garden, or slightly raised bank. Placed in such a position and in partial shade, we have rarely found it difficult to deal with, always presuming, of course, that the air is pure. The best season for transplanting strong plants of the Twin Flower is autumn, and care should be taken to secure a good amount of earth lifted with the roots.

Pinks.—I have been told that Pinks for forcing are getting scarce. There is no need that this should happen. They are so easily propagated, and a very little attention during summer ensures strong healthy flowering plants by the end of the season. The right thing is to get cuttings of them struck early in May to be ready for planting into store beds by the end of June. We have Pinks in bloom from early in March until the end of June.—J. DOUGLAS.

Pentstemons.—These are at present in full beauty, and exceedingly effective in the form of single specimens or in clumps in herbaceous borders. The main stems are now furnished with seed-pods, and if seeds are not wanted the pods should be picked off as soon as formed; if this is done the plants will flower freely until frost comes. If the pods are allowed to remain and exhaust the plants, the bloom will soon be over.—J. DOUGLAS.

Double-flowered Liliun auratum.—I send you herewith a photograph of a double-flowered Liliun auratum, a beautiful and full-sized flower, produced by a bulb imported direct from Japan. Is this simply a freak, or is there such a flower already known? There were four perfect inner petals, and all parts of the flower seemed to have more substance than in the single variety.—A. HOEN, *Baltimore*. [Much handsomer than double Lilies usually are.—ED.]

Good plants for peat beds.—An interesting feature in our garden is a small bed, the centre of which is planted with *Andromeda floribunda* and some of the best varieties of *Azalea mollis*, margined with a few plants and shrubs that would not be out of place in any garden. Among them are hardy Heaths—in flower all the year round. At present the various forms of *Erica vulgaris* are pretty, the best being *Hammondi*, white; Allporti, with dense red spikes; and a form with golden foliage and pale red or rose flowers. *E. mediterranea alba* flowers in winter, and *E. herbacea carnea* succeeds it. *Menziesia polifolia*, red and white, flowers freely for months at a stretch. It is a charming dwarf evergreen shrub. *Andromeda cassinefolia* and *pulverulenta* are charming evergreen shrubs; while in a shady part of the bed *Epigaea repens* grows freely, and flowers well in spring.—J. DOUGLAS, *Loxford Hall, Ilford*.

5052.—**Imported Lilies.**—"R. R. W." seems a good deal mixed up in his ideas about growing Japan Lilies. Most cultivators of experience agree that to put stable manure in the vicinity of newly imported Lilies is to expose them to danger, viz., to those forces which most promote the growth of the fungus (mould), which the bulbs generally bring with them from Japan, and which, under the favourable surroundings of moisture and decaying animal substance, germinates and grows most rapidly. He also warns us against the use of peat for Lilies. Here, again, he differs from most cultivators who approve of peat. We also take care that it does not get sour. He admits having lost many rare bulbs. May not their death be due to defective drainage and to the use of stable manure? I should advise him in future to avoid manure; stick to good peat (not bog peat), be very careful about drainage, and then tell us next year how his Lilies have done. Does he add loam and silver sand to his peat, I wonder? He ought to do so. He had better in the autumn take up all his bulbs as they die down, and prepare another bed for them without manure, adding to his garden soil peat and loam in equal proportions; plant the bulbs 4 inches to 6 inches deep, and leave them to grow flower next year. Those that were affected

with disease will be dead; the survivors will be safe.—A. W.

Failure of double Poet's Narcissus.—If Mr. Rawson will consult the meteorological statistics of the year in which his double Poet's Narcissus failed to flower in Kent, I think he will find that the rainfall of March and April was deficient. This would be an additional cause of failure, and increase the effect of natural poverty of soil. It is probable, also, that drought was accompanied by abnormal cold, and so Mr. Rawson's observation was misdirected. As for cold being the cause of failure, I may say, as an experienced grower of the genus, that I have no plants of which both the bud and the flower are less affected by cold than the more hardy Daffodils, which include all the class of Poet's Narcissus. This was especially evident during the severe weather of last March, when Violets, Primroses, and Anemones had their flowers quite destroyed by frost, whilst several kinds of Daffodil were daily opening their flowers quite uninjured. My attention was especially directed during many years to this question of the cause of failure, and all my observations confirmed the opinion I have given.—C. WOLLEY DOD, *Edge Hall*.

Physianthus albens.—It was with amazement that Mr. Poë and I read the unstinted praise in a late issue of THE GARDEN of *Physianthus albens*, which we have always considered a dull, dingy, and utterly worthless plant, quite unworthy of being figured on one of the coloured plates of THE GARDEN. We hope, therefore, that you will, on reconsideration, see fit to change your mind, and not figure this plant, as you express your intention of doing at end of notice thereof. It is almost quite hardy here, and in the walled garden of a neighbour of mine only the shoots that overtopped the wall were injured at all by frost during a severe winter. The ladies to whom it belonged set no value on it as an ornamental plant, calling it the cruel flower, from the struggles and sufferings of the flies caught and imprisoned by the viscid exudations on its flowers to which they had been attracted by the heavy smell, which cannot be correctly called perfume, which they exhale. I have been instrumental in having it turned out of more than one friend's greenhouse, and cannot understand how it is still retained at Pendell Court.—W. E. GUMBLETON, *Belgrave, Queenstown*.

** As the plant came here, many long wreaths of shoots laden, like *Stephanotis*, with prettily formed and fragrant flowers, it was thought the most beautiful thing sent to us for some months past. This shows how culture and position may affect the character of a plant.—ED.

—For some years previous to the winter of 1880-81 there was a very fine plant of *Physianthus albens* on the south front of a house in this neighbourhood, but the severe frost which we then had quite killed it. It flowered beautifully during the summer of 1880, but the flowers—whatever they may be under glass—scarcely bore out your remark as to their being "equally pure white" as the *Stephanotis*. The plant was, however, a beautiful object and greatly admired, as its wreaths showed through the *Magnolia* and other things up which it climbed. I can get no authentic account of the age of this plant, but it must have been several years old, as its stem near the ground was as large as a man's wrist. Therefore, in Cornwall at least, it is hardy in ordinary winters, and deserves to be planted freely. The winter during which it was killed was quite an exceptionally severe one.—JOHN C. TALLACK, *Prideaux Place, Padstow, Cornwall*.

Chrysanthemum Alice Crousse.—Those who want fine, large white flowers for cutting to dress with single scarlet Dahlias should grow this *Marguerite*, which is as free blooming as the old favourite *C. frutescens*, and the blossoms are much more than double the size. The way to have them in quantity at this season is to plant the plants out in good ground in an open sunny spot, where they will flower profusely till destroyed by frost. Not only is this *Chrysan-*

themum valuable outdoors and for bedding, but it is of even greater use for pots to embellish green-houses and conservatories, a purpose for which it is well adapted, and comes in admirably during the autumn and early winter to stage with *Salvias* or any other bright blooms. The way to manage it when wanted for such work is to plunge the pots in a bed of ashes or other material out in the open, and to keep the plants stopped till within a month or so of the time they are required for use, when they should be kept watered with liquid manure every time they are dry at the roots.—S. D.

The wild Teasel (*Dipsacus sylvestris*).—We have in our garden here an unusually fine (chance-sown) specimen of this plant. It measures upwards of 7 feet in height, and, with its ample, bold, silver-ribbed leaves and numerous large purple flower-heads, forms a most conspicuous and striking object. I do not hesitate to say that I have seen not a few sub-tropical plants which are far less effective, and, as the plant in question is growing in the hard soil of an old walk, I can only speculate how much larger and finer it might have been had the seed fallen upon good ground. However, I intend saving the seed and trying an experiment next spring, as it appears to be a singularly large variety. I have never before seen a plant of this species much over 4 feet in height.—W. M.

Raised edgings for flower beds.—Not only are mud edgings execrable, the only jarring feature often in beds otherwise admirably filled, but why have the edgings raised at all? Most flowers look just as well springing up from the surface as 4 inches or so above it. No doubt raised beds are often valuable features in landscapes. But let such be raised boldly, and have retaining boundary or other walls, if needful, formed of stones, roots, cork, concrete, plants such as Ivy, Periwinkle, Honeysuckle, Clematis, &c. Flower beds may readily be converted into baskets with a few twigs for covers or other expedients. Beds of such character would do much to break the even and monotonous lines of our gardens. But the mud walls are all of one height. They add to the difficulty of keeping the beds sufficiently moist and oftener mar than add to their beauty. Were the succulents wasted on these, scattered in skilful groups on beds or borders or picturesque bases, they would look infinitely more natural as well as more artistic than crowning mud walls in states of hopeless dilapidation, the one drawback to the perfect furnishing of many of our best gardens. The sooner these muddy fortifications are swept away and levelled down the better.—D. T. F.

SHORT NOTES.—FLOWER.

Lilium candidum spicatum.—We have several stools of the variety of white Lily, called *spicatum*, in the wild garden here.—WM. DICK, *Phoenix Park, Dublin*.

Begonias bedded out.—Some brilliant and well-grown Begonias come from Mr. Crook from the open air, compensating to some extent for the many wretched failures we see.

Border Carnations (*Farnborough*).—A poor set. Your notions of border Carnations require much change. Few know how important and beautiful they are, and, when well grown, how useful in the summer garden.

Mud edgings.—I am so glad to know I am not alone in the world as a hater of the hard and hideous mud edgings of the London parks. Thanks, Mr. Wildsmith, for the note on them on p. 161.—J. H.

Sweet Alyssum and Mignonette.—There is a pretty border of these in Hyde Park bordering a shrubbery, but fully exposed, so that the plants can grow well. The scent is grateful and the effect excellent.

Anemone narcissiflora.—As "F. W. B." hints, this Windflower is very slow to germinate, but I have more than once raised it by keeping the pans two years, and imagine that if steeped two or three days in water previous to sowing it might put in an appearance within a year.—W. I. T.

Snappdragons.—This is the most uninteresting flower we know, owing to the way in which raisers let the spotty, streaky types get the mastery. Mr. Caudwell sends us some from Wantage, but he is weak in seeds. No one could tell the colour of a mass of the streaky kinds a few yards off. He should let people see how fine the selfs are in colour.

ROSE GARDEN.

ROSES AT COLCHESTER.

No matter how often one sees these, there is always something fresh to note among them, and this less in the way of new varieties than in that of development of form or of culture. In regard to novelty, but little of sterling and permanent merit has appeared. What strikes one most powerfully in visiting the large trade collections is the enormous numbers of established favourites grown. Judged by the standard of numbers reared and sold, *Maréchal Niel* is still, as perhaps it deserves, the most popular Rose. One is more uncertain in selecting a second to follow the *Maréchal*; possibly *Gloire de Dijon* would come nearest to it. And then every year *Niphetos*, which used to be thought a rather miffy Rose, is growing rapidly in numbers as well as in hardiness and beauty. *La France*, again, though some few rosarians depreciate its merits, runs rapidly into popular favour. Perhaps *Marie Van Houtte* has been the best Rose of the season here and elsewhere, though *Souvenir d'Elise* once more won first honours for Mr. Cant. It seems well-nigh impossible, however, for any Rose to rival or excel *Marie Van Houtte* at her best. The same may be said perhaps of *Souvenir d'Elise*. The two can hardly be said to compete fairly, and both may be pronounced supreme in their class. This has, however, been a specially favourable season for *Marie Van Houtte*. The form, substance, and colour have been more exquisitely perfect than usual. Then, again,

AMONG PERPETUALS, Reynolds Hole seemed to me to take the lead at Colchester. This was all the more gratifying as well as provoking, as hitherto I have not succeeded to my satisfaction with this noble Rose. Neither have I ever seen it so fine at Colchester or elsewhere as this year. The flowers were very large, of perfect globular form, petals of fine substance, filled to overflowing with deep dark maroon, marbled and blotched rather than merely flushed with glowing scarlet. Flower after flower on standard Briers was of the most perfect character, and filled to the brim with substance and beauty. Reynolds Hole as seen this year is not only at the head and front of all fine Roses, but seems in a fair way of originating new families of parti-coloured flowers. That would bring fresh charms into the Rose garden, though they might not be very heartily welcomed on the exhibition table. Prince Arthur, again, is one of those Roses that never seem so good anywhere else as in this, its native home. Here its form is most perfect and its colour of the richest, deepest crimson. Horace Vernet was also in very fine form at the time of my visit, as were also the following: François Michelon, Duke of Edinburgh, Alfred Colomb, Dr. Sewell, Duchess of Bedford, Duc de Wellington, Thomas Mills, Mad. Ducher, Duchesse de Morny, Dupuy Jamain, Duke of Teck, Countess of Oxford, Maurice Bernardin, Emily Laxton, Fisher Holmes, Abel Carrière, Marie Rady, Elie Morel, General Jacqueminot, John Stuart Mill, and last, but by no means least, Chas. Lefebvre. Captain Christy was also specially good this season, as was likewise a Rose at the extreme end of the scale in regard to colour, Prince Camille de Rohan. In reference to this and other almost equally dark Roses, such as the Sultan of Zanzibar, it is found that the colours are more stable after the flowers have attained to almost full size. Further, when these and other dark Roses are cut too early, the buds refuse to swell afterwards. Roses of this class also keep well after cutting, provided they have reached a state of semi-maturity beforehand. In such condition the colours neither run nor the flowers fall to pieces very readily.

SOME CULTURAL HINTS of the highest value were picked up. Among these were the effects on floriferousness on budding from flowering or growing shoots. Some rows of Constantin Fretiakoff, worked from growing wood on the Manetti, had hardly flowered at all. Several other varieties had bloomed but little. In budding *Maréchal Niel*, great attention was paid to procuring the buds from flowering branches, and the difference in growth

and floriferousness in these cases was most marked. Before the severe winters killed our stock of *Maréchal Niel* on standard Briers we were seldom without blooms of this magnificent Rose in the open air from May to November. Several of our plants had obviously been worked from flowering branchlets. In consequence they flowered profusely and grew but little, their scanty growth enabling them to bloom a second and even a third time. Thus it would seem that from the battle of the stocks, anent floriferousness, we may have to turn to the battle of the buds, and perhaps the latter may help us further in this direction than the former. Among

NEW ROSES, the following were the most promising in Mr. Cant's collection, viz.: *Madame Cusin*, a pink Tea of great delicacy of bud and chasteness of colouring that must needs have a great future for bouquet work; *Merveille de Lyon*, which may be described as a white *Baroness de Rothschild*, with more petals and greater substance, carrying us another step towards a perfect white Perpetual. Mr. B. Cant has such faith in this Rose, that he has worked it by the thousand. *Pride of Waltham*.—This is a beautiful light salmon-pink Rose of great promise, something in the way of the *Comtesse d'Oxford* in style of growth, and likely to prove a most useful Rose. *Violette Bouyer*.—This adds another to the scanty list of promising white Roses, albeit it has, I had almost written the usual dash of pink that somewhat mars its spotless purity. This close correlation of white and pink in flowers is one of the most constant phenomena to be met with in Nature. *Violette Bouyer* is a full-sized, deeply cupped flower of considerable promise. *Helen Paul* is a chaste, delicate, flesh-coloured Rose of a fine globular form. As the flower reaches and passes maturity, the pink bleaches into a whiteness almost pure.

THE ROSE MEET at Colchester this year was shortly after the *début* of Her Majesty, and this was so highly thought and spoken of as to cast somewhat of a shadow over others. But if fewer new reputations than usual have been established, perhaps the old favourites never held their own more creditably than this year. The value of cut-backs for an early supply of bloom has also received abundant illustration. Fresh, moderately rich, well-drained soil is also essential to the production of first-class Roses. Soils become Rose-sick sooner than they do Clover-sick, and to grow good Roses in continuity, the place that knew our Roses one year must know them no more for several more to come. Roses, instead of being fixtures, must take their place in rotation. The sentimental thoughts and deeds that have hovered round localities must vanish into aerial nothingness as thin as the odour of our Roses, and a second heresy be added to the first that a Rose by any other name would smell as sweet—thus, a Rose in any other place would be as dear if we would continue to grow Roses in the highest perfection. D. T. FISH.

Mildew on Roses.—The dry atmosphere and hot weather which we have recently had have been favourable to the development of this fungus on Roses. When once it attacks the leaves it spreads with amazing rapidity, and will, if not checked, sadly mar the beauty of the autumn bloom. The orange-coloured fungus, too, is also rather frequently heard of. It attacked our Roses once; it was sent to us, in fact, with some new plants, but so fearful were we that it would spread and cause the leaves to drop, that every affected part was cut off and burned, and the leaves were well washed with strong soapy and sulphur water. Sulphur and soft soapy water destroys mildew also. We never saw more of the orange-coloured fungus after the washing in question. —J. DOUGLAS.

The best Pink Rose for a glass wall.—This is without doubt *Adam* or *President*. The colour is, when perfect, a beautiful light rose, but, like others of this class or character, the colour varies with the age of the bud or flower; the form is most perfect, and the perfume moderate. But it is

always in bloom, and very welcome for hair or button-holes.—D. T. F.

When to stop Brier shoots after budding.—Once it was the fashion to stop them a fortnight before. This practice is now totally in abeyance. Then not a few stopped the Briers soon after the Rose buds had taken and were about to break. Now the common practice is to leave them unstopped till the spring. Now in the case of dormant buds doubtless this practice is right, but just now thousands of early Rose buds are bursting into growth, and would not the stoppage of the Brier a few inches beyond stimulate the growth of the Rose so much as to ensure its becoming frost proof before winter?—D. T. FISH.

Best way of feeding Roses.—Mr. Pettigrew, of Cardiff Castle, who lately received the gold medal of the National Rose Society and a silver cup for the excellence of his Rose blooms, told me the other day that he never at any time dug amongst his Rose trees, but fed them sumptuously by means of surface mulching and heavy top-dressings. That this treatment suits them admirably there can be no doubt, as of all the Rose plants I have seen this season or for some years back none have been so strong and healthy as those at Cardiff Castle.—CAMBRIAN.

Madame Cusin promises to be a most valuable pink Rose for bouquet work, making up nicely with such choice varieties as *Niphetos*. In fact, these two would make a very pretty bouquet of themselves—white and pink always going well together. For example, one of the most chaste and valuable bouquets of this season was formed of *Souvenir de la Malmaison* Carnation, with all the interstices filled in with *Tuberoses*, raised about an inch or so above the level of the Carnations. This, with a fringe of *Ferns*, completed the bouquet, which was reported to have cost five guineas.—D.

Banksian Roses.—These, being nearly evergreen, are admirably suited for walls, or for any other position where a large space has to be quickly covered. A rather large space for the roots is necessary, and the better the soil the faster the plants grow; but experience shows that elaborate preparation is unnecessary. With 2 feet in depth of fairly good earth, and proportionate space, Banksian Roses will grow for many years in a satisfactory manner. To grow them successfully they require a height of from 10 feet to 16 feet, and proportionate room on each side for the development of the branches. When dealing with young plants no pruning is necessary; the shoots must all be either nailed or tied in, but when they have filled their allotted space the treatment may be altered. In our strong soil this Rose grows most luxuriantly, and, in order to keep the growth within reasonable limits, we get the hedge-shears and clip it in about the end of June, but we should not think of doing so later; if we did, we should expect to see it produce very few flowers next year. The growth made after the end of June has time to get ripened and sufficiently hardened up to form embryo flower-buds before winter sets in. Such is our treatment of the Banksian Rose, and there is certainly no room to find fault with the number of flowers which it produces, for they are always abundant.—J. C. C.

Lightning.—Mr. Geo. Berry gave us an instance of terrible destruction of animals at Longleat, eight cows being killed under a Beech tree last month. The following is another startling picture of its effects: A special despatch to the *News* from Lampasas, Texas, says—“A carriage, containing the skeletons of three adults and two children, sitting bolt upright, as if in life, under a large tree has been found near a road in Llano County. The tree was shattered by lightning. It is supposed the carriage sought shelter under the tree and was struck, the bolt killing the inmates and the horses. The weather-beaten appearance of the carriage and its trimmings indicates that the event happened a year or two ago. In a small trunk was a letter addressed to ‘James G. Chamberlain, London, England.’ The parties are supposed to have been tourists. The spot where they were found is very secluded, and far from every habitation.”

OXENFORD CASTLE.

THIS, one of the residences of the Earl of Stair, stands near the road to Pathhead, about four miles from Dalkeith—four miles of what teamsters would describe as "all collar," yet most agreeably varied, as the rising ground is climbed, by panoramic views of scenery of the most picturesque description. Behind are the Pentland Hills, bluish purple in the distance, flanked by Arthur's Seat and a distant view of the modern Athens, a dozen miles away. To the eastward, North Berwick Law, a pyramid on a plain, stands a prominent landmark, whilst by the wayside the pedestrian is cheered in summer by the luxuriant growth of red and white Roses, Bluebells, semi-double flowered Brambles, Poppies, purple Scabious, Dog Daisies, Toadflax, Vetches and Speedwell—all forming a beautiful mass of rich colour. The castle is approached by a drive of over a mile in length destitute of trees until near its termination, when a sudden bend in the road, which crosses a ravine by a battlemented bridge, brings into view the noble castellated structure, overlooking a magnificently wooded valley. The lonely looking deserted house, near which the very hares refuse to move until almost stumbled over, gives one such a "moated-grange" kind of feeling, that a rapid move forward towards human society and beautiful flowers is welcome. Leaving the deep evergreen-clad dell, interspersed here and there with white and red Foxgloves, the gardens are reached through gates whose great circular stone pillars are covered with Cotoneasters; indeed, this excellent hide of rude masonry, artistically beautiful in itself, is much used here, covering cottages, tool-houses, stable gables, and walls up to 12 feet high. Amongst

FRUIT under glass, preference is given to the Lady Downes, Champion Hamburg, and Alicante Grapes; to Lord Palmerston, Galande, Dagmar, Earl Crawford, and Stirling Castle Peaches; and to Violette Hâtive and Elrue Nectarines. The soil in the gardens here is naturally heavy and cold, and no good fruit could at one time be grown in it. This led, many years ago, to the whole of the natural soil in the borders being removed, their bottoms concreted, and fresh material substituted. The old trees were not removed, but severely root pruned, after which they pushed new roots into the fresh soil, and every year afterwards improved until ultimately they produced as good fruit as any in the country. A collection of Pears, indeed, from these renovated trees sent to London carried off a first prize, though placed in competition with fruit from the best of English gardens. Vines, too, did no good until the old 3 feet deep borders were annihilated and shallower ones made. Now the fruit which they produce under Mr. Anderson's cultural care is all that can be desired.

BORDERS OF CARNATIONS and Tropæolums enliven the fruit gardens just as broad borders of Periwinkle creep from the woodland paths away amongst the adjacent trees. Whilst naming borders, special mention should be made of one 100 yards or so in length edged entirely with Gentiana acaulis, which, when in bloom, must be a glorious sight, a veritable blue ribbon. Rockeries really old abound on all hands, and contain such an amount of Osmunda regalis, Sedums, and Saxifragas as would suffice to stock a moderate sized nursery. Different shades of the two latter are used in design bedding along with Sempervivum, yet they seem as much out of place there as a picturesque Arab would be at a May meeting in Exeter Hall. Near at hand is an olden time sloping flower garden, surrounded on one side by tall Yew and Holly hedges through which entrances are cut; in the flower beds here many perennial and hardy subjects are used with good effect. Nearly all the old familiar Ferns and other plants have been carefully named on a cross-bar of wood grasped by a zinc support. Further away may be found beds of Irises, Aralias, perennial Phloxes, Lilies of the Valley, seedling Calceolarias, varying from pale yellow to a mahogany colour, seedling Columbines from yellow to scarlet, and Gazania splendens—

all mixed heterogeneously in ordinary rectangular beds, strictly geometrical designs belonging to what, let us hope, we may soon be able to call the dark ages being abolished here.

UNDER GLASS are cultivated the usual kinds of plants, such as Stephanotis, Camellias, Abutilons, Orchids, and so on; but amongst the most noticeable are scented Geraniums trained to wires, one specimen covering 200 square feet and another 150 square feet. The common Myrtle, 15 feet high by 10 feet wide, was just breaking into bloom, and there were perpetual Carnations trained to rafters, 9 feet and 10 feet in length, and pots of Mignonette plants 2 feet 6 inches high.

Horsforth, near Leeds.

R. A. H. G.

KITCHEN GARDEN.

5044.—**Flies and insects in Mushroom houses.**—These are common during hot weather, especially in Mushroom houses above the ground level. The best preventive is thorough cleanliness; also avoid having anything in the house or near the beds to attract flies. Material for a new bed will do this in hot weather. Keeping the surroundings moist will also cause them to be less troublesome. We are not troubled at all in this respect, our beds being all in cool cellars below the ground level. Our Mushrooms turn out now beautifully fresh and of good colour. Should the insects continue to give annoyance, a dilution of carbolic acid sprinkled near the beds, but not on them, would, I should think, be beneficial.—J. H.

Small v. large Vegetable Marrows.—In the cottagers' class at the Cardiff show the other day, there was a brisk competition for Vegetable Marrows, but I did not by any means admire the prize lots. Large size must have been the first and last consideration with the judges, and this alone I never approve of. The first prize fruits were green and tanned-looking, at least 18 inches in length and a great deal more than a foot in circumference. Pig feeders might have found them useful, but putting such Marrows on the table of even a cottager was quite out of the question. I feel certain that the judges would never have thought of tasting them had they been cooked and placed before them at dinner, and I do not think it is right that anyone should award a prize to any vegetable which is unfit for food. The worst of it is, when produce of this kind is awarded prizes it is immediately noted, and everyone tries the following year to show something like it or larger. There are now some choice Marrows in cultivation which are more prolific and altogether superior to such monstrosities, and it would, no doubt, be productive of general good were judges to recognise quality rather than quantity.—CAMBRIAN.

SHORT NOTES.—KITCHEN.

Prolific Dwarf Marrow.—A very good Pea from Mr. Crook, at Farnborough. We suppose most Peas are good if "taken young," as the sailors are caught.

New Pea.—We send specimens of a new Pea which we intend sending out. It is quite distinct from any other sort we know of. We shall be glad if you will give us your opinion of its merits.—HURST & SON, Houndsditch.

* * * A large sized Pea, in all respects very good.—ED.

Late Leeks.—Now is a good time to plant young Leeks. Those now about half grown may do very well for use in winter, but they will be past before the spring is over, and it is to give a supply about that time next year that the present plantation should be made. Manure the ground thoroughly, and dibble the plants in 9 inches apart each way.—M. M.

Pea trials in America.—In Director Sturtevant's experiments with Peas at the State Station, sixty-eight so-called varieties planted April 21 were fit for table from June 21 to 24, Laxton's Earliest of All being one day ahead. Sixty-three kinds were put in May 12. The twenty-one days earlier planting gave from six to fourteen days earliness of crop. Details are presented showing marked advantage in saving for seed the pods that ripened soonest.

The Pea may justly be styled the king of vegetables, and Thomas Laxton the prince of Pea raisers. Five of his Peas grown here this season are simply unique. Gathered young, they are tender and delicious. The varieties in question are Earliest of All, William I., John Bull, Standard, and, lastly, Omega, with its deep green Peas. It possesses extraordinary cropping qualities, grows 4 feet high, and the Peas literally hang in profusion from top to bottom.—R. GILBERT, Burghley, near Stamford.

Tubers on Potato haulm.—I send a very curious (and, to me, unique) freak of Nature, which was shown to me by my friend, Mr. F. W. Newton, of Barton Grange, near Taunton. You will see that the haulm has produced fully developed Potatoes on nearly every axil, some of them of considerable size. It was grown in the garden of Dr. Cotton, and, besides these, there were a dozen well-grown tubers at the roots. I have seen this in the case of some bulbs, but I never have seen it in that of the Potato.—DELTA.

* * * Potato haulm tubers are not at all uncommon, but this season they seem to be more plentiful than usual.—ED.

NOTES FROM HECKFIELD.

Early Pears.—Of really good varieties of early Pears there are but few. When I say good, I mean not only as regards quality of flesh, but keeping qualities also, because what is the use of a Pear if it will not continue a week or a fortnight in good condition after it is first ripe? And, unfortunately, none of the very early varieties possess that property, not even when gathered from the trees at varying intervals. Summer Doyenné, Citron des Carmes, and Belle de Bruxelles decay almost before they are eatable, and Jargonelle is but little better; yet it is a little, as by gathering at intervals of a few days the season of use can be lengthened. Williams' Bon Chrétien is the first early variety of any value in this respect, as it will keep with care for a fortnight after it is fully ripe; but the best of all, I think, is Beurré de l'Assomption; it comes into season simultaneously with Williams' Bon Chrétien, but keeps in a cool place for about a month after coming into use, and is always of superb quality, though it lacks the rich aroma of the Bon Chrétien. These two kinds I consider are the only very early Pears that are worth growing, as it surely is better to wait a week or two longer and have good fruit than to risk the disappointment consequent on having it earlier and worthless.

Early dessert Apples.—Very early kinds of dessert Apples are closely related to early Pears in respect of bad keeping properties, and, therefore, but few should be grown. I should say about two kinds are ample, and these should be Devonshire Quarrenden and Irish Peach; both these kinds will keep in fair condition for a month after coming into use, but Early Harvest and Early Julien go "sleepy" almost as soon as they are eatable. The next best to succeed the two first named kinds are Margaret, Kerry Pippin, and Summer Golden Pippin.

Early Peaches.—The more one thinks over this subject of early maturing of fruit, the more are we driven to the conclusion that earliness is only to be had at the expense of quality and keeping properties; as with Apples and Pears, so it is with Peaches. Early Louise, which we gathered from the open walls three weeks ago, is all but worthless; indeed, it seems to have degenerated, for we had it of fair quality for a year or two after it was first sent out; now it is only fit for tarts. Early Beatrice is a trifle better, but too small; Early Rivers is much better, but often ripens prematurely by reason of imperfect stoning. Rivers' Early York and Condor are the best early varieties for outdoor culture; then comes Hale's Early, a variety we are now gathering, the quality, size, and colour being first-rate. I hear good accounts of the new American Early Alexander, and hope to test it for myself next season.

Mildew on Roses.—Hereabouts vegetation is suffering from drought, more so than for nine or ten years past, and therefore it is no wonder that to-day (August 27) we have observed the first appearance of mildew on Roses—a parasite that we have not been troubled with since adopting the practice of lifting the plants and trenching, and heavily manuring the soil every alternate year, simply, as I believe, because the plants, owing to such treatment, have never felt the want of water till the present exceptionally dry and scorching weather. The curative treatment is, therefore, plain, viz., abundant waterings

and surface mulchings of manure, and dustings with sulphur over the affected parts of the plants.

Sedum spectabile.—This is too easy to grow to be duly valued. Were it a stove or greenhouse plant, it would be prized as one of the best among them, if not for its beauty, certainly by reason of the long time it continues in flower. Personally, I prize it very highly as a plant alike suitable for herbaceous borders, shrubby clumps, for lawn planting, and bedding out. For the latter purpose I consider it quite indispensable, particularly for intermixing with plants that flower early in the season, and that get "weedy" looking about this time, when the *Sedum* is in full glory, and which continues so for at least a month, sometimes for six weeks. We have a long row of it planted 2 feet apart, and between the clumps are *Ageratums*, *Pelargoniums*, *Violas*, and *Lobelia*, which kinds of plants as soon as we get rain will begin to look untidy. Then will the *Sedum* do good service by way of keeping up the gaiety of the border.

W. WILDSMITH.

NOTES.

Spring bulbs.—Next March or April some thousands of people will be delighted with the golden and bicolor or Hoop-petticoat Daffodils, with the rich blue of *Scilla sibirica* and the bright stars of *Chionodoxa*, and there will be exclamations of "Oh! how beautiful," or "I wish we could have these lovely flowers in our garden." It may interest many to know that now is the best time to obtain bulbs for pot culture or for planting out in the open air for next season's flowering. All the best kinds of Daffodils are easily grown in pots; all they want is shelter in the greenhouse, any great amount of heat being fatal to their beauty. Potted now and buried in ashes near a north wall, the bulbs soon produce roots and can be brought out into a cold frame or placed in the greenhouse as soon as the pots are filled with roots. The following are good varieties for pot culture: *Narcissus maximus*, major, bicolor, *Horsfieldi*, princeps, *obvallaris*, *Bulbocodium*, *odoros*, *Jonquilla*, and any of the *N. Tazetta* or *polyanthos* (bunch Daffodil) groups.

Bocconia cordata is handsome alike in foliage and flower, and contrasts well with tall blue *Delphiniums*, scarlet Turk's-cap Lilies, and the bold golden-fringed flowers of *Telekia speciosa*. Planted alone in bold masses, it forms one of the most effective of all hardy sub-tropical plants, and seems to grow freely alike in all deep rich soils. In some collections it is known as *Macleaya cordata*. It is by far the largest growing and best of all the Poppy Worts so far as foliage effects are concerned.

An Indian summer.—After the rude winds and drenching storms of July this hot August weather is a welcome change, and garden flowers, as well as field crops, will have benefited much by the genial sun-heat and cloudless sky. Rain-drenched Poppies and bedraggled Lilies are now as radiant as ever, and the warmth and light and fragrance of newly opened blossoms come back to us as a sort of second harvest. Gladioli and Lilies are now most showy, and the single Dahlias promise us much autumnal beauty. Bees and butterflies alike rejoice in the sunshine, where the great rosy heads of *Eupatorium cannabinum* grow, and the wasps have made short work of the ripe Jargonelle Pears. This warm, dry, sunny time is most opportune for the due ripening up of hardy bulbs and fruits, and enables one to wage a relentless war upon the great army of weeds. Dahlias, Sunflowers, and Japan Anemones are suggestive in their abundance, and the glow of red on the Virginian Creeper also reminds us that autumn is once more upon us; but let us make the most of our "Indian summer" all the same.

The Tiger Flowers.—The garden at evening is most lovely, its shadows and perfume alike enjoyable, but there is in its early morning bright-

ness an equal, if not superior, charm. There is brilliancy of colour and a freshness in opening bud and unfolding leaflet in the early morning most enjoyable, and it is then that these Tiger Flowers are most gorgeous and their "dewy freshness all unworn." These flowers are of the Morning Glory group—heralds of the opening day, and are hardy in most localities if planted in pure sand under the shelter of a sunny plant house wall. The white variety (new last season) is a great beauty, far more pleasing, as I think, than are *T. Pavonia*, *T. grandiflora*, or *T. conchiflora*. Even the fact that they more than rival the Day Lilies in their fleeting lives is not so great a drawback, since every morning gives us a fresh supply of newly open flowers. For real glow of colour and grace of form there are but few, if any, stove Orchids that rival these Mexican Tiger flowers. Here with us they form large clumps in front of a greenhouse wall and are never disturbed.

Lemoine's hybrid Gladioli.—Some of the new kinds of these recently sent to me from Belgrove, near Cork, are very beautiful. M. Lemoine himself considers *Enfant de Nancy* his finest seedling. It is vivid scarlet in colour, dark and velvety on the three lower segments, and brilliant and showy, although the flowers are much smaller than those of some others. *Christophe Colombe* is a soft rosy salmon flower, yellowish inside with maroon markings on the bottom segments. *Cleopatra* is of good size and exquisite shape, of a clear bright salmon-rose colour, having well-defined Indian red blotches on the lower segments. With the above comes a bloom of *Deleuil's Zelle*, a shapely flower of a rose-magenta shade, the lower petals being blotched with bright red on a white ground. To my mind none of these surpass Lemoinei and Marie Lemoine in distinctness, although undoubtedly a wider range of colour has been obtained by recrossing these first hybrids with the florists' varieties. As the result these newer hybrids can scarcely be distinguished from ordinary seedlings when individual flowers only are compared. It remains to be seen whether the grace of habit and hardihood so characteristic of the first hybrid *Gladiolus* of the *G. purpureo-aureatus* race is possessed by these more recent novelties; if so, then they will be very desirable in all good collections of hardy flowers.

The blue Passion Flower.—*Passiflora cœrulea* is now flowering quite freely on sunny walls, and some of its long trailing shoots have been allowed to ramble untrained over some low growing *Cotoneasters*, so that the flowers are quite near the eye. It is quite hardy on dry soils near the sea, and in many places its fruits quite profusely, each fruit being the size of a hen's egg and of a soft golden tint. When seen in quantity dangling amongst the dark foliage, these fruits are even more conspicuous and ornamental than the blossoms which preceded them. I saw a plant of this Passion Flower the other day over which *Tropæolum speciosum* had hung its flaming wreaths of scarlet, and the effect was very pleasing, the effect being heightened by a large clump of snow-white *Phlox* growing near at hand. Wherever graceful-habited climbing plants are admired this blue Passion Flower should have a place on a bit of sunny wall.

Helleborus argutifolius.—This is perhaps of all the Hellebores the only one which is at all times of the year not only presentable, but absolutely ornamental. Its great serrated leaflets are now very effective on the borders among flowering herbaceous plants of various kinds, but it is during the winter months when each leafy shoot is terminated by a great mass of bright apple-green blossoms that the plant may be said to be at its best. Its flowers, albeit viridescent, are of such a clear and pleasing shade, that they may be arranged with the choicest of exotic blossoms, and as used in bouquets with *Eucharis*, Lilies, and Roman Hyacinths, we heard them much admired last season, although no one present

could tell to what plant the flowers themselves belonged. *H. argutifolius* is easily raised from seeds sown now, and flowers the second year after sowing.

Jackman's Clematis.—This well-tried old variety is of all garden Clematises perhaps so far the best for general decoration. It grows freely in rich deep soils and is at home everywhere in beds or borders, on wires or other trellis work, or on old tree stumps, dead bushes, or as trained on walls. The other day I saw a plant of it which had been planted along with the silvery-leaved variety of *Acer Negundo*, and the effect was very pretty; but on a wall, along with golden-leaved Ivy, the plant is still more showy, and in Battersea Park it is effectively combined with bushes of the golden-leaved Elder. Now, of course, we shall all be very anxious to secure the white-flowered *C. Jackmanni alba*, for which Mr. Noble received a first-class certificate at South Kensington quite recently. Planted together, the purple and white forms would be most charming. How rarely now-a-days do we see the double variety of *C. Viticella*, which is most floriferous and of a mouse-coloured purple hue.

Galtonia candicans.—It seems to be generally thought that the name *Galtonia* should supersede that of *Hyacinthus*, as applied to the autumn spire Lily. It is now a well-known and much-admired plant in all good gardens. I think it was Mr. Cooper who discovered it or who introduced it from the Cape to the late Mr. Wilson Saunders' collection, and I have somewhere read that it naturally grows in very light and loose soil—so light and open indeed that in collecting the bulbs the hand could be thrust down quite easily to the depth of a foot or so where the bulbs were. This contains a hint for cultivators, some of whom have now and then complained to me of the failure of imported bulbs. Here a hole is dug a foot deep and three bulbs placed therein on a layer of coarse dry sea sand; more sand is placed over the bulbs, and the holes are then filled up with leaf mould instead of the ordinary soil. So treated, not one good bulb in fifty will fail to grow and flower.

Calceolaria chelidonioides.—This is a very pretty little annual species, quite hardy in our climate, and just now bearing a profusion of its pale, clear, yellow flowers. Once introduced, it sows itself, and will grow anywhere, even on a moist gravel walk. It has pinnate foliage, and is now and then met with under the name of *C. pinnata* in gardens, but erroneously so, as it is quite distinct from, and a much more showy species than is the typical *C. pinnata*, figured in the *Botanical Magazine*. *C. chelidonioides* grows about a foot in height, and flowers until the frosts of November cut it down, to reappear from its self-sown seeds the following summer. Being so neat and hardy, I made many attempts to cross it with other species and varieties, but never succeeded. But I must not complain, as this plant was really the cause of my crossing *C. fuchsifolia* with pollen of *C. Pavoni*, the result being a pretty winter-blooming hybrid which has been grown by Messrs. Cannell and others as a useful decorative plant.

Yucca flaccida.—Of all the Yuccas this, as a flowering plant, is by far the best—indeed, as I sometimes think, it is the only one worth growing. It is now very pretty, throwing up its stout spires of white bells everywhere. We plant it in clumps and masses in nearly all positions, but it grows and blooms best on rockwork or in dry, sunny borders. It comes in well with the blue *Campanula pyramidalis* and Lilies of the auratum and tigrinum types. A bold mass of this Yucca is most effective as contrasted with *Clematis Jackmanni*, or as seen beside large masses of rosy or crimson *Phloxes*. It is quite easily increased by dividing large masses into separate crowns, and replanting in good, deep soil during the spring months. The fleshy stems, if cut into pieces and

buried at the foot of a sunny wall, will also grow and soon attain the flowering stage.

The Silky Lady's Mantle, or, as some call it, the Silky Leaf, is *Alchemilla sericea*, which I need scarcely say is quite a different thing from the Silver Weed or Goose Grass (*Potentilla anserina*), alluded to at p. 165 by "J. D." Then the Latin name of the Silky Lady's Mantle was given twice in the paragraph alluded to by "J. D." at p. 5. As to the distinct habit and great leaf beauty of the Silver Weed, there can be no doubt whatever, and when grown in a hanging basket in a sunny window it becomes scarcely recognisable as the wayside weed on which so many tread without a thought. As a plant for window culture it is quite as interesting as either Toad-flax (*Linaria Cymbalaria*) or Creeping Jenny (*Lysimachia Nummularia*). It is singular that we should neglect the culture of our own beautiful wild flowers to such a great extent as we do, while at the same time so anxious to cultivate the beautiful weeds of other countries.

A good garden library.—A gentleman well known as an enthusiastic lover of garden flowers has sent me a list of the books which he finds most useful for reference anent the same. The list will be interesting to readers of *THE GARDEN*, as nearly all the works alluded to contain coloured figures of the most beautiful garden plants which have been introduced during the past century.

	Vols.
Curtis' "Botanical Magazine"	108
Edwards' "Botanical Register"	33
Regel's "Gartenflora"	31
Morren's "Belgique Horticole"	32
"Illustration Horticole"	28
Van Houtte's "Flore des Serres"	21
Loddiges' "Botanical Cabinet"	20
Paxton's "Magazine of Botany"	16
Maund's "Botanic Garden"	13
"Iconographie des Camellias"	12
"Revue de l'Horticulture Belge"	8
"Nouvel Duhamel Dumonceau"	8
Sweet's "British Flower Garden"	7
Andrews' "Botanist's Repository"	8
Sweet's "Monograph of Geraniaceae"	5
Maund's "Botanist"	5
Lemaire's "Jardin Fleuriste"	4
Jacquini's "Hortus Schonbrunnensis" (folio)	4
"Sertum Botanicum"	4
Sweet's "Monograph of Cistinieae"	1
Jacquini's "Monograph of Oxalis"	1
Hooker's "Himalayan Rhododendra"	1
Cathcart and Hooker's "Himalayan Plants"	1
Bateman's "Monograph of Odontoglossums"	1
Elwes' "Monograph of Lilies"	1
Wooster's "Alpine Flowers"	2
Royle's "Illustrations"	1
Mrs. Loudon's "Lady's Bulb Garden"	1
Mrs. Loudon's "Hardy Annuals"	1
Mrs. Loudon's "Hardy Perennials"	1
Mrs. Loudon's "Greenhouse Plants"	1
Meehan's "Native Plants of America"	4
Sweet's "Flora Australasica"	1
Sweet's "Florist's Guide"	2
Siebold and Zuccarini's "Plants of Japan"	2
Bateman's "Second Century of Orchids"	1
"Wild Flowers of Switzerland"	1
Anne Pratt's "Native Plants and Ferns"	6
Burbidge and Baker's "Monograph of Narcissi"	1

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Proscribed colours.—I wonder how it is that fashion now and then proscribes certain colours and shades in the garden as elsewhere. It is not so many years ago since yellow flowers of all kinds were practically under taboo. No one liked them, and they were rarely used indoors. But the "bedding-out" mania brought the yellow *Calceolaria* into prominent notice; then Maréchal Niel Rose came with its own most exquisite shade of colour, yellow certainly, but so soft and pure that no one could dislike it, and then, later still, a great love for all the Daffodils came like a tornado. A host of golden Daffodils took possession of our gardens, and found none bold enough to say them nay. More lately still golden Marguerites and Sunflowers have been introduced, or reinstated, and to-day of all colours yellow is of all others the most fashionable. But, wide as is the taste of to-day, I find that that particular and once much admired shade of clear purple-red or lake known as magenta is now under a ban. Ladies will not look at flowers of this shade, and

shudder if you mention it by name. Perhaps magenta is a little glaring and tiring to eyes trained to appreciate the subtleties of colour-beauty; but this does not explain why of all other glaring shades of red, magenta alone should be banished from sight and tongue alike. Dr. Foster tells us some of his most dingy settling Iris have been much admired. Is this merely fashion, the result of "high art" chatter? or is there a law beneath these anomalies?

The Blood Flowers.—No doubt certain kinds of flowers are periodically doomed to neglect in our gardens, just as we have shown is also the case with certain colours, and among other Cape bulbs none have been worse treated in this respect than the different species of *Hæmanthus*, all of which are interesting, many being very showy and beautiful. *H. coccineus* and *H. puniceus* are now both in flower, and both merit culture, all they require being a sunny position in a sunny greenhouse. A still more showy kind from the west coast is *H. cinnabarinus*, introduced some years since and beautifully bloomed by the Hon. and Rev. Mr. Boscawen, of Rhododendron fame. Then Messrs. Veitch sent out *H. Kalbreyeri*, another showy species, and more recently Mr. Barr's *H. Katharineæ* attracted much attention, as also *H. albiflos* and two or three others of less note. Some require heat and attention as to dryness during the resting season, but practically the treatment accorded to *Amaryllis* and *Nerines* suits these plants exactly, and anyone with a greenhouse or a sunny window even might venture to grow *H. coccineus*, *H. puniceus*, and *H. albiflos* with every hope of success.

Pancratiums.—Amongst stove bulbs, after we have for the nonce excepted that pale Amazon Queen *Eucharis*, we have none more useful or of greater beauty and fragrance than these South American *Pancratia*, or *Hymenocallis*, as they are now called. *H. fragrans*, *H. macrostephana*, and *H. caribbæa* are now blooming with us, and their pearly white blossoms are most useful for choice bouquets, along with pearly *Jasmine* buds and flowers, enwreathed with sprays of Cape Asparagus (*A. consanguineus*). The culture of these *Hymenocallis* (*Pancratiums*) is of the easiest. All they require is a warm greenhouse or stove temperature—a shady position suits them best—and when they are making their growth a little sheep manure water is a great help to them. Artificial manures do not suit these plants. Like *Amaryllis* and *Vallotas*, these *Pancratia* never do so well as when pot-bound, and all we do here is to top-dress the soil now and then, or, if repotting is necessary, we use the same sized pots again, rarely giving a shift. The three kinds above mentioned should be grown wherever choice and sweet white flowers are required for decorative uses at this season of the year.

The Garland Flower.—So many novelties now demand space and care, that it is perhaps but natural that old favourites like *Hedychium Gardenianum* are not so often seen as was formerly the case. When well grown this old plant is very effective both when in flower and also in fruit. Even its noble habit of growth and bold leafage render it worthy of culture. A warm, airy greenhouse temperature suits it best. It is hardy indeed in warm localities on dry soils with but little protection. Planted out at the foot of a warm wall, it grows here, but does not bloom. When well grown both this species and the sweet-scented *H. coronarium* deserve a place indoors; the latter is especially desirable, as its blossoms are so large and fragrant, and even when not in bloom, both species are useful "furnishing" plants, which soon recover their beauty, even if harshly used. Potted in turfy loam and manure, *H. coronarium* grows 6 feet in height, flowering from the apex of every growth at nearly all seasons.

Venidium calendulaceum.—Among all annual composites this is one of the best for open-air culture or for cut flowers. The flowers are

3 inches in diameter, something like those of a *Calendula*, but of a brighter and richer shade of orange-yellow; *Gazania*-like, however, its blossoms only open out to the sunshine. On dry, warm soils it does not make much leafy growth; in fact, becomes a mass of wild blossoms. It was one of the "good things" recommended to my notice years ago by Miss Hope, of Wardie, and when Herman Wendland called to see our old garden it astonished him very much. Seeds sown in March on a gentle hot-bed are now plants 2 feet in diameter. It is of a neater, dwarfer, and more spreading habit than the *Marigolds*, and is really well worth cultivation more generally than is now the case. At Gunnersbury I saw it most brilliant a year or two ago along with those showy, dwarf, free-blooming *Scabious* (*Widow Flowers*), which are likewise too much neglected. Seeds of *Venidium* may be obtained at most seed shops. Ours came originally from Mr. Thompson, of Ipswich, among other "good things" not generally known.

VERONICA.

GARDEN FLORA.

PLATE 403.

ELÆOCARPUS CYANEUS.*

A COMPACT-GROWING, free-blooming, very sweet-scented plant, well suited for greenhouse cultivation, and easily kept in health. We have recently seen several specimens of this species, both at Kew and elsewhere, clothed with pretty drooping, deeply fringed flowers, and surrounded with a most delicious fragrance. The blooming period for this plant extends over two or three months of the summer, and is followed by a thick crop of bluish berries like small Sloes, and which are in themselves very attractive. Taken altogether, this plant is deserving of a much more prominent position as a garden plant than it appears to occupy at present. It reminds one of an old favourite greenhouse plant, viz., *Clethra arborea*, but surpasses it in its crop of ornamental berries and the pleasing fragrance of its flowers. Although there are about half a dozen specific names attached to this genus in gardens, they are capable of being reduced to two, viz., *E. dentatus* and the subject of our plate. Altogether there are some fifty species of *Elæocarpus* distributed over Tropical Asia and Australia. Many of them are found in India, where they form beautiful trees, bearing in many cases racemes of berries as large as a Black Hamburgh Grape. The freedom with which they produce their flowers in a young state renders them available for pot cultivation, and where room can be spared for them to develop themselves, they form handsome evergreen shrubs when planted out in a greenhouse border.

E. CYANEUS is an old garden plant, having been cultivated at Kew and elsewhere eighty years ago. Its foliage is very leathery in texture, and the nerves are conspicuously reticulate. The flowers are pure white, and each petal is divided into about a dozen acute lobes, which give the flowers a most delicately fringed appearance. The figure in the *Botanical Register* named *E. reticulatus* is *E. cyaneus*. It is a native of Australia, about Queensland, New South Wales, and Victoria.

E. DENTATUS is an Indian species, distinguished from the above by its brown bark, the silkiness of its branches when young, and the silky down which clothes the underside of the foliage. The flowers are smaller than those of *E. cyaneus* and not so deeply fringed.

THE PROPAGATION of these plants may be effected by means of cuttings, which strike freely

* Drawn at Kew in May last.



at any season of the year, or by sowing the berries in the spring, when they germinate freely and grow quickly into flowering plants. A loamy soil suits them, and plenty of water should be given at all seasons of the year. An ordinary greenhouse temperature will be found suitable for them. B.

SEASONABLE WORK.

FLOWER GARDEN.

VERONICAS.—Nearly all the hardy herbaceous species of these are worthy of cultivation, and several of them of prominent positions in mixed flower borders. The handsome shrubby kinds, too, are very desirable, their compact growth and long flowering season rendering them indispensable. The following are a few of the best kinds for planting as single specimens or in groups of three: *Andersoni* and its variegated form (both shrubby), *azurea*, *crassifolia*, *grandis*, *leucantha*, *longifolia*, *pinnatifida*, *rupestris*, and *Teucrium*. The dwarf spreading kinds, such as the two last named, are excellent for carpeting the ground beneath taller kinds, also for rockery planting. A few are useful for "carpet bedding," such as *incana*, a white-leaved kind, and the trailing green kinds, like *alpina*, *heterophylla*, *orientalis*, *prostrata*, and *repens*. All may be increased by cuttings from the young shoots. And most of the herbaceous species easily by division of roots.

PROPAGATION.—So far as regards the tender section of plants, it is of the utmost importance that the necessary stock of cuttings be put in forthwith. The soft-wooded tender kinds require a bottom heat of 80°, to produce which leaves and stable litter are best, and the cutting pots to be plunged in it, which, soon as the cuttings are rooted, should be transferred to an intermediate temperature, but with no bottom heat. It is now too late to put in cuttings of *Pelargoniums* in the open border, as advised a few weeks since; they should, therefore, be put directly into boxes and be fully exposed to the sun until the nights become too cold to risk them out, then they must be given ordinary frame treatment. *Calceolarias* are best struck in cold frames, and should be shaded and kept rather close till the cuttings are rooted, but afterwards be fully exposed to the atmosphere. Cuttings made from the young shoots of *Pansies* and *Violas* will strike readily without any protection; a north border having the protection of a wall is the best place, and any kind of light sandy soil will do provided the cutting be made firm in it. Of course, if pits or frames are at command, preference should be given to striking them in these that protection may be afforded the plants in the event of its being needed by the severity of winter. The new white *Viola*—Mrs. Gray—has done well with us, and is worthy of being classed as one of the most valuable of white-flowered bedding plants. True Blue and Yellow Dwarf are also first-rate new kinds, the best old varieties still being Blue Bell, Mulberry, and Snowflake. Hardy *Sempervivums* are best propagated by offsets, which are now to be had in abundance; plant them firmly at distances according to size on any dry bank or border, well water them and protect with netting to prevent them being pulled up by birds. The tender kinds must be increased by cuttings, which strike best on exposed shelves in houses or pits. The offsets from *Echeveria secunda* we strike and winter by building them up in the soil against the walls of the fruit and plant house; but in cold districts frames are necessary to successful wintering, and in such case it is best that the offsets be placed in frames at once. All other kinds of bedding succulents need warmth, not a moist warmth, to insure a good strike.

GENERAL WORK.—This consists in keeping plants in neat condition by removing bad flowers and pinching and stopping to preserve the outlines of the designs of carpet beds. Tall and top-heavy plants should be supported by ties and stakes; climbers also should be regulated and

their fastenings examined; Roses be kept free of old blossoms, and lately budded Briers be examined as to the ligatures, some of which may need to be slackened, and others, those on which the buds are growing well, be removed altogether, and the stocks kept free of Brier shoots. The season for planting shrubs and trees being at hand, preparation should be made for the same by getting together the necessary soil and implements. After the first heavy rain the sooner evergreens are removed the better they will succeed and will get so thoroughly established in the soil before spring that watering will not be needed, which labour is inevitable in all spring planting. Mowing lawns, sweeping and rolling walks after rain, the cutting of turf edgings, and the keeping down weeds in shrubberies come, of course, in the daily routine of garden work.

INDOOR PLANTS.

PROPAGATING STOVE PLANTS.—Almost all stove and intermediate temperature flowering and fine-leaved plants that can be propagated from cuttings may with advantage be put in to strike now, providing there is enough heat at command through the winter to keep them growing slowly, for without this they are apt to get into a stunted condition. The gain of propagating such things now instead of in spring is that plants so raised have a long start of spring-struck stock, and those that flower naturally in a young state will bloom much better next summer from autumn-struck cuttings than those propagated in spring. Amongst flowering plants the kinds advisable to strike now are *Ixoras*, *Clerodendrons*, *Allamandas*, *Dipladenias*, *Vincas*, *Aphelandras*, *Centradenias*, *Bougainvilleas*, *Hibiscus*, *Hoyas*, *Lasiandras*, *Meyenias*, *Medinillas*, *Toxicophlæas*, *Hexacentris*, *Tacsonias*, *Scutellarias*, *Rondeletias*, *Aristolochias*, *Ardisias*, *Gardenias*, *Francisceas*, and *Pentas*.

OF FINE-LEAVED PLANTS that can also be struck now are *Terminalias*, *Sonerilas*, *Pothos*, *Dracænas*, *Crotons*, and *Cissus*. All that is necessary in each case is to secure shoots that are in the right condition, neither too hard, nor, on the contrary, too young and soft. At this season it will generally be found best to place each cutting in a single small pot, which should be half filled above the drainage material with loam or peat, according to the particular requirement of each kind in its preference for one or other of these soils, filling up the pots with sand. By thus putting soil of a substantial nature in the bottom of the pots, the young plants will have something to support them even if they are not shifted on before winter. A good brisk heat should be used so as to get the cuttings rooted with as little delay as possible, after which they ought to be fully inured to the light and air that is given to the other occupants of the house. Not the least gain of doing all such work now is that it relieves the pressure of other matters at the busy season.

EUCHARIS.—This useful plant can be so managed as to make growth or flower at almost any time, supposing the bulbs are strong enough. A short rest, either by keeping the plants as dry as they will bear for a few weeks without injuring the leaves, then giving water with a little more heat, will generally throw them into flower; or after a reduction of temperature and little water for a time they will usually throw up freely when returned to heat. Where there are large specimens composed of a number of bulbs of various sizes, if the whole are shaken out of the soil, and the strongest are repotted together, as they should be, the operation usually causes them to flower freely. When this is done it is well to put the smaller bulbs, according to their different sizes, four or five together, in pots just large enough to accommodate them. This will be found better than crowding great numbers together. Where large specimens are required all that is needful is to keep continually moving as needed into larger pots without disturbing the bulbs more than necessary. When the intention is to grow large specimens, the plants should be shifted on when

ever they want more pot room, not deferring the work to any particular season, as usual with most other plants, *Crinums* and *Pancratiums*. As a matter of course, the time of active growth is regulated by their flowering season. Such as are yet growing should have every encouragement, so that they may get well ripened before winter. In the cultivation of these plants exposure to full light at all times is all important. The mistaken practice of stowing them away under stages, or letting them suffer under the shade of other plants, is the general cause of failure.

VALLOTA PURPUREA.—A sufficient stock of this useful autumn flowering bulbous plant should exist where there is a conservatory to be kept furnished with blooming plants. With a sufficient number to fall back upon by keeping a portion of the plants at an ordinary greenhouse temperature all through the spring, with others a little warmer, such as on a shelf in a mid-season vinery, a succession of flower may be had from the beginning of August up to October. Those that have bloomed will now do to be kept drier at the roots, but having evergreen leaves the soil must never be let to get too dry, and instead of being thrust out of the way after flowering, as is not unusually done, the plants should occupy a greenhouse or pit, fully exposed to the light and air; so treated they will get well ripened, on which their blooming well next year much depends.

LILIES.—All Lilies in pots that have done flowering should have the soil kept fairly moist so long as the leaves continue green, and where any require repotting it is no bad way to shift them as soon as all vitality has left the top. If this plan was strictly followed with all pot Lilies, the work would not be delayed until the bulbs have begun to make new roots, the injury to which through removal is the cause of many failures that occur in the pot culture of Lilies. Young plants of the noble *L. giganteum* that are intended to bloom in pots must not during any period of their growth be kept too much confined at the roots, or the result will be small size and a deficiency of strength at blooming time. Although hardy and thriving well in the open ground in some places, this stately plant will grow to a much larger size, and produce a greater quantity of flowers under liberal pot treatment. When so managed and well cared for, it is one of the noblest objects that can be used for conservatory decoration. Strong plants for next year's blooming should be placed for the winter in about 12-inch pots, and then moved on into others considerably larger.

TRITONIAS.—If the cultivation of these handsome free-flowering bulbs was more extended, they would do something to relieve the monotony too often existent in greenhouses at this season. The orange-coloured variety is best known, but there are several others worth growing, varying in shade from white to pink, with others combining red and yellow. All are easily grown, simply requiring under pot culture not to have the pots allowed to become too much crowded with bulbs (which results in their getting too weak to bloom well), keeping the drainage right, never allowing them to get dry at the roots either in the early stages of growth or after blooming whilst the leaves are fresh. To guard against slugs, to which the foliage is favourite food, the plants through the growing season should be plunged in a bed of sifted coal ashes. If a portion of the stock has been kept through the early part of summer at the north side of a wall, they will come in after those that have been exposed to the sun.

EARLY-FLOWERING HYACINTHS and other bulbs should be procured without delay. On potting Roman Hyacinths and Tulips early depends the possibility of having them in bloom early. Where white sweet-scented flowers are largely in demand about the end of the year, there should be no stint in the number of Roman Hyacinths, for, as is well known, it is one of the best forcing plants grown. It can be used for all purposes, including bouquet making, for which Lily of the Valley can be em-

ployed. At this season the pots containing the bulbs are best plunged in coal ashes or Cocoa-nut fibre in an open situation fully exposed to the sun. Under such conditions the bulbs will naturally make roots more quickly than where there is less warmth, and upon a sufficiency of roots being made before forcing begins depends the ability of the bulbs to flower well.

ORCHIDS.

EAST INDIA HOUSE.—Phalænopsids are still growing freely, and require abundance of heat and moisture. Many fail to grow these charming Orchids well, the reason of which is probably attributed to the plants being too much exposed to the light. They require plenty of heat, shade, and moisture. They do admirably in the warmest houses of Messrs. Veitch, and also in those of Messrs. H. Low, but at neither place have any particular arrangements been made for them. The growth the plants make during the season at these places is remarkable; consequently they flower well. The new *P. violacea* succeeds well with the same treatment as the others. The new *P. Stuartiana* is worthy of being named with the best. If possible, the plants should be placed near the glass and plenty of water applied. They succeed best in teak baskets, but they also do well in shallow pans.

SACCOLABIUMS also like plenty of heat and moisture at this season, but not quite so much shade as the Phalænopsis. The plants are now pushing roots very freely, and they must be watched in order that no slugs or other pests attack them at night. Like nearly all our other Orchids, these are liable to be attacked by thrips, which get into the centre of the plants and discolour and injure the leaves if not removed. Late imported plants of *Dendrobium Wardianum* and crassinode, which have not completed their growth, must still be left in the warm house until their growth is perfected. The early flowered and established plants have been removed into a cooler house, and even those that flowered as late as May and June have made their growths. Still maintain a high temperature and moist atmosphere in this house, but as the season advances less shade will be necessary.

CATTLEYA HOUSE.—The plants in this house are still making their growth, and consequently they require the same treatment as formerly advised. As many of the plants will have their flower-sheaths in a half-formed state, it is very desirable that attention be paid to such, in order that none of the plants may be injured by water dripping into the leaf. There are very few Cattleyas in flower now, and one values all the more the lovely forms of *C. Eldorado* now in flower. The varieties of *C. Trianae* are equally or perhaps more valuable for supplying us with lovely flowers at the dull season of the year; the flower-sheaths are now either fully formed, or in course of development. Place the plants near the light, and keep them moderately dry at the roots. If they are over-watered they will not remain long in good health. *C. gigas*, if it has been grown and flowered in the warmest house, should be placed in the cool end of the Cattleya house and be kept dry at the roots, or at least as dry as possible without allowing the plants to suffer. Everything in the houses should be kept neat, and the plants must also be kept quite clean. Some persons allow weeds, and even the live Sphagnum on the surface, to grow up and smother the bulbs, while the pots are foul with green mould; under such management no wonder if slugs and other insect pests abound.

COOL HOUSE.—As most of the hot weather is passed, the plants will not suffer from an excess of sun-heat, but due attention must be paid to ventilating. If necessary to repot any plants, now is a good time, so that they may be established before the cold weather sets in. All, or nearly all, the plants in this house require plentiful supplies of water, and this must be thought of when repotting the plants; therefore put in plenty of drainage, and use a plentiful proportion of pot-

sherds and broken charcoal amongst the tough fibrous peat and Sphagnum. After repotting the plants, especially if they have been divided, the house should be kept close and moist until fresh roots are formed. Keep a sharp look out for green fly on *Masdevallias*, and also on the unopened blooms of *Odontoglossums*. If the fly gets into the blooms they sadly mar their beauty. Red spider gets on the leaves of *Odontoglossums* as well as thrips, and it is best to sponge it off at once with soapy water.

FRUIT.

FIGS.—When the early forced trees have been cleared of the second crop of fruit they will derive great benefit from full exposure to the elements for a period of from four to six weeks. If the trees are too large for removal to the open air, the roof lights may be taken off, repaired, and painted in time for the paint to get well hardened before forcing is again commenced. In order to give the trees the full advantage of complete rest all the unripe fruit must be rubbed off the shoots, the foliage thoroughly cleansed with the garden engine, and to prevent them from going too suddenly to rest, some kind of covering in the way of Fern or litter will be needed to protect the roots from sun and air. Maiden trees which have not hitherto been forced if properly managed will now have all the points of the shoots thickly studded with embryo Figs almost too small to be perceptible, but sure to come forward if the wood is well ripened and a decided rest is given to them until the end of October when they may be placed in position and kept perfectly at rest until the times arrives for applying fermenting material to the roots.

Succession houses from which the second crop is now being gathered will require more dry air and less atmospheric moisture to counteract the influence of damp, at all times the greatest enemy to ripe fruit, but most particularly to that of the Fig. The roots must not, however, be allowed to feel the want of good stimulating liquid, as anything approaching a check will bring about a speedy termination to the producing powers of the trees, and where a good late house or wall case for carrying on the supply does not exist, this event just now might not be desirable, as outdoor fruit, with the exception of Peaches and Nectarines, is by no means plentiful. Since the beginning of August we have been gathering very fine fruit from a Brown Turkey in a cold house to which fire heat has not been applied this season, but hot-water pipes are there, and gentle warmth will be given when the proper time arrives.

PINES.—The present month is a favourable time for getting the different batches of Pine plants together, as far as constantly varying conditions will admit, for the winter. All starters or probable starters will, of course, go into the fruiting house, which, by the way, should be thoroughly cleared out to the very bottom of the plunging pit at this, as being the most convenient time of the year. Cleanliness and freedom from troublesome insects being the first object, scalding and washing with quicklime should precede the introduction of fresh plunging material, consisting of well worked tan or Oak leaves, provided the latter were well harvested last autumn and have been kept dry. If possible, the materials should be thoroughly worked, fermented, and turned over before they are put into the pit, and then, to avoid injury to the roots of the plants, plunging should be confined to placing the pots in a shallow basin, to be filled up when the first violent heat has passed away. Towards the end of the month a few more of the plants most likely to start early should be collected together for undergoing a season of rest, and as these will consist of Queens, Rothschilds, and smooth Cayennes, which were potted last spring, a light airy compartment from which starters have just been drawn should be selected for them. Unless the bottom heat has fallen very low, the plunging material should not be disturbed more than is absolutely necessary, as the movement of an old bed sometimes starts fresh

fermentation, and this might soon injure or destroy the roots now working round the extremities of the balls. Care should, however, be taken that tender varieties like the Queen do not suffer from the other extreme, as the loss of roots from either cause is the sure forerunner of small or deformed fruit. As days decrease in length and solar heat becomes weaker, the general stock of plants from the fruiting house to the sucker pit will require more care and attention to damping, syringing, and ventilation, otherwise growth, which is always rapid in September, will become soft, spongy, and quite unfit for passing through the winter. Atmospheric moisture and fresh air, however, must be judiciously supplied to keep the different structures in a healthy growing state, and when external conditions do not assist, fire heat must be applied. The same rule applies to the supply of water to the roots of the plants; evaporation having greatly decreased, their requirements will be less frequent; but the quantity at each watering should be sufficient to moisten every part of the soil, and keep them in a healthy growing state. The most fatal mistake that can be made is irregular dribblings of water.

VINES.—Where the late houses were assisted with fire heat through the early part of the year, the Grapes will now be well coloured, but still far from ripe; consequently a continuance of gentle warmth with liberal ventilation, until the foliage begins to lose its colouring matter, will be highly beneficial to such kinds as Lady Downes, Gros Colmar, and that invaluable variety Black Morocco, at some places a difficult Grape to manage; but when carefully fertilised, and well fed through the early stages of its growth is undoubtedly the best early spring black Grape we have in cultivation. Unfortunately, some failures, for which the management and not the Grape is to blame, have prevented many growers from introducing it, and the Grape has got a bad name; but as all zealous horticulturists wish to overcome difficulties, the following notes may be of service to those who have not hitherto done so, and wish to give it a trial. Although it does well under Hamburg treatment, it finishes best in an intermediate house. With me the roots are in an internal border on the north side of a Muscat house. All the surplus bunches are taken off before they come into flower, and those left are carefully fertilised for a few days in succession with Hamburg pollen. When set, the border, which is above the floor line and well drained, is heavily mulched with rotten manure, and an abundance of warm, diluted liquid is applied to the roots until the Grapes begin to colour. Watering is then discontinued; and to prevent the berries from cracking, lateral growths are allowed to extend in every direction until the Grapes are ripe. They are then shortened back, treated as any other winter Grape, and bottled in December. If the colouring process in the Lady Downes house has been aided by an unrestricted run of lateral growths, these may now be gradually brought into subjection by the constant removal of the strongest, but at no time must any part of the trellis be divested of a regular spread of the foliage of this excellent Grape which so few grow to its best, because they withhold a little fire heat in the spring, and trust too much to cold, sunless summers. If the Grapes do not show a disposition to colour well up to the footstalks, a moderate supply of diluted liquid at a temperature of 90° will stimulate the interior surface roots into the action which will produce the desired result; but timely resting the Vines at night, not by shutting them up in a cold, damp house, but by allowing a constant current of air to pass through the ventilators, and by keeping the pipes warm, is a very important factor in colouring and laying on the bloom.

MELONS.—Late Melons to be worth eating should be set or setting by this time. Many attempts have been made to have ripe fruit up to Christmas, but all have ended in failure, if not something worse, as a Melon ripened after the middle of October, like a Salwey Peach in November, leaves a bad impression upon the palate, and in unfavourable fruit seasons, which unfortunately

now prevail, this is by no means desirable. When writing some time back, we advised growing all the late plants in pots, so placed that the roots would at once feel the benefit of fire heat when setting their fruit, and again later on when the Melons begin to ripen. Where this plan has been adopted, cold and unfavourable as the season has been, there will have been no difficulty experienced in getting plenty of fruit to set, provided other conditions were favourable. From this time forward give sufficient fire heat to maintain a night temperature of about 70°, with a rise of from 10° to 15° by day, but economise fuel as much as possible by renovating the fermenting material whenever the bottom-heat descends below 85°, and close very early with solar heat and plenty of atmospheric moisture to swell off the fruit. Avoid over-crowding, at all times disadvantageous, by the removal of all spray and laterals, but carefully preserve every old leaf from the rim of the pot upwards, as it is to these we must look for the finish of good fruit, independently of the fact that the ruthless destruction one sometimes sees amongst them is very often the forerunner of canker and premature death of the plants. Let the turning and renovation of linings about pits and frames have ceaseless attention, as good Melons without steady heat cannot be expected. Elevate the fruit well above the soil, as stagnant moisture is the greatest enemy to frame Melons after this time. Keep the foliage clean and healthy by syringing in favourable weather, and flood the beds with warm diluted liquid without wetting the leaves whenever the roots require water. Keep a close watch for canker, to which the tender hairy stemmed kinds are subject. Should any indications of canker appear, sulphur and quicklime should be applied to the affected parts without delay.

INDOOR GARDEN.

PASSIFLORAS AND THEIR CULTURE.

PASSIFLORAS constitute a large family of ever-green climbers, mostly of strong growth, especially such as are strictly stove species. Many of them are only adapted for comparatively large structures; if introduced to small houses it becomes necessary to use the knife to such an extent that little of their true habit and disposition to flower is possible, whilst, on the other hand, if allowed to ramble in a way to exhibit their natural character they all but smother everything else, and, however desirable it may be to see such plants developed to their full extent, it is going further than most people will care when a whole house or division in a range is almost given up to a single plant or two. Where, however, there is sufficient room they rank amongst the grandest of climbing or twining plants. Their cultivation is very easy, as they are generally indifferent to the description of soil their roots are placed in provided it is not too adhesive or too poor; in the former case, from the quantity of water required to develop and maintain their large amount of leaf surface, it would become sour and unkindly, and if too poor, the foliage always looks sickly, and is liable to be infested with insects, which are usually persistent in their attacks on plants not in a free condition of growth. But in avoiding this, the opposite mistake must not be committed of using the soil in too rich a state, as in this case the plants grow so rampant as to be unmanageable; if a little manurial assistance becomes necessary it can be supplied in a liquid state. The Passion-flowers are botanically nearly allied to the Tacsonias; the species here treated of require considerable heat to grow them, being natives of hot countries, such as the warm parts of Mexico, Brazil, Jamaica, and other West Indian Islands. One of—if not the very finest—of the group, *P. quadrangularis*, is from Jamaica; it has ample, deep green, handsome foliage, and very large beautiful flowers, singular alike as the rest of the family in their very strange formation, as well as in the effect produced by their combination of blue, red, and

green; in *P. Buonaparteae*, sometimes grown under the name of the former species, the colour is red, blue, and white.

PROPAGATION.—They strike readily from cuttings made of the young shoots taken off with a heel during the spring or summer, when they have attained a length of 5 inches or 6 inches. Insert them singly in small pots drained and half filled with sandy peat, the remainder sand alone; keep them moist and confined under a bell-glass or in a propagating frame with or without bottom heat. They will root in the course of a few weeks, when the glass may be dispensed with; as soon as the small pots are moderately filled with roots, shift into larger ones. From their free habit of growth, they will bear a larger shift than most things. Six-inch or 7-inch pots will not be too big, placing a stick to support each plant. They will stand a strong heat when there is sufficient length of daylight to warrant its application. 70° to 75° in the night, with a proportionate rise by day, will not be too much, though they will grow, but comparatively slower, with less. Keep them well up to the glass where all the light possible will reach them, using a thin shade during the middle of the day, but not more than is found necessary to prevent the leaves scorching; give air daily more or less according to the state of the weather, syringe freely overhead at the time of closing the house, but not oftener even in the hottest weather, for when carried beyond this it is a practice which I may here allude to as highly injurious to all but a very few exceptionally moisture-requiring subjects; it excites undue growth at the expense of substance and solidity in both the leaves and shoots. Stopping of the single shoots, that each will so far be composed of, must needs be regulated by the purpose the plants are wanted for; if to cover an end wall in a span-roofed house, or to occupy several rafters in the roof, it will be necessary to pinch out the point of the shoot once or more, so as to induce the production of several growths to fill the space required; but if to be grown as these plants sometimes are, where space is limited, lengthways of the house, over a path where one or two branches are trained to wires as near the glass as the rafters will permit, they will only require stopping so far as to furnish the few growths needed. In this way they will flower freely, but have not so nice an appearance as when occupying a position where the blooming shoots can hang down in a looser manner. By July another shift will be required; 12-inch pots by this time will not be over large, and as soon as the shoots have attained sufficient length the plants may be put in the positions they are intended permanently to occupy. If to be

PLANTED OUT, the border in which the roots are to be placed should not be too large, or it will be difficult to keep the plants within bounds. The bottom must be well drained, with the requisite egress below for the water to get away. This is a matter that frequently does not receive sufficient attention, from a supposition that the surplus water that soaks through the soil in the process of watering will find its way off; yet such is by no means the case, as after a time the under surface gets almost impervious to water, and the roots, which, with free-growing plants like these *Passifloras*, are produced in quantity, and lie thickly in the bottom of the pot, tub, or border in which they are grown, as a natural consequence, if stagnant water exists there, rot, causing the unhealthy condition the plants are often seen in. From 9 inches to 10 inches depth of soil will be enough for the roots to ramble in, using it moderately rich, and containing enough sand to keep it quite porous. The shoots will require constant attention until they have filled the space they are destined to cover, keeping them trained to the supporting wires, and taking care that the lower portion is sufficiently clothed first, or it will be difficult to accomplish this afterwards without cutting the plants back, and beginning the work anew by inducing the production of a fresh lot of shoots to cover the space that in the first instance they should have

been trained over. It should ever be borne in mind in the cultivation of these climbing plants, as also of such as are of a twining habit, that they have the greatest disinclination to extend downwards except in the case of the flowering terminal shoots which often are found in a hanging position, but the strong growths made early in the season require, at the least, to be kept in a horizontal position, and do still better where they can ascend. So apparent is this, that it may be noticed where a strong shoot happens to lose its hold of the support to which it was clinging, and thus hangs with its point downwards that it makes little progress afterwards, generally breaking out another growth at the highest point where bent, leaving the pendent portion in a half starved, dwindling condition. Were more notice taking of the habit of climbing and twining plants, and their natural requirements kept before the eye of the cultivator, there would be much fewer failures with them. After the plants have filled the position allotted to them, little more training will be required than a regulation of the shoots, so as to prevent their getting entangled in masses, cutting in yearly after the season's growth and flowering are completed. When there is an apparent exhaustion of the soil, it will be best to meet this in two ways by removing a few inches of the surface in spring before growth commences, replacing it with good new material, and also by the use of manure water, which the plants will take in a somewhat stronger state than weaker growing subjects; by these means they will keep on in a healthy condition for many years. When the roots of *Passifloras* are confined to pots or tubs, it is necessary that these should be large, and that as much of the surface soil as can be should annually be removed and replaced with new, well enriched with rotten manure; this, with the help of manure water given regularly through the growing season, will keep them in a thriving state for three or four years, when they may be headed back, and after they have broken into growth partially shaken out and the soil renewed. This will impart to them the requisite vigour to grow and bloom for a few more years, when the operation may be repeated, or their places supplied by young plants which, from their freedom to strike and grow, there is little difficulty in getting up to a large size in a short time. The most suitable kinds for general cultivation are:—

P. QUADRANGULARIS.—A strong growing kind with broad, massive green leaves and blue, green, and red flowers. Jamaica.

P. QUADRANGULARIS AUCUBÆFOLIA.—A variegated leaved form of the above with handsomely marked foliage.

P. BUONAPARTEA.—A strong growing large leaved kind, with blue, white, and red flowers.

P. AMABILIS.—A free-growing, handsome variety from South America, bearing scarlet and white flowers.

P. KERMESINA.—This is a handsome kind that branches freely, and produces its crimson flowers in abundance.

P. PRINCEPS.—A handsome, moderately vigorous kind with scarlet flowers.

P. DECAISNEANA.—A fine free-growing kind.

P. ALATA.—A handsome free-growing sort, with blue and red flowers. West Indies.

P. CARDINALIS.—A very handsome kind, with bright effective flowers produced freely. Suitable for a large house.

P. FULGENS (*Tacsonia Buchanani*).—A strong growing handsome plant, with bright scarlet flowers.

P. LOUDONI.—A moderate grower, bearing handsome purple flowers, produced freely.

P. EDULIS.—This is a strong growing sort, with white flowers, in addition to which it bears edible fruit. West Indies.

INSECTS.—*Passifloras* are not more particularly subject to insects than the generality of heat-requiring plants, yet where these parasites exist they will live on them, especially mealy bug, which must be sought for at the base of the leaves

and in the crevices of the bark on the mature stems and half-ripened shoots; also, the syringe can be freely employed, which will be a means of keeping them under, still further aided by strong washings with insecticide when the plants are at rest. Scale remove by sponging, and should thrips or red spider make their appearance a free use of the syringe will be the best remedy. T. B.

TABERNÆMONTANA CORONARIA FL.-PL.

THIS plant is a native of India, whence it was introduced about the latter part of the last century. It is a hard-wooded, compact growing evergreen species, which forms a dense bush, and requires little training; the foliage is handsome and of medium size; the flowers beautifully white, in form not unlike those of a Gardenia, and very fragrant; a small plant will completely fill a large house with its exquisite perfume, which by many is preferred to that of the Gardenia, being less powerful. This plant is easily propagated and as easily grown, but it will not succeed without stove heat. The flowers are not surpassed by any in cultivation for bouquets, having a more elegant appearance even than those of the Gardenia intermedia. It strikes from cuttings made of the young shoots when these have attained a length of about 4 inches or 5 inches, taking them off with a heel. Under proper stove treatment such shoots will be obtainable by the beginning of April, and if placed five or six together in pots just large enough to hold them in sand kept moist, covered with a propagating glass, and stood in a temperature of 70° they will root in a few weeks. They should then be moved singly into 3-inch pots, using good turfy peat, to which add as much sand as will keep it in a permanently sweet condition, as, in common with several other comparatively slow-growing evergreen plants, it does not like the shaking-out process from time to time rendered necessary when soil that soon becomes decomposed and adhesive is used. This plant will grow in loam, but in it the foliage will be somewhat paler in colour than when peat is employed; keep

THE YOUNG PLANTS in a moderately confined atmosphere for a week or two after potting them off, gradually exposing them to the full air of the house; shade from the sun during the middle of the day. In summer they will succeed under a temperature of from 65° to 70° at night, with 10° or 15° more by day; in bright weather give air in the daytime proportionate to the heat of the weather, syringing overhead every day at the time the house is closed. When a little progress in growth has been made pinch out the points of the shoots. By the middle of July pots 2 inches larger will be required. Continue the same treatment as to heat, shade, and moisture until about the middle of September; then give more air and discontinue shading as well as syringing. For the two last months in the year and until the beginning of March a temperature of 60° at night with from 5° to 10° more in the day time will suffice; after this as the solar heat increases, gradually raise the heat of the house, and as soon as the plants show signs of growth move them into pots 3 inches larger, using peat in a more lumpy state than at the first potting. Any shoots that may grow stronger than the rest should have their points cut out; treat as to heat, moisture, air giving, and shade as advised for the preceding summer, and if about the middle of July the pots are full of roots move them into others 2 inches or 3 inches larger, after which continue to treat them in a way that will enable them to get established before winter. I should not advise any account to be taken of whatever flowers are forthcoming this season, as the object is to get the plants up in size so that they will be able to produce a full complement of bloom the following year. Winter as before. They will now be strong with the pots full of roots, and care must be taken that they do not suffer at any time from want of water, yet it must not be given in excess, or injury will be the result, especially after the flowers are

formed, which may usually be looked for early in the winter.

INCREASE THE TEMPERATURE as before in spring. When the blooming is finished, any over-luxuriant shoots should be cut back, and the plants moved into pots 2 in. or 3 in. larger, after which encourage them by warmth and a genial atmosphere to make growth, so as to get them established in the new soil. Some flowers will be produced through the early summer months, and the plants, when well managed, generally yield a second full crop about July or August, after which they may have the shoots slightly shortened again, which will have the effect of keeping them close and bushy. By the end of September they may be gradually induced to a state of rest, as in the preceding season. The subsequent treatment will require to be such as before advised, giving a little root room as required. Weak manure water once or twice a week will be beneficial. After they have got into pots as large as are deemed requisite, the plants will last for years if each alternate summer after blooming the upper portion of the ball of soil is reduced, replacing it with new. If they get too tall they may be cut back freely after flowering, and as soon as new growth has commenced they should be partially shaken out, returned to the same or a size smaller pots, and encouraged to make growth as when younger.

T. CORONARIA is a single-flowered form of the above, differing little from the double kind except in the number of petals, and requiring similar treatment in every way. East India.

INSECTS.—*Tabernæmontanas* are liable to the attacks of mealy bug and scale. When these make their appearance means should be taken to extirpate them, for if present at all the continual cleaning required to keep them down often injures the leaves, and causes the flower-buds to fall off.

T. B.

IPOMÆAS.

ONE of the handsomest of these is *I. Horsfalliæ*, a species of smaller growth than most of the genus; it is a twiner, and comes from the hot, moist regions of Africa or East India. Consequently there is no use attempting its cultivation unless where there is enough heat at command to keep it in a healthy state. When first it became generally known it was to be met with in most places where enough heat was at command to grow it, but now it is rarely seen, and still seldom in good condition, although it is by no means difficult to cultivate when once it gets established; it is not an easy subject to strike, being one of the plants that used to be held up by the experts to young aspirants in the propagating department as a test of their abilities. Yet, with a knowledge of the right age and condition that the wood should have attained when made into cuttings, it will root, but still requires much more time than most other plants. A knowledge of the exact state the wood should be in when made into cuttings is difficult to convey in writing, and can only be acquired by practice and observation. So far as my own practice goes, I have been able to succeed best when the cuttings were made from the preceding year's shoots immediately after flowering about the end of February; if these are inserted singly in small pots half filled with a mixture of peat and silver sand, the remainder all sand, kept moderately close and moist in a brisk bottom heat, they will generally callus over at the base in about two months, and form roots in the same length of time, but the most certain means of propagation, and generally the best for private growers, who only require a limited number of plants, is to

LAYER THE SHOOTS. Those operated upon should be of the preceding summer's growth, and of any convenient length, say 5 feet or 6 feet from the points; if these are slightly notched through at a joint similarly to the way Carnation layers are prepared, and pegged down into 4-inch pots, drained and filled with a mixture of half-fibrous peat and loam, slightly covering the joint with soil

and keeping it moderately moist, they will form roots enough to support the shoot and allow of its being severed from the parent plant in ten or twelve weeks. The layering may be performed any time after the growth has attained a moderate solidity in the autumn until spring. Where a fair amount of heat can be kept up through the winter the layering may take place in autumn, which will give time for the young plants to get established on their own roots by spring, in which case a considerable saving of time will be effected, which will enable them to make a full season's growth. If layered so as to get well rooted in the spring, they will bear moving by the end of May into 6-inch or 7-inch pots, but it is not advisable to give too much root room, as the plant is naturally much slower in growth than the generality of stove twiners or climbers, and it does not ever attain anything near the size that most things do which luxuriate in a strong heat; on this account it is much better adapted for stoves of limited extent than many plants that less deservedly are chosen. In no position will it better succeed either with a view to its own well-being, as also where it will less interfere with the other occupants of the house, than run on two or three wires lengthways over the path; here its beautiful, distinct, and handsome rosy red flowers are seen to the best advantage. As soon as the plants commence to grow they must each have a neat stick, round which the shoots will twine, and when they have begun to grow freely they should be stopped back, so as to secure their breaking enough shoots to occupy the room at disposal in the place they are to fill. So far as their requirements of heat, air, shade, and moisture go, they will succeed with that given to the generality of plants grown in a warm stove; 65° in the night, with a rise of 10° in the day during the spring, and 5° or a little over respectively in summer will answer for them, but they must not be kept too cool in winter, that is, through the last months of the year, as also January and February, which is the usual time of their blooming, sooner or later, according to the heat maintained. Although the young plants will not bloom much

THE FIRST WINTER, still it will be well to treat them in every way as if older. They will require little training after the shoots have once taken to turning round the wires, except that they should be kept each to their individual wire, for if they get entangled it will be difficult afterwards to separate them. Shade just sufficient to prevent the leaves scorching during very bright weather, but discontinue it as early in the autumn as it can be dispensed with, keeping the atmosphere drier. The soil should never be kept so wet as in the case of freer rooting plants. By the end of March they will require moving into larger pots—about 12 inches in diameter. If very good fibrous loam is to be had, I should give it the preference, but where this is not at hand it is better to use peat. The shoots may be at this time shortened back about one-fourth, which will induce their breaking several eyes; two or three growths may now be allowed to each wire. Increase the temperature as the days lengthen, but be careful not to give very much water to the roots until they have got fairly into the new soil; again commence syringing overhead in the afternoons, and continue to do so until the beginning of September, when shading also may be dispensed with. If a temperature similar to that advised has been kept up, the flowers will begin to form towards the close of the year; they open in succession for several weeks. If required they may be taken off singly and mounted for bouquets, where from their very distinct character they harmonise well with most other things. When the blooming is over the plants can be kept somewhat drier at the roots for a few weeks, which will give them a rest, after which the shoots may be shortened back, and as soon they have pushed fresh growth they should be moved into pots about 3 inches larger than those they have already occupied, at the same time removing as much of the old soil from the upper portion of the ball as can be done without doing harm.

Again water sparingly until the roots are fairly moving, as this *Ipomœa* always requires care in this respect, for if the soil gets at all saturated, the roots are liable to perish, which would not probably cause the death of the plant, but would spoil the growth for a season, as it would take a considerable time to make fresh feeding fibres. Continue to treat as already advised, both during the summer, when the principal growth is being made, and also in the autumn and winter, when the flowers are developing. Each spring they should be repotted, removing a portion of the old soil, but the root room required is never so much as in the case of most stove subjects. A little liquid manure through the growing season will be found beneficial, but it must not be given so strong as to subjects of more vigorous growth. They will last for many years if treated as advised, and not out-grow a limited space; in fact, by cutting in freely each spring before growth commences, they may be kept within the limits they filled the first year of flowering. The following are stronger growers than *Horsfallia*, and I have found them best increased by layering, as advised for that kind.

I. GERRARDI.—A tuberous-rooted species that produces annual shoots and white flowers of large size. From Natal.

I. ALATIPES.—A stout-growing plant with heart-shaped leaves; the flowers are salmon coloured. Panama.

I. LEALI.—A strong-growing species, suitable for training round a wire over a path in a long house where its free growth will have room to extend. The flowers are bluish purple. There are many others most of which succeed under treatment such as above recommended, but these will generally be found sufficient.

INSECTS.—Scale and mealy bug will both thrive on the *Ipomœas*, but when grown in the position above indicated it is an easy matter to keep these pests down by the use of the syringe and sponging; in the same way if thrips attack the leaves they can without difficulty be kept under.

T. BAINES.

5041.—Spot on Camellia leaves.—It is difficult to say why *Camellias* become thus affected unless the conditions under which they are growing are ascertained on the spot, for, as far as one can judge, those in the case in question should thrive satisfactorily. Probably the roots were in a bad state when planted, and have never taken hold of the new soil. My reason for thinking so is because the plants are said to have been imported a few years ago, and to have not done well in pots, which was the reason why they were planted out. Now all Continental grown *Camellias* are potted in a light vegetable soil in which they seem to thrive well, but, singular to relate, with us it is difficult to keep them healthy unless they are soon potted in other compost after arriving in this country. In the case of small plants imported in such quantities towards the end of summer and autumn, I pot them after blooming the following spring. The compost used is about one-half turfy loam and one-quarter each of leaf mould and peat, with a liberal admixture of sand, but different loams vary so much in consistency, that no hard and fast line can be laid down in this respect. When potting in the spring, we remove as much of the old soil as possible without unduly distressing the plant, and in the new compost the roots push vigorously, and a good sturdy growth is the result. "J. E." (p. 103) says nothing about the size of the plants, but I should presume they were larger than those usually imported, and perhaps the course through which they have passed has been something like the following: The plants were obtained and after a time commenced visibly to decline in health, simultaneously with which the small fibres of the roots began to decay; this continued till they were planted out, when they were unable to push out healthy roots in the new compost through the mass of old sour soil that encircled them. Another reason, and possibly the correct one,

is that perhaps they are kept too close, so that growth is weak and the leaves wanting in substance; if such is the case, the sun shining on the foliage when wet would account for the spots. The *Camellia* being hardy nearly throughout England, and in many parts quite so, it is evident that the less coddling and the more air the plants have whenever possible the more sturdy will their growth be. If their condition is not too bad, leave them till the end of February, then dig them up, examine the roots, and if in a bad state, which they probably are, remove all the soil from them and repot in fresh compost, using pots no larger than is absolutely necessary. When potting, a few bits of charcoal may with advantage be mixed with the soil. After potting keep them close and frequently syringed till the roots start into action, when they must be hardened off by degrees and when fully recovered planted out again. If it is necessary to remove them now treat them just the same, but omit syringing till spring. In either case, however, pick off at once all flower buds. Such is the only course by which they can be restored to health if the roots are in a bad condition, but it is at best a slow process; the most satisfactory way would be to remove the plants and put young thriving specimens in their places. If the border has been made some time, it will be better to renew the soil before planting, that is if it is at all in a soddened state. By the way, they may have been kept rather wet at the roots, as when first planted and in a large mass of soil they do not require a great deal of water.—ALPHA.

Euphorbia jacquiniæflora.—I enclose a few leaves of this *Euphorbia*, and shall be glad if you can tell me from them what is the cause of its drooping in the way you see. It is growing on a back wall in my hothouse in a border; it was apparently doing well, but in one night all its leaves drooped, and now are falling off. When I first noticed it many of the leaves appeared to be spotted more than those I now send.—G. F.

*** From the appearance of the leaves sent there is no doubt that the roots are dead. The plant is very subject to go off in that way unless great care is taken in watering, particularly when planted out. It is a very spare rooter, and does not want much root room. When to be planted out, it should be grown strongly in a pot for two years previously, and afterwards never watered, even in the growing season, until the soil is drier than would suit most plants. When thus turned out in the winter comparatively less water must be given. Care in the matter of watering is still more necessary when the plant occupies a place on a back wall, where naturally it may be supposed to be some distance from the light, a circumstance which still further increases the susceptibility in plants of this kind to suffer from the least excess of root moisture.—T. B.

SHORT NOTES.—INDOOR.

Diseased Pelargonium leaves (J. W. L.)—There is no fungus on the leaves forwarded. The holes and discoloured spots remind us of scalds sometimes caused by the sun shining on minute drops of water on the leaves. The examples sent are deficient of leaf-green (chlorophyll), and this points to some imperfection in culture.—W. G. S.

Attacia cristata.—At the recent Taunton show Mr. Lucas had an extraordinary specimen of this singular plant. It was some 4 feet in diameter, and bore several umbels of its remarkable flowers, proportionate in size to the unusual vigour of the plant. They measured from the base of the stalk to the top of the flowers quite 3 feet.—T. B.

Anthurium Andreanum.—This species, like *A. Scherzerianum*, varies greatly in the size and character of its spathe. At the late Taunton show, however, Mr. Lucas, gardener to Mr. J. Marshall, exhibited a plant bearing seven spathe, differing little in size. One taken at random measured 8½ inches long by over 6 inches broad. It is an unusually fine form of this *Anthurium*.—T. B.

Lisianthus princeps.—Mr. Douglas asks (p. 168), "Has anyone flowered this plant?" I got what I supposed to be seed of it some years back, and succeeded in getting up a good many plants of it, but was much disappointed with it. It turned out to be a poor weedy thing, not nearly so strong as *L. Russellianus*, with narrow pointed petalled flowers, not half so large as in the old species, and much inferior in colour.—T. BAINES.

GARDEN DESTROYERS.

PLANT BUGS.

THERE are a large number of insects closely allied to the common and too-well known bed bug which feed on the juices of plants, and are abundant on trees, shrubs, Grass, &c., everywhere, but few, however, infest plants in such numbers as to cause any real injury; some, indeed, are of real service at times in destroying aphides and grubs, but it may be questioned if they would feed on living insects if they could obtain their usual food. There are, however, a few species which sometimes occur in sufficient numbers on cultivated plants as to seriously injure them; and, as I have before observed in these articles, no one can tell when a combination of circumstances may arise which may be particularly favourable to the increase of a certain insect which will then increase and multiply to a hitherto unknown extent, so that insects, like many plant bugs, which are known to injure

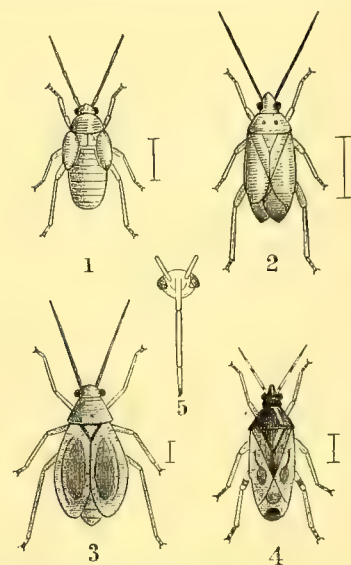


Fig. 1, *Calacoris bipunctatus* (pupa); 2, ditto (perfect insect); 3, *Bryocoris pterides*; 4, *Anthocoris nemorum*; 5, underside of head of plant bug, showing the rostrum or beak.

plants however slightly should be watched to prevent their increase. In this country Potatoes, Peas, Cabbages, Broccoli, Hops, Chrysanthemums, and Ferns are the plants which suffer most from these insects; but in America, Dahlias, Marigolds, Asters, and Balsams are among the sufferers. One species is very fond of ripe Raspberries, to which it imparts an unpleasant flavour. It is difficult to suggest any efficient remedy for the attacks of these insects when they infest plants grown out of doors in large numbers together, such as Potatoes and Cabbages, for these insects are very active, and run, jump, and fly with great rapidity; something may, however, be done by wetting the plants thoroughly with some insecticide, such as 2 oz. of flowers of sulphur boiled in 1 gallon of water with 2 oz. of soft soap, or one wineglassful of paraffin oil mixed with double that amount of soft soap and then mixed with 3 gallons of water, or by using a net similar to a butterfly net, but made of stronger material; holding the net under the plants, and shaking or tapping them with a stick, will cause many of the insects to fall into the net, or by sweeping the net backwards and forwards over the plants, many will be captured. All weeds should be kept down in which the plant bugs may harbour, and plants which have been attacked should be burnt, and any Potato haulm which has suffered should be treated in the same manner. The birds also should be encouraged among the crops. With plants in pots remedies can be applied much more effectively; the plants may be shaken over a tub or tank of water, or they may be entirely immersed, which will have the effect of making the insects leave

the plants. This should be done rather suddenly to prevent the insects leaving the plants before they touch the water, or the insects may be killed by Tobacco smoke. The plant bugs, as I have already mentioned, are a very numerous family, or rather order; they differ in their

TRANSFORMATIONS from most insects; they are active, and have six legs in all their stages (except the egg state). When first hatched, instead of being grubs or caterpillars, as is the case with the majority of insects, they are active, somewhat flattened six-legged insects, usually of a greenish or brownish colour, and much resembling their parents with this exception, that they have no wings; they are provided with a long beak, through which they suck the juices of the plants on which they feed. Nearly all the different species when in this state run with great activity, and many jump into the air when disturbed. When they attain the pupa state, instead of becoming chrysalides, as most insects do, losing their power of locomotion and being covered with a more or less hardened skin, they differ little from the larvæ with the exception of having rudimentary wings. The perfect insects have usually two pairs of large and well-formed wings, which when not in use lie folded on the back of the insect, but in some species the wings are only rudimentary like those of the pupa. All the English species are comparatively small insects, few exceeding three-quarters of an inch in length. When touched or alarmed, they all exhale a more or less unpleasant smell. The rostrum or beak (fig. 5), which certain parts of the mouth form, is a tubular organ consisting of either three or four joints. Within this tube are four hairs or setæ, two of which are serrated at their points, and with which the leaves are punctured; this beak when not in use is bent under the breast. The legs are usually long and slender. The upper wings are separated at their base by a triangular piece known as the scutellum; in some species this attains an unusually large size. The basal half of the fore wings is generally somewhat horny, but the tips are thin and transparent. I have selected three species for description and illustration.

CALACORIS BIPUNCTATUS (figs. 1 and 2) is a very common species, and very frequently found on Potatoes. It occurs sometimes in considerable numbers, and has been found to injure the Potato haulm to no slight extent. A correspondent, who sent me specimens to name, said they were attacking his Potatoes, Peas, and the hearts of young Cabbages, Broccoli, &c. The chief damage was to the Potato haulm, particularly the top sprays, much of which was often so injured as to completely shrivel up, leaving here and there dark brown patches, while what was not thus damaged was riddled with holes. They did not make their appearance until the haulm was almost fully grown. This insect has been found in various places committing the same injuries. The adult insect (fig. 2) measures about three-tenths of an inch in length, and is of an oval form; its general colour is green. The eyes are brownish and the legs yellowish; on the disc of the thorax are two small black dots; the horny parts of the upper wings are indistinctly tinged in places with brick-red; the transparent portion is of a smoky hue. The larva and pupa (fig. 1) have brown eyes, but otherwise they are entirely green.

BRYCORIS PTERIDES (fig. 3) is a common insect on the Brake Fern, and has frequently been found on cultivated Ferns, doing them much injury by sucking the juices from the fronds, causing them to look brown and withered. They are small insects, about one-eighth of an inch long and somewhat pear-shaped; they are of a greenish or yellowish brown colour. The terminal half of the antennæ, the points of the feet, the eyes, the front edge of the thorax, and in some specimens the scutellum, and the body are nearly black. The upper wings are somewhat transparent, and the dark colour of the body is seen through them, making them appear darker near their centre; they do not overlap at their tips, but lie side by side like the wing-cases of beetles.

ANTHOCORIS NEMORUM (fig. 4) is very common throughout the summer on trees and bushes, and hibernates during the winter under dead leaves. It has been found an annoying pest on *Chrysanthemums* by puncturing the flower-buds, which prevent them from expanding properly and becoming the regularly shaped flowers they otherwise would. The insect no doubt at times is useful in destroying aphides, but, notwithstanding its good deeds, it is a character whose movements should be regarded with suspicion. The perfect insect measures about one-eighth of an inch or rather more in length; its head, thorax, and scutellum are shining black; the antennæ yellowish with black tips; the legs are yellowish with brownish black feet, and a band of the same colour round the thighs of the hindmost pair. The upper wings are brownish yellow, and they overlap at their tips; in the middle of the hardened basal portion is a blackish brown dusky spot; on the terminal portion are two smoky spots. This insect is very variable in the colourisation of its markings.

G. S. S.

ORCHIDS.

ORCHIDS IN PRIVATE GARDENS.

GARDEN stock in private establishments, with the exception of certain kinds of fruit and fruit trees and a few other subjects, has not hitherto been appraised at a high commercial value by their owners, although representing a good enough return in a cultural shape. What I mean is, that a fine collection of specimens of the usual stove or greenhouse description, though valuable in its way, would not realise much money to the proprietor if put up for sale, either by auction or otherwise. Most kinds of exotic plants other than Orchids are easily propagated by seed or cuttings, and the moment they are placed in the market they become everybody's plants, and are soon quite common. It is otherwise, however, with Orchids which are likely to hold their own, and maintain and increase their value when well grown, and this fact is now beginning to be both realised and acted upon in many nurseries and gardens to a very marked extent. During recent years a profusion of very fine species and varieties of Orchids has been introduced into this country, and their culture is now so well understood, that the most inexperienced may and do attempt it with success. Then the division of the plants into cool and warm house kinds has immensely facilitated successful culture and popularised Orchids, for both sections contain equally beautiful species and varieties, and anyone can grow one or both sorts just according to his circumstances or convenience.

COOL ORCHIDS are perhaps the most popular at present, because they are easily and least expensively grown. Still, few or none of the species are so readily increased as to make their multiplication an easy matter, and this, added to the fact that the flowers are of the most beautiful description existing among plants, and in the majority of cases extraordinarily enduring after they have fully expanded, cut or otherwise, has greatly added to their value. A collection of Orchids, if well selected, is never out of bloom, and the flowers are produced almost as plentifully in winter as in summer; hence, for decorative purposes of all kinds, they are extremely valuable. These considerations are mentioned quite apart from the interest and pleasure the culture of such plants affords, the purpose here being to give the reader a correct notion of the value of the plants as stock at a time when gardening is in a rather depressed condition, and regarded rather as a losing affair. A gentleman may spend much money in stocking his hothouses with a general collection of ornamental plants, which, if they came to the hammer, would perhaps hardly pay carriage to the market. But it is otherwise with Orchids, if they are fairly well selected, as everyday experience shows. Notwithstanding the immense quantities of Orchids imported from week to week, they do not decrease in value; in fact, they are dearer now than ever they were.

The writer is informed that at a recent noted auction sale of Orchids at Edinburgh, which represented, one might say, the thinning out of a private collection, the prices realised averaged about £2 or £3 apiece, and many of the plants sold were not what are called popular kinds. Many of the "good things" fetched £5, £10, £15, £20, and some even as much as £45 or £50 apiece. These plants were from a well-assorted and well-known collection, that had been accumulating perhaps five-and-twenty years. One of the main outlets for Orchids is amongst amateurs and owners of small gardens near large manufacturing towns and the like. Men in business, especially, seem to realise the value of plants that contribute to the beauty of their gardens in such a high degree, and yet maintain their value, for they are amongst the best buyers known to the trade. In many noblemen's gardens large investments have also been made, and in some noted gardens *Odontoglossums* alone are grown in thousands, and yield quantities of beautiful flowers the whole year through. These collections have been got together by buying imported and other plants as opportunity offered, and probably the value of the stock, now the plants are established, has been doubled within the past few years. Nurserymen, who, perhaps, realise the position more accurately than private growers, are at present investing in Orchids very extensively, quite a competition in that line having sprung up. We are acquainted with provincial nurseries, many of which four or five years ago did not boast of an Orchid, that have at the present moment thousands, and are adding to their stock every year, while selling largely at the same time. The extent of the importations of popular kinds of Orchids is now so enormous, that some growers begin to fear the practical extinction of some sorts at no very distant date. There are both professionals and amateurs in the field. Some members of the trade employ their own collectors, while many people residing in India, America, and elsewhere collect on their own account, and transmit the plants to growers in Europe, not to speak of amateurs who contribute to the stock of private gardens when they have the opportunity. In the course of collecting and shipping thousands are annually lost, and many more perish in the course of being "established in pots" after their arrival in Europe. Hence an Orchid established a year or two in a pot is regarded as much enhanced in value, and always fetches a better price than one freshly imported.

BUYING ORCHIDS.—In getting up a collection of Orchids the buyer may invest in an extensive collection at once, or, as is generally the case in private gardens, he can invest gradually. The best plan, however, is to form a tolerable nucleus at the outset, and afterwards add to it as circumstances permit. There are two ways of buying, viz., at auction or other sales of newly imported plants, so frequently advertised in the gardening papers, and at the usual nurseries of such plants, and there are now very few nurseries of any importance that do not trade in Orchids. In buying at sales of imported plants the buyer incurs a few risks, but may also obtain some advantages. All the best Orchids are frequently offered in freshly imported lots, viz., *Odontoglossums*, *Dendrobiums*, *Cattleyas*, *Lælias*, *Ceologynes*, *Masdevallias*, *Cymbidiums*, *Epidendrums*, *Vandas*, &c., and the buyer may often in such lots secure rare prizes, as well as blanks. Still, there are few varieties of Orchids of the popular class that are not pretty, although they may not be considered "good varieties;" but it is the latter that represent most value, and selection is the secret of getting a valuable collection together. In buying established plants from the trade, the investor, on the other hand, need never be deceived, provided he buys plants in flower only; and this he may easily do, as he can hardly visit a collection of Orchids at any season of the year at which he will not find some sorts in flower. Of course these will cost him more money, but they will be worth it all. An inexperienced person should not attempt buying by himself, but should have a person with him who understands such matters. Nurserymen are

among the largest importers themselves, and buy imported stock largely as well, and hence in extensive trade collections many inferior varieties are to be found. Among the Odontoglossums of the Alexandræ type, for example, hardly any two plants are alike in quality and appearance; and the same may be said of nearly all the best specimens in cultivation. It is not often one finds a Cattleya Mossiæ that is not worth growing, regarding its flower simply; but between varieties in size and colouring there are great differences, some flowers being far superior to the general run, and worth so much more. It is the occurrence of those fine varieties in collections that has led to so much confusion in the naming of Orchids, often giving them, it must be admitted, a fictitious value. A grower, we shall suppose, buys a dozen or two of Vandas or Cattleyas. One or two turn out exceptionally fine, and he forthwith names it, let us say, "superba," or publishes it as "So-and-so's variety," in the assumption that he is the sole possessor of the sort, while probably there are many others who have it as well, and give it some other name. In this way we have now about thirty or forty named varieties of some species, all good, but none of them differing greatly from each other, all having originated in different collections, from one importation perhaps. A really good variety of any Orchid is, however, soon discerned; and, whether named or not at the time, it is always worth taking care of, and making a special note of its size and general characteristics. If it does not turn out to be an unusually excellent and valuable sort—worth, perhaps 150 or 200 guineas, such as we occasionally hear of—it is sure to possess some considerable value, whatever it may be.

POPULAR AND GOOD ORCHIDS.—The number of species and varieties now in cultivation is extremely numerous, but a great many are not worth growing in limited private collections. Many varieties are unduly praised, and intending buyers must not be led away by the "descriptions" given by Orchid "authorities," or even by the plates now so frequently distributed by the trade. If they do, they may expect to be disappointed at times. Some second-rate species, like the *Cypripediums*, have been greatly exaggerated. Above all, they must not be misled by such names as "splendida," "majestica," "superba," "magnifica," and the like, for these names often indicate something the reverse of what they convey. Another great point is to learn whether any variety is a free flowerer or not, and, above all, a good grower. As a speculation, however, it is worth while investing in those kinds which Orchid growers unite in praising; but for useful purposes—in buying plants to please himself—the private cultivator had better consult his own taste, and see what it is that is recommended to him. The following are amongst the most popular and beautiful sorts in cultivation: *Aerides odoratum*; *Angræcum sesquipedale*; *Burlingtonia candida* and *fragrans*; *Calanthe Veitchi* and *vestita*; *Cattleya citrina*, *crispa*, *gigas*, *Mossiæ*, *Trianae*, and *labiata*; *Cœlogyne cristata*; *Cymbidium eburneum*; *Cypripedium insigne* *Maulei*, *villosum*, *Spicerianum*, and *Sedini*; *Dendrobium Bensonæ*, *Cambridgeanum*, *chrysotoxum*, *Dalhousianum*, *densiflorum*, *Devonianum*, *Farmeri*, *nobile*, *primulinum*, *formosum*, *suavissimum*, *thyrsoiflorum*, and *Wardianum*. These are all good and distinct: *Epidendrum vitellinum majus*; *Lælia anceps*, *autumnalis*, and *purpurata*; *Masdevallia Veitchiana* and *Harryana*; *Miltonia spectabilis*; *Odontoglossum Alexandræ*, *Pescatorei*, and *veixillarium*; *Phalenopsis amabilis*, *grandiflora*, and *Schilleriana*; *Pleione lagenaria*; *Saccolabium guttatum*; *Sophrontis grandiflora*; *Trichopilia suavis*; *Vanda cœrulea*, *suavis*, and *tricolor*; *Zygopetalum Mackayi*; *Lycaste Skinneri*. This is a very much abridged list, both as regards species and varieties, especially the latter, which are almost endless; but it enumerates the pick of both, and anyone possessing a collection of those named, and good of each (for there are not only varieties of the same species, but sub-varieties as well), will have a collection of some value.

These remarks are not addressed to professional Orchid growers so much as to those who are partially inexperienced, and who may contemplate making a beginning in Orchid culture.—*Field*.

Epidendrum nemorale.—I find this to succeed fairly well either on Tree Fern stems or in a basket amongst a few rough pieces of peat and plenty of drainage. During the growing season I hang it close to the glass in the Cattleya house and give it plenty of water till the growths, which are made quickly, get fairly started. After that I shift it into its winter quarters, viz., a Pine pit, where it remains till about the middle of April, letting it have all the sun possible and but little shade at any time. When resting water is almost entirely withheld, only just enough being given to keep the bulbs plump, and that is not much, as if it does not have a decided season of rest, it will not flower satisfactorily.—THOS. DENNY, *Down House, Blandford*.

Over-praised Orchids.—Under this heading, "Peregrine" says Vandas are a class of Orchids difficult to grow, and when flowered not very valuable. Now, I differ from "Peregrine" regarding the difficulty of cultivating Vandas. No Orchids are more easily grown if people would not roast them. They like shade, moisture, and not so much heat as many growers give them. This should make them find favour in the eyes of a cultivator who supports the cool system in regard to the cultivation of other subjects. Then, in regard to their appearance, Vandas are much more showy in a collection than most Orchids when out of bloom—that is, of course, when healthy, not when roasted to a yellow condition—and, when in bloom, what more striking plant have we than a fine Vanda, with its glossy leaves and noble flowers standing out from among the foliage? In short, I think "Peregrine" wrong in his estimation of Vandas.—X. Y. Z.

VALUE OF GREENSAND IN GARDENS.

SOME few weeks ago there was an article in THE GARDEN about the advantages to be derived from the use of sand in our gardens. I agreed in the main with what the writer said, but I think he should have added: "There is sand and sand." The differences are very great, and some sorts are much better than others. I have for a long time been afflicted with a disease which might be called "sand on the brain," and I have experimented with what I could get from the different pits in the neighbourhood of Ryde, and also with sand from the sea-shore which had lost its saline properties by exposure to the weather; but I never, till rather more than a year ago, found a sand which seemed to me all that could be desired. It came about in this way. I was going through one of the streets of Ryde, when my eye lit upon a cart which was carrying sand of a sort that was new to me. At any rate, I had not thought of it before in connection with my garden, and its very peculiar colour (a sort of reddish brown) attracted my notice. The sand was to be used for building purposes. I told the carter to bring a load to my house, and I found afterwards that he had to fetch it from near Newport, and that it is taken from the lower greensand formation which prevails over a large part of the southern half of the Isle of Wight. Load soon followed upon load, and so on; and as long as I have a garden at all I hope I never shall be without this most useful commodity. I have tried it more or less pure, and sometimes mixed with loam and also with peat, and I have never had anything which insured for me greater success, or indeed anything like it. The following are

A FEW EXAMPLES OF WHAT I MEAN. I have grown *Romneya Coulteri* for a number of years, and it has now and then blossomed; but this summer two large plants at once broke out into bloom, and the fine, pure white, salver-like blossoms were the admiration of everybody. I have found alpine *Primulas*, which I think are very touchy indeed, tractable under the influence of this sand. *Primula*

sikkimensis, which loves to have its feet cool while it turns towards the sun, seemed to clap its hands with joyfulness. *Campanula Allioni* ran all over the place from pure excitement. *Campanula Raineri* has at last become an easy plant to manage. I had never before been able to bring *Rhexia virginica* into a contented mood, but it settled down immediately. *Androsace carnea* very nearly came to life from the dead, for I quite thought I had lost a plant which in less than a month was pronounced to be out of danger. *Bletia hyacinthina* voted for the green sand on the spot. *Viola pedata bicolor* forgot all its former troubles. *Philesia buxifolia*, which had not altogether made up its mind as to whether it would do well or not, grew up at once and shot out on every side, and is now covered all over with its beautiful *Lapageria*-like bells. *Disa grandiflora*, which is planted out in the open border in summer, turned over a new leaf and behaved with propriety. *Ismene Amancaes* fancied itself back in Peru. *Houstonia cœrulea* modestly doubled itself in size. *Gentiana verna* soon showed a robustness, which, I am persuaded, is not to be exceeded in the Alps, and, as though it longed to express its gratitude openly, disregarded the change of seasons altogether, and has flowered perpetually, off and on, just as it liked. If *Polygala Chamæbuxus purpurea* had a voice, it would plainly say, "I should soon become a weed if I were always to be treated like this." *Anemone vernalis* markedly improved, and so it was with a great many other things besides these; but what surprised me beyond everything else was a shabby lot of Lilies, which were purchased in the spring and were planted out in a very bad time of the year. These soon joined in the general chorus of thanksgiving, and declared themselves happy. The foliage of *Lilium Browni*, *L. Washingtonianum*, *L. longiflorum*, *L. cordifolium*, *L. Hansonii*, and several others (I did not allow them to blossom this season) has made me very hopeful that some of the difficulties of the Lily puzzle are lessened. Of course all this has been very pleasant to a gardener's eye. I am more thankful for my newly-made acquaintance with the lower greensand formation than I can say. But the next thing was to find out whence all this blessedness came—I mean, as was the case with a mighty man of old, in what the secret of its great strength lay. I confess I was half led to believe what a friend told me, as an undoubted fact, that this greensand is known to be full of potent chemical virtues, and I was informed that to them might be traced the sort of magical influence which it seems to exert. At the same time a timid idea would not leave me that there are other things which ought to be taken into account, though at most I conceived that both chemical and mechanical agencies are at work, and I traced to this imaginary union the results I beheld. All this, however, was guess-work. No good opportunity till just now came to my hand of finding out the truth. By a piece of good fortune, Mr. Eve, the acting manager of Messrs. Allen & Hanbury's well-known firm in Plough Court, came to the Isle of Wight, and, being fond of flowers, he paid a visit to my garden. I soon told him he was the very man I was longing to find, for I was anxious to know scientifically on what the merits of a substance on which I set great store really depended. The clearing up of the secret of this sand I felt certain would clear up in my mind a great many questions about alpine and other plants. Mr. Eve noticed the luxuriant growth of the plants, and most kindly promised to do his best for me as soon as he could. That promise has been amply redeemed, and I subjoin his analysis of the sand, and also the letter which I have received from him. His analysis runs thus:—

Sample of sand from Isle of Wight, August 1, 1883.

	Per cent.
Sodium and potassium as chlorides	51
Phosphoric acid	71
Loss on ignition	6.76
Soluble salts dried at 212° F.	26
Nitrogenous matter	none
Lime as carbonate	89
Silicious matter	55.94
Iron and aluminum oxides	38.05

This sand contains only 8 per cent. of matter which could be of any use for manuring purposes, and 6.76 per cent. of this, which is organic matter, is certainly not worth 1s. 6d. per ton. The remaining useful ingredients, viz., alkaline salts and phosphoric acid, are hardly worth the cartage. And, in his letter to me, Mr. Eve writes thus: "I am at last able to enclose a complete analysis of the sample of sand you were so kind as to give me when at Ryde. I wish it were more satisfactory from a gardener's point of view. As you will see, there is a complete absence of nitrogenous matter, only very minute quantities of soluble salts and phosphoric acid."

"THE THEORETICAL VALUE of the sand as manure cannot be more than something under 5s. per ton. Still, the appearance of the plants in your garden, to which it has been applied, justifies the inference that its use is beneficial; but, consider-

say, form an idea of the state of things when patches of the sere and yellow leaf on the trees meet the eye in the middle of August, and when large herbaceous plants look pre-eminently uncomfortable in the open border, as though dried up at the roots, and your grass is browned all over as if the common highway ran before the house; but this is our condition in the garden isle just now, and the whole place seems in a blaze. It puts, however, my greensand most thoroughly to the test when a large heap of it which is placed in full sun remains quite moist a little beneath the surface. It cannot be doubted that there is something here not always to be met with, and which plants like exceedingly. Not a few kinds of sand have a burning tendency of their own, and should on that account be avoided. The sand, however, of which I write does not act in that way. It cakes all over on the surface, and beneath the surface the whole

causes they run together and become a conglomerated mass. A third point, which appears to me of great importance, is that the sand should not hold the water in winter time, but that it should run freely off, and I can testify to this being the case with the greensand of the Isle of Wight. The downpours of autumn and winter are never held by it, but pass away readily. If it be added to all this that slugs abhor the little flinty particles that they have to encounter in this particular sand, and avoid it accordingly, I believe there is explanation enough for its very great usefulness. At any rate this greensand must go far to show that in some cases mechanical rather than chemical considerations ought to be regarded. A Cambridge geologist and member of the Alpine Club, who agrees with the view that has been taken above, wrote thus to me the other day: "The chemical analysis of a soil is seldom of much value. A



Old Apple tree at Tachbrook.

ing its chemical composition, I am driven to the conclusion that its action, like that of other sands, can only be mechanical. I do not think the iron and alumina can be useful as manures." Of course this came on me rather as a surprise after what I had been told previously about the sand, but it strengthens an old belief that the chemical ingredients of a soil have little or nothing to do with the culture of alpine and a great many other plants. Here is a sand in which many plants absolutely revel, and from a chemical point of view it is said to be comparatively worthless. Mr. Eve uses too strong an expression when he wishes it were "more satisfactory from a gardener's point of view." It is all that, but only in rather a different way from what had been expected. From whence, then, does its excellence come, which is undoubted in my eyes? If that could be hit off with correctness, I think some rules might be laid down about the culture of alpine plants with a great deal of assurance. I have firstly noticed that this

SAND NEVER DRIES UP even in the hottest weather. We have had some baking days this year in the Isle of Wight, and my garden is one of the hottest in the kingdom. Those who live near the ever-verdant lawns of Bitton, or amid the dewy pastures of Cheshire, can scarcely, I should

substance seems unaffected by the direct rays of the sun. I think this is just what alpine care for most of all. They like to look full at the sun, and yet to have their roots well supplied with the necessary moisture.

THE SECOND POINT of importance which occurs to me to mention is that the little rootlets should go where they like without being impeded, and be able to travel a long way, but this depends entirely on the openness of the soil. In stiff, heavy soils it is an absolute impossibility for them to do so, and as soon as an alpine plant and many others cease to grow, they turn sulky and perish. But at this point, also, the greensand is of the greatest assistance. There is proof enough that it never does become close. If a stick be thrust into the highest part of a raised border made of this sand, and if the same thing be done again at the end of a year, I venture to say the subsidence will be found to be very small indeed. The bed will be of nearly the same height as before. What this means I need not add. The innumerable little silicious particles keep the whole substance open, and this openness is exactly what is wanted for the roots of tender things. It is not by any manner of means found in every sort of sand; some sorts of sand are a delusion and a snare. At first they look well, but from the action of the weather and other

chemist may tell you that a soil contains all the constituents required for the food of a particular plant and yet it may be absolutely sterile. The information which a chemist can give on such a subject is negative, and not positive." I think he is right, but, from a point of view which is not chemical, I believe the advantages of the greensand of the Isle of Wight are distinct and positive enough. Of course one unfortunate thing is that this particular sand does not lie at everybody's door; but some of my friends are trying it, and we shall soon know what they say. The sand costs me 1s. per load at the pit's mouth and 3s. 6d. for cartage. The great gardeners of the north, Mr. Wolley Dod and Mr. Brockbank, are having it taken to Hartlepool as ballast, and in that way its transport is manageable. H. EW BANK.

St. John's, Ryde.

Gillespie's Broccoli.—This is said in seed lists to come in after the autumn Cauliflower, but with us it has changed its time and come in before the late Cauliflower. Sown and planted at the same time as other Broccoli, which are going on all right, this variety is heading now; therefore, instead of calling it a useful early Broccoli, I would term it a decidedly poor Cauliflower.—J. MUIR.

FRUIT GARDEN.

OLD APPLE TREE AT TACHBROOK.

THE little Warwickshire village of Tachbrook is famous for the longevity of its inhabitants, and this quality in its climate or soil seems to extend to the vegetable kingdom, judging by two old Reinette du Canada Apple trees which grow under the shelter of a sunny south wall at Tachbrook Mallory. The seven-gabled, half-timbered house, with its huge brick chimney stacks and Oak staircase and panelled rooms, was built in 1613; and tradition says that the two Apple trees were planted soon after. Be that as it may, their age is very considerable, as the great gnarled stems, writhing along the ground like hoary sea serpents, testify. But they are enjoying as healthy and vigorous an old age as some of their human fellow parishioners. The trees are trained espalier fashion round the angles of two square beds in the kitchen garden, and make a bower 30 feet long of fresh green foliage and luxuriant blossom over the path which divides them. The further branch or stem of the tree, which Mr. Parsons has chosen to immortalise, is 40 feet in length from the trunk; the nearer one is 20 feet; the trunk is 6 feet round at the base. The two stems are 3 feet 6 inches in circumference just above where they divide, and the largest of the upright fruit-bearing branches is 18 inches round. The stems of the second tree are about the same girth, and are respectively 27 feet and 30 feet in length. The blossoms of these old trees are unusually large and very white. The fruit is very large, the skin green with white stripes, the flesh perfectly transparent when cooked, of a pale greenish colour, and has a very rich flavour; in fact, it is, without exception, the most delicious Apple I know for culinary purposes.

When the garden first came into my keeping the old Apple trees were overgrown with Moss and Lichen, and were said only to bear fruit every third or fourth year. I had them carefully scraped and washed, and have been repaid by excellent and increasing crops every autumn for three years in succession.

The magnificent show of blossom in May this year has entirely fulfilled its promise. Both trees are now loaded with masses of Apples, which are beginning to show red streaks on their clear green skins, and the old stems are putting forth vigorous young shoots in all directions, and look as if another hundred Mays might still see their pink and white buds opening to the spring sun.

ROSE G. KINGSLEY.

WHY DO GRAPES CRACK?

IT is a well-known fact that some Grapes are much more liable to crack than others, the worst being those with thin skins, such as Madresfield Court, Frontignan, and Jossling's St. Albans, the latter of which splits its berries in such a wholesale way that entire bunches often go, and on this account most people have discarded it, although it is one of the highest flavoured Grapes anyone can grow. From my experience of these thin-skinned Grapes, I am of opinion that they will not bear the slightest check, but must be kept on steadily swelling from the first start to the finish, as any sudden flow of sap, which at once causes a rapid swelling, bursts them open, for the simple reason that the skins are not stout or tough enough to bear the pressure, which after a heavy watering or rain is, no doubt, very great. Of this we see repeated proof in Cherries, Gooseberries, Plums, and often Pears after soaking showers following closely on a dry time, and it is just the same

with Grapes, as the foliage makes such demands on the roots that they take in the water greedily till every cell becomes gorged. Most of our Vines are in outer borders, and at one time the only Madresfield Court we have so planted cracked to such an extent, that I thought we should have to give it up, but, noticing that it was more exempt from the malady in wet seasons, I kept on with it and watered more frequently, with the result that this year and last we have not had a cracked berry.

SOIL, I believe, has much to do with the cracking of Grapes, but not in the way Mr. Wildsmith surmises, as I am of opinion that a border with much drainage, and made up of quick-drying loam that takes in water speedily and parts with it again in a short time, will cause Grapes to crack, as the changes are sudden. I am the more fortified in this opinion, as I have seen Hamburgs, and even Alicantes, split under such conditions after a double supply of moisture to the roots, through a heavy rain succeeding the watering and filling the berries too rapidly, thus causing them to distend beyond the resisting capacity of the skins, which, in the case of Alicantes, we know must be great. What is of great use in

PREVENTING CRACKING is a heavy mulching, as then a watering tells, and there is no gaping open of the earth's crust, letting it out again, as there invariably is when the surface is left exposed to sun and air, the combined influences of which cause evaporation to go on at such a rate that most of the moisture in the soil is quickly drawn out. As to internal moisture affecting Grapes injuriously and bringing on cracking, I think it beneficial rather than otherwise, as it assists in keeping the berries plump; neither do I believe it affects colour, as at one place I was at many years ago we had four Pine stoves with Vines over the Pines, and I well remember the Grapes used to be well coloured and fine, and invariably took the leading position at our show. Frontignans I have never seen so good since, and I am convinced they enjoyed the heat and moisture the Pines loved so well. The thing to avoid is condensed moisture, which may always be prevented by having a "crack" of air on and increasing the same before the tree gets strong on the glass.—J. SHEPPARD, Woolverstone Park, Ipswich.

Like Mr. Wildsmith, I have been much puzzled to know why my Madresfield Court Grape always cracked more or less as soon as it began to colour. We have it growing here in our late viney with Alicantes and Lady Downes. The two latter have always finished well, being large both in bunch and berry. The Vines are planted inside, but the roots can also run outside. We treat them liberally as to water and top-dressings. The border was made some ten years ago. It consists of turfy loam, bones, and old mortar. Each year I was encouraged by the noble appearance of the Madresfield Court bunches and berries to try any remedy I could hear or think of to prevent cracking, and I believe I have found one. I have some fine bunches just finishing with not a cracked berry in them. Like Mr. Wildsmith, I can only say, Come and see. A few words will explain my treatment which has prevented the cracking. I thin out the spurs to from 24 inches to 30 inches apart, and I allow a rather more extended growth beyond the bunch before stopping than is usual, and, above all, I do not shut up the house quite close at closing time in the afternoon. We leave from 3 inches to 6 inches of air on night and day. A close, damp atmosphere causes the berries to swell too fast, and then they crack, just as many other fruits and vegetables do when subjected to sudden and excessive supplies of moisture. I feel sure that if Mr. Wildsmith will try my treatment he will find that soil has little to do with cracking.—J. ALLSOP, Dalton Hall.

Allow me to add to the subject of Madresfield Court Grape cracking that the cause is not to be attributed to soils, nor much to the degree of moisture present in the borders; I consider it to be mainly due to atmospheric influences. The difficulty commences when the Grapes begin to colour, and I think if growers would then take

the precaution of never once allowing the temperature to get low and cold at night or the atmosphere to become heavy and stagnant, cracking would not occur. The house should not, however, be closed; on the contrary, a fair amount of air should be left on always at the top and a little at bottom, and the necessary temperature must be maintained by heating the pipes at night and at other times when there is insufficient sun to keep the air moving inside. Under this treatment we find the berries to colour perfectly and to keep free from cracking. In short, the atmosphere should always be buoyant and bracing. I may add that we have Vines of this variety in an exceedingly wet heavy border outside, also in an inside and very dry one, and results have been about equal, whilst the fruit on another Vine in an adjoining border and late house, that could not be treated as above, has had many cracked berries. Possibly this latter kind of treatment causes the skins to become contracted and to lose their elasticity.—WM. CRUMP, Madresfield Court.

Hale's Early Peach.—This, in my opinion, is the finest early Peach in cultivation. This year we gathered the first fruits of it from a tree in an unheated house on June 20, and at that time Royal George, in the same house, was hardly half swelled up. With us Hale's Early grows freely, sets its fruits thickly, and swells them up to a good size. Their colour is very rich and the flavour delicious. Wherever two Peach trees are grown, this should be one of them. Where a long succession is desired it is invaluable.—J. MUIR.

Peaches at Hurstside, West Molesey.—The Sea Eagle Peach does well here indoors; this season it is bearing a good crop of noble Peaches. I have just gathered eight fruits of it, the weights of which are 11½, 9½, 8½, 8½, 11½, 11, 9, and 9½ ounces, making a total weight of 4 pounds 15 ounces. The fruits, too, are handsome and well coloured. Princess of Wales, in the same house, has produced very fine fruit, the heaviest of which was 13½ ounces. The best fruits of Walburton Admirable weighed 9 ounces, but the latter are not comparable with those of the Sea Eagle as regards colour. I may add that High Cross Hybrid Melon has also been good, three plants carrying over 70 pounds of well-flavoured and handsome fruit.—THOS. WOODFIELD.

5050.—**Exhibiting fruit.**—If, as stated by "W. B.," the schedule simply specified "six varieties, distinct," the judges had no right to disqualify a collection in which there were three varieties of Grapes, nor would they have done right to have done so even if the collection had been all Grapes, provided they were six distinct varieties. No one, however, in his senses would exhibit a collection of fruit composed of Grapes alone, as such would count very much against it in the estimation of judges. Three kinds of Grapes in six dishes are too many, and would be a point against a collection so composed on the score of insufficient variety; but, in disqualifying a collection on such grounds, the judges went beyond that which the schedule gave them authority to do.—T. B.

5049.—**Peach stones cracking.**—Over-feeding will sometimes lead to this. "Constant Reader's" trees being in such a luxuriant state points rather to this than to bad soil as the cause. Premature ripening often accompanies this defect, and in that case it may originate in imperfect or oversetting of the kernels. Sometimes the kernels of the split stones are abnormally large, which seems to favour the idea that the kernels have been unduly excited. Some varieties—notably the Stanwick Nectarine, always distinguished by the size of its stone—are more disposed towards splitting than almost any other Peach or Nectarine. All causes of undue excitement, such as an over-rich soil or over-stimulating culture, a sudden change of temperature, or a high temperature, especially through the stoning process, must be carefully guarded against. Though stone-splitting does not show itself as a rule till the fruit approaches maturity, the cause of it must probably be looked for

during what is termed the stoning of the fruit. A severe check, as well as an excessive stimulant, might unduly excite and develop the kernel in advance of the hard rind that encloses it. And once this rind is ruptured, by whatever cause, the evil of stone-cracking ensues. Excessive drought at the roots, or excessive moisture just when the stone begins to enlarge after hardening, might also cause stone-splitting. Not a few cultivators lose patience through the long interregnum of invisible growth during stoning. Heat, moisture, stimulating manures, are all used to hurry Nature, and the natural result is stone-cracking or other evils.—D. T. F.

Packing fruit.—This subject has not yet been thoroughly ventilated. There can be no doubt that amongst fruits sent to market in quantities, Peaches are about the most difficult to pack, so that they may travel safely and arrive in good condition; but I am of opinion that they are more bruised in gathering them from the trees than in the after management. How often do we see bruised Peaches staged at exhibitions, though probably carried thither by hand. The details of good packing have been admirably described in *THE GARDEN* (p. 42), and Mr. Wildsmith (p. 2) has clearly pointed out the proper time for picking—that stage so important—between the half-ripe, and consequently uneatable, stage of some writers and the over-ripe and flat conditions of other discontents. In speaking of packing I do not think your correspondents have dwelt sufficiently upon the elasticity of well-prepared dry Moss. If each fairly ripe Peach is wrapped in tissue paper, about 8 inches square, and firmly packed in nests of cool, dry, elastic Moss, they will travel well any distance and keep in good condition for a week, realising good returns if the colour is high and the size good. I have long ago dispensed with cotton wool as unnecessary, both as regards utility and economy. Cross-handled wicker baskets, holding from 8 lb. to 12 lb. or more, are best for Grapes. Inside should be put simply a layer of Moss, then cap and tissue paper, and the bunches should be fitted in on the wedge principle. The stouter paper serves to pull the bunches tighter together and towards the middle of the basket, and the vacuum thus created between the paper and outside of the basket should be firmly filled with Moss, a piece of stout paper being put over all, and then the weight and address should be added; the stalks of the bunches will keep the paper from rubbing them. I have sent some hundreds of baskets to Covent Garden and elsewhere in this way, the railway officials and salesmen checking each other as to condition on their being handed over to the latter. Another advantage is that salesmen allow for or return the baskets, which they cannot always do in the case of boxes. Strawberries packed in Lime tree leaves (when to be had) and French Beans in Vine or in their own leaves travel well. Packing each bunch of Grapes in separate pieces of paper and using short Grass for Peach packing are both bad.—WM. CRUMP, *Madresfield Court, Malvern*.

SHORT NOTES.—FRUIT.

Nectarines from Peaches (p. 159)—Does not "Penrhos" know that the Nectarine is a sport from the Peach?—J. H.

A Peach tree at Auburn, California, which has heretofore borne very fine Peaches, stands near several Plum trees, and it is said, this year hangs full of Plum-like fruit. The Peach and Plum trees were in blossom at the same time.

Currants on north walls.—Of all fruits we have ever tried to grow on north walls nothing has succeeded so well as Red and White Currants. Thus treated, their fruits are larger than in any other situation, and they hang on many weeks after the bushes out in the open have ceased to bear.—CAMERIAN.

Old Raspberry canes.—These have now done fruiting, and are of no further use; therefore, the best way of dealing with them is to cut them all over close to the ground, leaving the young canes in full possession of it. They will thus get abundance of light and air, and will become well ripened by the time the leaves drop, and thoroughly fertile wood will be secured for next year.—M. M.

TREES AND SHRUBS.

FORESTRY FOR SEPTEMBER.

NURSERY DEPARTMENT.—Finish putting in cuttings, and see that the ground is kept in a thoroughly clean state. By the end of the month, Haws that have been kept in sand pits for a season may be sown, choosing a piece of rich, clean, well-worked soil for the purpose. Finish transplanting seedling plants of Holly, Evergreen Oak, &c.; dig between rows of Evergreens, and thus prepare them for removal. Evergreens treated in this way in September throw out young rootlets, which go a great way towards ensuring success when planted out in autumn and winter. Collect Cherry stones, and sow them at once on dry, rich ground; they will not vegetate the first season, but the best plants are generally raised from early-sown seeds. Trim divisional hedges, and see that everything is kept neat and tidy.

SHRUBBERIES.—Push forward the transplanting of Evergreens, and, should the weather be warm and dry, give copious waterings at the time of removal. Plant hedges and screens of Laurel, Yew, Privet, Holly, &c. See that all ornamental plantations and shrubberies are kept thoroughly clean, and on no account allow weeds to ripen their seeds. Evergreens growing along the sides of walks and drives having finished their growth for the season should be cut back where necessary, in order to keep them within bounds and in proper shape. Clear pleasure grounds of leaves and twigs, clean beds and borders, and peg down Laurels and Rhododendrons where necessary to extend covert. In places where lawns are beginning to get Moss-grown, top-dress them about the end of the month with lime and earth properly blended together, a capital remedy for Moss and a good Grass renewer. See that all private walks to and from shrubberies are kept neat and tidy. In planting suburban villas where the lawn is but of limited extent, the following trees may be introduced with the best results, viz., *Acer colchicum rubrum*, *Halesia tetraptera*, the Snowdrop tree; *Quercus nigra*, rare, but good; *Q. pannonica*, *Q. rubra*, *Q. pedunculata*, *Q. concordia*, *Q. austriaca*, *Q. Fordi*, *Tilia europæa* microphylla, or small-leaved Lime tree; *Populus tremula*, and *Æsculus Hippocastanum rubicunda*. This Chestnut is a showy dwarf tree, which is generally in full flower about the 10th or 11th of June. The flowers are of a pretty red colour, and they continue in perfection for a long time; it also has the advantage of commencing to flower at a very early age.

FOREST DEPARTMENT.—Finish the pruning of forest and ornamental trees, hedges, &c.; continue to collect seeds of Birch as they ripen, likewise gather those of Sycamore and other varieties of Maple as they get ripe; spread them out in an airy loft and turn them over occasionally till they are dry enough to keep till sowing time in spring. Gather seeds of new and rare Conifers as they ripen, and stow them away in the cone state till wanted at sowing time. Where planting is to be done, drain, fence, and otherwise prepare the ground, so that no time may be lost when operations are commenced. Now is a good time to mark off sites for ornamental trees on the lawn, and here and there along the margins of plantations for scenic effect. Young plantations may be thinned, and all supernumerary shoots of young copse wood should be cut away, leaving the best and most promising for the future crop.

J. B. WEBSTER.

Rhus Cotinus has never been more showy than this season. It has certainly for a month past been the most attractive shrub in the grounds. On rather poor soil its feathery inflorescence literally covers the whole of the foliage. Strange to say, it appears to be but little known, as visitors generally ask its name, and take the trouble to write it down, enquiring at the same time where it is to be obtained and whether it is very expensive. The answer is, that it is very cheap, that it can be had at any nursery, and that it will grow

anywhere, but flowers best on rather poor soil.—W. ALLAN, *Guntton Park*.

NEW AND OLD TREE PRUNERS.

I WAS asked the other day to look at a new registered tree pruner which a gentleman had bought, but could not prune with to his satisfaction. I found it to be none other than our old friend the "Averuncator" under a new name, described and figured in old gardening books of half a century ago or more, the only difference between the new and the old implement being that the latter cut thicker branches when handled by those who could pull the string hard enough, and the shaft and other gearing attached was not so highly finished and polished, for the new Averuncator is, apparently, chiefly intended for ladies and gentlemen. The new implement is described as unrivalled for pruning all kinds of trees, but the disappointed gentleman declares he could only cut twigs with it, as the hook which grasps the branch cannot hold a branch above the thickness of one's finger, and the knife is of the same size, but a branch of that thickness is not easily severed by it. It is a most unhandy tool, for the only fulcrum to support the long 12-foot pole to which the knife is fixed is the left hand, as the right has to be used to pull the lever handle which pulls the thick copper stand that pulls the knife at the top, and the consequence is the lady or gentleman soon tires of tree pruning in that way. The old Averuncator has long occupied the lumber-room of gardens, and we are sadly afraid the new one will go there to keep it company before long, as it is of no more use for general pruning purposes than the pen with which I am writing. The best tool for cutting branches that do not need a saw is a common broad and sharp chisel fixed to the end of a long light shaft. This tool a man places under the branch (perhaps 2 inches or 3 inches in diameter) to be cut; a lad hits the bottom of the shaft with a wooden mallet once or twice, and the branch is removed by a clean cut. C.

AUTUMN V. SPRING PLANTING.

THERE can, I think, be no question that autumn is the proper time to plant deciduous trees and shrubs, but I very much doubt if it is for evergreens unless they are taken in hand very early, so that they may get well hold of the ground before winter sets in. My advice to anyone would be to finish by the middle or end of October at the latest, and if they could not get done by that time, to leave any further lifting of such plants till the spring. The month, at that season, most preferable for the operation is April, a period of warm sunshine and showers, when all vegetation is on the move, and there is generally heavy night dews to refreshen and keep the foliage from flagging. Under such circumstances, and so favoured, Evergreens cannot fail to grow, as with fast bursting buds root-action is simultaneous, and every succeeding day quickens their work. Why I am more in favour of spring transplanting than I am of autumn is that fresh moved plants at the latter date have winter to contend with, and we all know how trying that is to them sometimes, as bitter winds and frosts often cut up established plants sadly, and kill the crippled, starved, and disabled, as they do animals in the same state. A plant with its bark very much shrivelled is in a bad state, and though it may live, it seldom, if ever, does well. To avoid this contraction of the rind, it is a good plan in the case of large specimens of value, like those of Conifers, to bind up their stems with Moss or hay-bands, and keep them syringed daily, which is a great help, and does much towards getting plants of that kind re-established without feeling the check. For transplanting deciduous subjects November is the best month; any moved then will break much stronger and make a far more vigorous growth than they would if left later on. Reverting again to Evergreens, it is advisable to make safe with any choice plants by cutting them round the roots at a fair distance from the stems

a year before lifting, and a good time for doing this is September, as they form fresh fibres soon afterwards and come up with good balls.

S. D.

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 28.

THE principal attractions at this meeting were Dahlias, Gladioli, and China Asters, which, together with a few miscellaneous exhibits, made the conservatory quite gay.

First-class certificates were awarded to—

ZYGOPETALUM MAXILLARE, an old, but comparatively little known Orchid. It bears spikes of large flowers, having broad lips of a rich deep violet-purple mottled with a lighter hue. The plant shown, an admirable specimen from Mr. Philbrick's collection at Bickley, had over a dozen fine spikes of bloom on it, and otherwise was a fine example of skillful culture.

GLOXINIA ALABASTER.—The finest white variety yet raised undoubtedly. The flowers, which are erect, are of wax-like texture, from 3 inches to 4 inches across, and of snowy whiteness, and in habit the plant is all that can be desired. Exhibited by the raiser, Mr. Charles Bennett, Shepperton.

DAHLIA NEGRESS.—A single-flowered variety, having large blooms with broad flat florets of thick texture. The colour, a blackish velvety crimson, is beautiful and distinct from that of all other sorts. Shown by the raiser, Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

DAHLIA BEDDING GEM.—Flowers small and rather starry, but in colour a brilliant vermillion and very showy. The plant is said to be dwarf, and spreading in growth, about 2 feet high, and a profuse flowerer—altogether particularly suited for bedding purposes. Mr. Ware.

BEGONIA MADAME GRODY.—A tuberous variety with large double flowers of ivory whiteness, with the centre inclined to lemon-yellow. It is a delicately beautiful sort, and decidedly the best of the doubles of its colour. The habit is sturdy and the growth floriferous. Shown by Mr. Bealby, Rochester.

CHRYSANTHEMUM AURORA.—Apparently a double-flowered variety of *C. coronarium*, having very double Pompon-like blossoms of a rich chrome-yellow. It is an extremely pretty plant, very free as regards flower, and one which continues to bloom for a long time, and even in winter. It will make a valuable garden plant. Shown by Messrs. Cannell & Sons, Swanley.

GLADIOLUS DUKE OF EDINBURGH.—A brilliant carmine-crimson, with white centre; **LADY CAVENTISH**, rich mauve-lilac flaked with magenta; **SIR TREVOR LAWRENCE**, orange-scarlet with purple lip, extremely fine. These three new seedlings were shown by Messrs. Kelway, Langport, and were the perfection of what Gladioli ought to be, the flowers being large and of fine shape, the spikes long and very massive, and the colours distinct and brilliant.

DAHLIA MIDGET.—A single flowered sort, rather small, but vivid scarlet in colour, which, in contrast with the golden centre, is extremely attractive. It is said to be floriferous and good in habit. Messrs. Cannell.

IBERIS EMPRESS.—A fine variety of the Rocket Candytuft, producing long massive clusters of pure white flowers in abundance. Shown by Messrs. Biddler & Co., Loughborough.

GLADIOLI were shown numerous and in great variety by Messrs. Kelway from their nurseries at Langport. The collection was even finer than that shown at the previous meeting, there being upwards of eight dozen spikes, all extremely fine in every respect. The varieties comprised the cream of the Messrs. Kelway's extensive collection, and, in addition to the older kinds, of which we gave a list in our report of the last meeting, there were the following new seedlings besides those

certificated, viz.: **Lady Rosebery**, white striped, with Duchess of Teck, similar, but lighter; **Duke of Albany**, white, magenta flaked; **Mr. Trevelyan**, bluish white, very beautiful; **Col. Trevor Clarke**, white, flaked with crimson; **St. Blaise**, white, heavily flaked with magenta; **Lord Rosebery**, vivid scarlet, striped, and with white lip. These were all superior in their respective colours to the older sorts, and plainly showed that the Gladiolus is not in the least deteriorating. This exhibition, which produced a brilliant effect, won for Messrs. Kelway a silver-gilt medal.

SINGLE DAHLIAS have rarely been seen in greater variety than on this occasion, when Mr. Ware exhibited from the Hale Farm Nursery, Tottenham, no fewer than a thousand blooms, the produce of about sixty distinct named varieties, representing the finest that have yet been raised. The flowers were shown in good-sized bunches with foliage, which set them off to perfection, and the display altogether was a most attractive one. Out of the five dozen sorts shown we singled out the following as being uncommonly fine: Among the shades of crimsons, reds, and pinks were: **Cherry**, carmine and magenta; **Thalia**, flower rather small, of a bright plum-purple; **Vermilion**, a fine flower, good shape, scarlet-red; **Jumbo**, a distinct salmony red, a good flower; **Reginald**, like **Cherry**, but darker; **Novelty** and **Lucy Ireland**, two of the finest magentas; **Francis Fell**, bright plum-purple; **Walter Ware**, deep terra-cotta colour, very fine; **Negress**, almost a black-crimson; **Beauty of Cambridge**, one of the finest reds. The best pink sort was **Christine**, a new seedling of a delicate rose-pink. **Orangeman** was the best among the orange-scarlets; and **Buffalo**, of a curious reddish yellow, was also one we thought distinct and beautiful. The best yellows were **Sunflower**, **Sulphur Queen**, **Lutea grandiflora**, **William Cullingford**, all very fine, the last being the best in form and size. The finest whites were **White Queen**, the best of all; **Victory**, good habit, but not so free in flower as **White Queen**; **Hilda**, similar to **White Queen** in habit, but creamy white. The selection of the striped and edged sorts included **Union Jack**, white, edged with red; **Charles Laws**, buff, flaked with red; **Attraction**, mauve-pink, flaked and spotted with carmine; **Pantaloon**, pink, edged with maroon-crimson; **Paragon**, still unsurpassed in its colour. Besides these the following new seedlings were submitted to the committee: **T. S. Ware**, a very fine scarlet; **Lucy Ireland**, rich plum-purple; **Dr. Moffat**, maroon-crimson, edged with carmine; **Ellen Terry**, rich mauve, very fine; **Mauve Queen Improved**, flower large, of a deep mauve; **In Memoriam**, deep maroon-crimson; **Henry Irving**, rich plum-purple. A silver Banksian medal was deservedly awarded to Mr. Ware for this exhibition. Mr. Turner, Royal Nurseries, Slough, again exhibited a fine collection of show and fancy varieties, and Messrs. Cannell, Swanley, sent a good collection of single sorts, all of which were smaller in bloom than ordinary, and are said to be better adapted for cutting. Among the sorts shown were **Yellow Boy**, **Cedo Nulli**, a small white, very pretty; **Dora**, pink; **Concinna**, bright scarlet; **Sunset**, orange-scarlet; **Star**, maroon-crimson; and **Nero**, velvety crimson. The same exhibitors also had a fine collection of cut **Zinnia** blooms.

ORCHIDS were few, the most noteworthy being a three-flowered spike of *Cattleya Eldorado* splendens, shown by Mr. Ballantine, from Baron Schröder's garden at The Dell, Egham. It is indeed a splendid variety, having flowers over 6 inches across, with the petals and sepals of a deep mauve-lilac, and a broad labellum of a beautiful deep amethyst-purple and bright orange-yellow. Mr. Heims showed from Mr. Philbrick's collection at Bickley a fine plant of the rare *Angraecum Ellisii*, carrying a spike some 18 inches long, and bearing twenty blossoms of wax-like texture, pure white, and with singular long tails. A cultural commendation was accorded to Mr. Heims, also to Mr. Barnard, gardener to Mr. Vanner, Camden Wood, Chislehurst, for a fine specimen of *Dendrobium secundum*, bearing thirteen spikes of flowers, which was the best plant we had seen of this spe-

cies. From Mr. Smee's garden at Wallington came a variety of *Lycaste Skinneri* called *Smeeana*. The flower was small, with narrow white petals and a rosy purple lip; it is a delicate looking and pretty variety.

A collection of some three dozen seedling *Gloxinias* was shown by the raiser, Mr. Charles Bennett, Shepperton. Collectively, the strain is the finest that we have seen, the flowers being uncommonly large and remarkable for their firm texture and rich and varied colouring, the tints varying from the deepest crimson and purple through pinks, roses, violets, and mauves to the snowy whiteness of the variety *Alabaster*, to which a certificate was awarded. All were of the erect-flowered race, which seems to have now almost supplanted the horizontal-flowered class. Most of the sorts were self-coloured, but several were exquisitely spotted and shaded.

CHINA ASTERS from Messrs. Carter's nursery, at Forest Hill, constituted a bright feature, there being about 150 plants, all admirably grown and profusely flowered. The various strains consisted of the *German Quilled*, distinct and pretty; *Globe*; dwarf *Chrysanthemum* flowered, fine for pot culture; *French Paeony* flowered; *Victoria*, a well known and beautiful strain; *New Emperor* or *Cockade*, distinct and pretty, and very varied in colour; and *Dwarf Bouquet*, which is a neat, compact growing strain, useful for pot culture. For this collection Messrs. Carter were awarded a bronze Banksian medal.

Mr. G. F. Wilson, Heatherbank, Weybridge, was awarded a medal for a fine series of *Lily* stems of about a dozen kinds. From the open air were *Lilium auratum pictum*, a profusely spotted variety, also an intermediate variety, and the new broad-leaved form *platyphyllum* which bears very large flowers. Besides these varieties of *L. auratum* there was the beautiful and rare *rubro-vittatum* (also known as *cruentum*) which has a broad band of crimson running down the centre of each petal. This stem, carrying five large and fully expanded flowers, was also cut from the open air. Among other *Lilies* from the open were *L. Leichtlini*, with three flowers as large as those of the variety commonly known as *L. majus*, and *L. longiflorum eximium*. From plants grown in an Orchid house were fine specimens of *L. speciosum album* and *rubrum*, *L. tigrinum fl.-pl.*, and the variety *splendens*, which is unquestionably the finest of all the *Tiger Lilies*, and a plant that everyone should endeavour to grow. This admirable collection showed well how finely Mr. Wilson still grows his *Lilies*.

Fruit and vegetables.—A cultural commendation was accorded to Mr. Taylor, gardener to Mr. McIntosh, Duneevan, Weybridge, for three uncommonly fine bunches of *Foster's Seedling Grape*, large in berry and bunch and fine in colour. Various seedling Melons were shown, amongst them being *Hero of Surrey*, a white-fleshed sort from Mr. George Putney; and Mr. R. Veitch, Exeter, sent a seedling named *G. Murray*. Mr. Laxton, Bedford, sent an American Apple called the *Dartmouth Crab*; and Mr. Killick, Langley, Maidstone, sent the following early Apples: *Yorkshire Beauty*, *Echlinville Seedling*, *Red Juneating*, *Worcester Pearmain*, *Irish Peach*, and *Duchess of Oldenburgh*, the latter remarkably fine. Mr. Pearce, Grey's Court, Henley, sent dishes of *Sutton's Latest of All* and *Reading Giant Peas*, both first-rate sorts; and Mr. Eckford, Baschurch, Salop, sent three seedling Peas named *Prolific*, *Progress*, and *Magnificent*; the latter variety the committee recommended a further trial, it being a promising sort, large in pod and pea, and prolific. Messrs. Carter showed samples of *Purple-top Yellow Dutch Turnip*, a small-rooted variety. A comprehensive collection of *Tomatoes* in pots was shown from the Society's garden at Chiswick; the plants were admirably grown, and, being of a uniform size and age and grown under the same conditions, the respective qualities of the sorts could be seen at glance. Those which were most conspicuous for fruit productiveness were *Trinity*, *Dedham Favourite*, *Criterion*, *Large Red*, *Early*

Dwarf Red, President Garfield, Horsford's No. 1, Paragon, and Livingstone's Favourite. A cultural commendation was accorded to Mr. Barron for this collection.

Meeting at Chiswick.—At a meeting of the floral committee, held in the Society's gardens, Chiswick, on August 23, Mr. G. F. Wilson in the chair, the following first-class certificates were awarded:—

VERBENAS.—**SWANLEY GEM** (Cannell).—Fine compact habit; the trusses and pips very large; white, shaded and edged with pale blue. Very effective. **R. F. SCHULE** (Cannell).—Good dwarf habit, very free flowering; trusses and individual flowers large, of a fine, warm, rosy pink with white eye. **MARION BAKER** (Cannell).—Close compact growth; the trusses of medium size, the pips large with white eye, light rosy carmine—a very pretty shade of colour. **FAUST** (Cannell).—Habit very close, very free flowering; the trusses large, individual flowers large, of a very rich fiery carmine. Very pretty. **BEETHOVEN** (Cannell).—Dwarf habit, remarkably free flowering; trusses and pips of large size, of a deep rosy lake colour. An excellent bedding variety.

PELARGONIUMS.—**DR. ORTON** (Pearson).—A fine bedding variety, very close and compact habit, free flowering; the trusses large, holding on well; individual flowers large, of good form, intense crimson-scarlet. A good bedding variety. **WHITE PERFECTION** (Eckford).—An excellent pot plant; plant of vigorous growth, the trusses of medium size, freely produced; individual flowers large, of fine rounded form, pure white.

SWEET PEAS.—**ORANGE PRINCE** (Eckford).—Flowers very large, of a beautiful shade of salmon-pink. Very distinct and pretty. **INVINCIBLE CARMINE** (Laxton).—A very fine self-coloured carmine variety; flowers very large and of good substance. **INVINCIBLE STRIPED** (Carter & Co.).—A very distinct and pretty variety; very lively carmine, boldly striped. **BLUE EDGE** (Carter & Co.).—Very showy variety, having the standards very light rose; the wings white with distinct edge of blue. Very showy and effective. **NEW CARMINE ROSE** (Hurst & Son).—This variety in the cut state was certificated at South Kensington on August 14, and the committee, on seeing it growing, unanimously confirmed the certificate then awarded. This is a very pleasing and distinct variety both as regards growth and colour of flowers, and is well worth cultivation.

TYDEAS.—**VENOSA.**—Plant of tall habit, the tubes bright carmine-magenta shaded, beautifully veined, and dotted with purple. **ROBERT LE DIABLE.**—Flowers very large, freely produced, of a most intense, almost black, crimson; distinct and showy. **HARLEQUIN.**—Plant of somewhat tall habit; the flowers large, the tube shaded with magenta and veined and dotted with purple. **PODALYRE.**—Flowers of medium size, the tube of a pleasing cherry red, veined and speckled with purple; showy. **ÆSCULAP.**—Flowers of medium size, the tubes bright scarlet, richly spotted and veined.

IMPATIENS SULTANI.—A first-class certificate was also awarded to this now well-known Balsam.

In regard to the Sweet Peas, the committee considered the variety Bronze Prince (Eckford) to be superior to Invincible Black. Those named together in the following list were considered identical: Princess (Eckford), Butterfly (Benary), Butterfly (Carter & Co.); Duchess of Albany (Eckford), Captain Clark (Benary); Purple Striped (Carter), Black Purple (Benary); Red and White (Benary), Painted Lady (Carter); Scarlet Striped (Carter), Red Striped (Benary); Emperor (Eckford), Grandeur (Eckford); Dark Red (Benary), Scarlet (Carter), Invincible Scarlet (Benary and Carter); Black Purple (Benary), Purple (Carter), Light Blue and Purple (Benary).

Flower painting.—The proper substance to draw on is good white cardboard, and the best materials are water-colours, used either transparently or mixed with white—as we think here. These can be purchased at any good artist's colourman.—H.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

Sept 5.—Glasgow Autumn Show.
5 and 6.—Bath Autumn Show.
6.—Alnwick Annual Show.
Hackney Dahlia Show.
Dublin Autumn Show of Royal Horticultural Society of Ireland.
6 and 7.—Carlisle Annual Show.
8.—Manchester Cottagers' Show in Botanic Garden.

The Jersey Gardener is the title of a new monthly journal devoted to gardening and rural economy for the Channel Islands. The first number contains articles on easily-grown Orchids, Fuchsias, table decorations, with the usual calendarial matter and reports of exhibitions.

Sub-tropical gardening has been overdone in our parks. The more we see of it the more convinced are we that the fearful cost it involves should be devoted to trees, shrubs, or flowers of the open air. It seems odd to have some scores of tropical Musas in a London park, and not one bed of Carnations visible in the same.

A Peach wall.—Now, when Peaches have perished off the face of so many walls, Mr. Richard Gilbert is rejoicing in the possession of one well covered with fruit at Burghley. There is no pleasanter sight in a garden than a wall of well-grown Peach trees with plenty of fruit on them. We are glad the sight is not one wholly of the past.

International Horticultural Exhibition.—At the general committee meeting of the Fisheries Exhibition, on Tuesday last, the chairman stated that it was proposed to hold a series of exhibitions in the buildings now devoted to the Fisheries Exhibition, and that it was finally settled to hold a great international exhibition of horticulture, floriculture, and forestry there next year; he added that the committee had every reason to believe that such an exhibition would be a success.

Proposed great fruit show.—The present season has been so prolific in the way of Apples and other hardy fruits, that a proposal has been made to the council of the Royal Horticultural Society that they should hold a large fruit show at South Kensington in the course of the month of October next. It appears, however, that the South Kensington people have been unable to come to terms with the committee of the Fisheries Exhibition in regard to this matter, and, therefore, the proposed show will probably be held in the gardens at Chiswick. It is, we believe, not intended to issue a schedule or to offer prizes, but to invite all the principal growers to assist in forming a thoroughly good exhibition of fruits.

The Potato crop in Somerset promises to be quite equal to the best we have had for some years past. The disease has not appeared to a serious extent as yet. The crops already lifted have come out of the ground in fine condition. White Elephant, Cream of the Valley, and Schoolmaster are sorts that are getting very popular, but at present Magnum Bonum and Scotch Champion are the most extensively grown. There has been some wonderful crops of Ashleaf lifted and already stored in fine condition.

New autumnal Strawberry.—We send you a few fruits of a new Strawberry grown here by one of our market gardeners. It is a free fruiting variety and a long bearer, having been producing fruit from the middle of July till now. It will probably bear for another fortnight yet.—**CONNON & REED, Aberdeen.** [The fruits sent were smashed into a pulp when received, but if, as you say, it is bearing fruit now, it may be valuable. Cannot you send us a few more fruits better packed?]

Sale of Orchids.—We learn that an important sale of specimen Orchids, the property of Messrs. Thomson & Sons, Tweed Vineyard, Clovenfords, Galashiels, will take place, on September 13, in Edinburgh. The catalogue enumerates some 400 lots, comprising a selection of the finest Orchids, including many rare and beautiful varieties. Among those to be sold we notice Masde-

vallia Winniana, Cypripedium Druryi, numerous fine varieties of Odontoglossums, Vanda tricolor, Cattleya labiata Gaskelliana, Cypripedium Spicerianum, insigne punctatum violaceum, and others.

The report on the progress and condition of the botanic garden and government plantations at Adelaide, South Australia, just received from the director, Dr. Schomburgk, seems a very satisfactory one, and may be interesting to persons working at horticulture in similar climates. It is embellished by several good photographs, illustrating the vegetation and hothouses of the gardens. We confess that in such climates we should like to see a garden without hothouses, and without the statues, cement margins, and other things that the photographs show. There is too little of Nature and too much of so-called art in such places, we are sorry to say.

Floral photographs.—We learn that Mr. Henry Stevens, of King Street, Covent Garden, has exhibited several of his beautiful photographs of floral subjects at the international exhibition of the Association Belge de Photographie at Brussels. The pictures were greatly admired by all who saw them, particularly by the King of the Belgians, who is a great lover of flowers. A silver medal was awarded to Mr. Stevens for the high quality of his collection of photographs.

Vanda (Renanthera) **Lowi.**—We have received an admirable photograph representing probably the most remarkable specimen of this beautiful Orchid in cultivation, from M. Bergman, gardener to Baron Rothschild at Ferrières. The specimen in question is furnished with about seventy leaves, and at the time it was photographed, in July last, bore eleven long slender spikes, furnished from top to bottom with its singular blossoms. This plant of the Necklace Orchid, generally considered a difficult plant to cultivate successfully, shows how well its requirements are understood at Ferrières.

Cattleya crispa (F. J. Coombes).—Seven flowers on a spike is rather unusual. The specimen you sent was quite withered when we received it.

Seedling Carnations (J. Day).—Both good and well worth growing in quantity if free in growth and flower. The colours are all that can be wanted.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of fruit.—J. Day.—1, Summer Strawberry; 2, Devonshire Quarrenden; 3, not known, probably a local variety; 4, apparently Pott's Seedling.—D. T. G.—1, Worcester Pearmain; 2, Red Astrachan; 3, Kerry Pippin; 4, Irish Peach.—R. S.—Pears not in a condition to name, except 3, which is Jargonelle.—Worcester.—Red Juneating.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—J. Landor.—The fronds you send represent good crested forms of the Lady Fern (Athyrium Filix-femina) and the Royal Fern (Osmunda regalis), but neither are new. Both are worth cultivating.—Dix.—1, Cupressus tortulosa; 2, Biota orientalis; 3, Retinospora obtusa; 4, Cupressus nutkaensis.—1, Ceanothus Gloire de Versailles; 2, Erica Jacksoni; 3, Ixora Williamsi; 4, Ixora crocata.—1, Astrantia major; 2, Solidago species; 3 and 4, species of Aster, which cannot be named without seeing root, leaves, and knowing habit of growth.—T. M.—1, Gentiana campestris (annual native); 2, G. Amarella (annual native); 3, Erythraea Centaurium (biennial).—H. M. H.—Miltonia Regnelii; Fraxinacea confertiflora; Oncidium flexuosum, not lucidum.—J. C. L.—Astrantia major.—W. H. N.—Veratrum nigrum.—J. W. L.—1, Rhus glabra coccinea; 2, Clematis Flammula; 3, C. Viti-cella.—G. S. W.—1, Rhododendron myrtifolium; 4, species of Calamitina. Numbers of other specimens detached. One is apparently Saxifraga cuneifolia; the other a species of Prenanthes.—Anon.—1, Echinops bannaticus; 2, probably a Lactuca (specimen too much withered); 3, Centaurea nigra (Knapweed), grown strong.—A. Elder.—1, Dianthus celsus; 2, Dianthus Armeria; 3, Sedum altissimum; 4, Funkia lanceifolia.—F. G.—Cannot name varieties of Begonia Rex, to which species all those you send belong.—F. D.—Probably Solidago canadensis, but we cannot determine accurately from such a small specimen as you send.

THAT is a fearful view of the park at Great Grimshy in the Illustrated News. It seems to be adorned with number of large Potato pits.

No. 616. SATURDAY, SEPT. 6, 1883. Vol. XXIV.

This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE.—*Shakespeare.*

THE INTERNATIONAL HORTICULTURAL EXHIBITION OF 1884.

A SENSIBLE *impetus* has, we are glad to see, been given to the movement for holding an international horticultural exhibition next year, through the commissioners of the Fisheries Exhibition being willing to place themselves at its head. Nothing succeeds like success, and, from the vantage ground they have secured in this respect, Mr. Birkbeck and his colleagues can well bespeak confidence and support. Under the auspices of the Fisheries commissioners and their able chairman we consider the prospects of the intended exhibition assured. No time, however, should be lost in setting about the necessary work of preparation. An exhibition, such as is here intended, can never be the outcome of impromptu effort or delayed intentions ; on the contrary, it must be built up by the most careful, as well as comprehensive arrangement, the most painstaking, as well as ample provision—the most thorough exhaustion of means to ends. For this reason the work of organisation should be set about at once, though, the season being over, some disadvantage in this respect must be encountered. Still, a good deal in a preliminary way can be done. If, for instance, the executive committee of the Fisheries Exhibition would only meet, and formally commit themselves to the undertaking, the good beginning is at once made which ensures success. This could be followed by a general meeting of horticulturists in the South Kensington Gardens—Mr. Birkbeck and his colleagues co-operating—at an early date, and a practical, workmanlike programme being decided on, the movement would be placed on its feet and launched with *éclat*. All that follows would be matter of detail. Continental and, for that matter, colonial and world-wide support might be invited and bespoken, and so the exhibition would prove unique in the history of horticulture for its completeness and universality.

Mr. John Wills, with a special application to dates, says, while writing to us on the subject : "The exhibition should open about the 15th of April, in order that the Belgian horticulturists should exhibit their marvellous collections of Azaleas, &c., whilst similarly fine groups of Cyclamens, Primulas, Auriculas, &c., would be shown by English growers. French horticulturists might thus be induced to exhibit many of their specialities, both in flowers and vegetables, which they cultivate so successfully in the early part of the year. During the month of May grand displays might be held of Roses, Azaleas, Orchids, Pelargoniums, stove, greenhouse, foliage plants, Ferns, Palms, &c., which our own countrymen know so well how to cultivate. About this time one of the finest displays ever seen might be made by the market growers, which would be highly attractive to foreign exhibitors as well as the general public. In June the finest display of Rhododendrons could be sent up from Knap Hill, Bagshot, and elsewhere, to be followed in July and August with Pelargoniums, Carnations, and

many other well-known favourites. September would furnish a glorious display of Dahlias, Gladioli, Phloxes, Pentstemons, and many other well-known flowers so plentiful at that period. October and November, fruits, vegetables, and Chrysanthemums would make an exceedingly attractive display." The suggestion of Mr. Wills is well worth being turned over ; it furnishes its own recommendation. We are glad to see that already the public are being prepared to regard the forthcoming exhibition as a settled thing. In the last number of *Truth* we find the following reference. We give it, not alone for the evidence it affords of the publicity we speak of, but for the sake of the eminently practical hint which it conveys : "An exhibition of horticulture and forestry is announced for next year. This will be interesting. Two years ago I was in Milan ; there was an exhibition there. The portion which seemed the most to attract was that where some industry was practically exhibited in all its phases. Thus, in the silk department there were the silk moths laying their eggs, the grubs feeding, the cocoons, girls drawing the silk from the cocoons, and so on, until under the eyes of the spectators the whole process could be followed until the grub developed into a piece of silk. Such exhibitions are most instructive, and a representation in this fashion of different industries might form the basis for exhibitions during a succession of years, the proceeds being devoted to some charitable organisation in connection with the industry."

EDINBURGH GARDENS.

WHAT ails the writer in one of your contemporaries last week ? We never read such an indictment against any garden as that brought against Princes Street Gardens last week. Speaking of the floral arrangements there, your contemporary declares "it is not often that arrangements are so *constantly* wrong (the *italics* are ours) as they have been and are in the case of the Edinburgh gardens ; and, had this year given us the first examples, we might have supposed that in future the defects would be remedied, but, as the mistakes of the past are perpetuated, this hope cannot be indulged in." Might have been written by a gloomy Presbyterian elder this ! We admit the Edinburgh gardens might be improved, as well as many others, but it is well known in Edinburgh and elsewhere that it is not the bailies of that city who are responsible for the floral arrangements of Princes Street Gardens, but the worthy and well-known superintendent, whose work, so far as his powers and facilities extend, is acknowledged to be one of the best features about the gardens. Besides, we decline to believe that the "powers that be" in any public or private garden are so completely topsy-turvy in their heads as to "constantly" do everything wrong which they are expected to do right, and we are not uncharitable enough to believe either that it is hopeless to expect them to mend. Burns "indulged in" brighter "hopes" concerning even the "Deil himself," than this critic does of the managers of the Princes Street Gardens. After all, æsthetic and classic Edinburgh may congratulate itself on the fact that its critic never once raised his eyes above the railings of Princes Street Gardens, but confined himself to such high art subjects as the proper disposal of its yellow Feverfew, Echeverias, Beetroot, Lobelia, and the like. Gardeners will smile when they are asked if the present arrangements in Princes Street "reflect the ex-

ample and the teachings" of the great lights on bedding out, and probably answer that the main fault of the floral arrangements complained of is that they still adhere a trifle too near to the said "examples," and imitate them with rather too much accuracy, only the materials at disposal for the purpose are fewer than usual, owing to the disabilities of the situation.—R. T.

GOLDEN QUEEN GRAPE.

I NOTICE what Mr. Wildsmith says of the flavour of this Grape. Up to the time of the ripening of this Grape my experience corresponds with his that is to say, it is a handsome variety, and when well grown produces large berries, fairly presentable as to colour. But I should like to ask Mr. Wildsmith how Golden Queen behaves with him as a keeping Grape. For myself, I am perfectly satisfied with it as regards appearance up to the time of its being ripe, but as a keeping variety it is to me most disappointing ; not that it do not hang well, as we gardeners call it, for the berries keep sound and plump for two or three months after it is ripe, but with us they deteriorate so much in colour and flavour that I look upon it only as a second-rate keeper. The crop on our Vine of this variety has been ripe about three weeks, but, having plenty of Black Hamburgs and other mid-season Grapes fit for use, we wish to keep Golden Queen for later use, and already I find it taking on that dark, dingy, and veiny appearance which to me is most objectionable, and in my opinion is so much against it. The transparency in the berries, which is said to be the characteristic of this Grape, ends with me in the berries becoming a dingy brown which reaches from the berries to the footstalks, and right up to the shoulders of the bunch, which I look upon as a disfigurement not to be lightly passed over. As regards the flavour, I admit that tastes differ, but my opinion is that the sweet, sugary character which belongs to it after it has hung for some weeks is anything but refreshing. It is so devoid of any piquancy, that only a very few tastes will appreciate it. J. C. C.

THE WHITE TIGER FLOWER.

I AM delighted to see that Mr. Burbidge thinks so highly of this plant. It is indeed the queen among Tigrisias ; it has all the charms assigned to it, and fully bears out the descriptions given of it when first distributed. I believe Mr. Gumbleton was the first to direct attention to it in England last summer or autumn, it being at that time referred to in the *Revue Horticole*. It was selected by M. Hennequin, of Angers, in 1878, out of a bed of seedlings *T. grandiflora*, but the raisers consider it really a descendant from *T. conchiflora* ; but in constitution it more resembles *T. speciosa* (*grandiflora*) than *T. conchiflora*. Let its parentage, however, be what it may, it will not affect the importance of the plant. The raiser told me that two years after the first selection he lost every flowering bulb, and consequently had to work up again from small plants ; hence the long time that has elapsed since it originated. H. C. SMITH.

Guernsey.

Flavour in Peaches.—I noticed that a correspondent says that it would not do for him to have had flavoured Peaches, and that all Peaches could be had good in flavour if they were properly managed as regards watering. Surely his experience must be limited to a very few va-

rieties of this fruit, or does he mean to say that Princess Beatrice and Lord Palmerston are worthy of being called good flavoured Peaches? If so, I venture to say that he is singular in his opinion.—J. C. C.

PLANTS IN FLOWER.

Double white Lapageria.—We learn from Mr. Leman, Olantigh Nursery, Chigwell, that he has a plant of the white *Lapageria* bearing perfectly double blossoms. This is the first instance of the white variety being double.

A scarlet-flaked Carnation of the tree section has been sent to us by Mr. Poë, who says he had it from the Continent without a name, and that there is scarcely a month throughout the year but that he can cut blossoms from it. The flowers are of fair size and the colours bright.

Iris pallida var.—I send you a flower of a variety of *Iris pallida* which I call minor; it is very free flowering, blooms twice a year, and flowers very early in spring before any of the germanica group.—THOS. S. WARE, *Hale Farm Nurseries, Tottenham.*

* * Flower much smaller than typical *I. pallida*, colour a deep rich purple. If constantly an autumn flowerer, it will be a real acquisition.

Anthurium Andreanum.—An enormous flower of this has been sent to us by Mr. J. Marshall, Belmont, Taunton. The flower-stem is 2½ feet high, and bears a spathe 6 inches in width and 8½ inches in length, and of brilliant scarlet colour. Mr. Lucas, the gardener, states that there are eight other such flowers on the same plant. It is the largest that has come under our notice.

Two fine Clematises.—I send you two *Clematises*, *Alba Magna* and Mr. George Jackman, both valued very much here; the latter generally comes finer earlier in the season. Although they do not bloom so freely as some of the other kinds, the individual flowers are really beautiful.—CHAS. J. WHITE, *Sedburgh House, Ilkley.* [Both very fine sorts, *Alba Magna* in particular, which has unusually large pure white blossoms.—ED.]

Cosmos bipinnatus atropurpureus.—Flowers of this beautiful and most elegant annual have been sent to us by Mr. Poë, who thinks highly of it. The flowers resemble those of a small single *Dahlia*. The colour is a crimson-magenta, which contrasts finely with the yellow centre. The foliage is almost as finely cut as Fennel. It grows some 2 feet or 3 feet high, and forms a bushy, pyramidal specimen in a few weeks.

White African Lily.—The white variety of *Agapanthus umbellatus* is now beautifully in flower with me, and is a fine companion plant to the better-known kind, of which it is in all respects a counterpart, except that the blossoms, instead of being blue, are pure white. It is an admirable conservatory plant, and the individual flowers can be gathered and used for small arrangements of cut bloom, such as for wreaths and button-holes.—H.

Calimeris incisa.—Resembling a Michaelmas Daisy, this plant has a good deal more beauty than most of that tribe. It certainly is far before most of the early ones, which are not among the best of the family. We believe the name at least to be an old one in our gardens. The plant is now pretty in Mr. Wolley Dod's garden. We wish some one would give it a good English name, as it has not the luck to possess the simple one *Aster*, now familiar enough.

Physianthus albens.—I send you a flower spray of this plant, the seed of which was sent to me from Cannes, where a large plant grew against a cottage, and was bearing a quantity of large fruit, green and fleshy, yet with much cotton-like matter, in which the seeds were embedded. It is not, in my opinion, worth growing as a conservatory plant. One given by me to a friend survived the winter in the open ground, and is far more vigorous than mine. I planted the *Physianthus* many years ago in my conservatory at Combe Royal, but was obliged to turn it out, as the flowers were disfigured by dead and dying bees, apparently killed by the narcotic nectar contained in the flowers. I thought their scent disagreeable.

I also send you a specimen of an Indian Passion-flower, *Passiflora foetida*, from seed sent home by a relative. It is a curious little flower, and is succeeded by a crimson fruit, an unripe specimen of which I add. My niece says it covers banks and hedges, and is most ornamental when ripe. The mossy-like calyx is very curious.—L., *Torquay.*

* * The Passion-flower is indeed curious, having finely cut calyx lobes like the Moss (*Hypnum tamariacinum*).—ED.

Cactus Dahlia (D. Yuarezi).—The largest bloom we have seen of this has been sent to us by Mr. Henry Stevens from his garden at Addlestone Lodge, where this plant grows most vigorously and develops enormous blooms, which are very showy in the garden. To see the full effect of this fine plant, it should be grown in an isolated mass. It is one of the best Dahlias for planting in an exposed position. We lately saw on a wind-swept hill at Bayham Abbey, near the new mansion, some uncommonly fine beds of it—the best we have yet seen.

Arnebia schioides.—At one time the sight of an *Arnebia* was a rare pleasure to the plant lover; now, this proving hardy and free, we may look to this genus helping to form new aspects of garden vegetation. We saw it in flower in Mr. Wolley Dod's garden in August, and he says it began to bloom with him in March. Its value is not merely from its merit as a plant, but also from its distinctness from all other hardy plants. The black spots on the yellow ground are curious and pretty too.

Allamanda Hendersoni.—A wonderful specimen of this has been in bloom for months on the roof of the succession Pine house at Haydon Hall, Eastcote, and is still bearing hundreds of its massive yellow flowers and maintaining its vigour, notwithstanding the abundance of bloom. Mr. Fry says that the plant would not bloom until the large pot in which it was grown was plunged to the rim in the Pine bed, and since then it has produced flowers in marvellous profusion without any trouble.—J. O'B.

Gentiana septemfida at Edge Hall.—Common as is this *Gentiana*, we have never seen it really vigorous till in the gardens at Edge Hall, where it forms stout tufts flowering and seeding in the most profuse way. Very many flowers were crowded into some of the heads. It is certain that many of our finest garden plants have never been appreciated owing to their being usually seen in a poor and starved state. Sometimes the mistake is having only one or two plants where there ought to be a dozen or more, as in the case of the Grass of Parnassus, which is very beautiful as a large group of at least twenty plants.

Dahlia White Queen.—This single *Dahlia* deserves all that has been said in its praise, being good in every way. Its flowers are large, of the purest white, and with us the quantity produced is three times that of any other. Last spring I bought three packets of single *Dahlia* seed from different firms, and all were said to contain *White Queen*, but although a great many plants were raised from each packet, there are no *White Queens* amongst them. Our plants of that sort in flower now were bought ones, and that seems to be the surest way of securing certain kinds true to name.—J. MUIR, *Margam.*

Hypericum reptans at Edge Hall.—The coming of the various new *Hypericums* has been not wholly an unmixed good, owing to long enduring dissent about their names. This little plant, so far as we are aware, is not among the disputed set, but of course any one may raise the question about it at any time. We hope no one will, as it is desirable it should never be confused with others of its family, for none of the smaller hardy ones we have seen are so good. It creeps along as close to the ground and as modestly as the wild Thyme, but has many deep golden flowers large and handsome for so small a plant. These do not look up to the sun, but are set to the earth rather or sideways, and, therefore, one does not realise their full beauty, unless the plant is growing down a little bank or falling over a low rock

in the alpine garden. The best plants we have seen are in the gardens at Edge Hall, where it is very beautiful. It is one of the very best of plants for the rock garden, and not difficult to grow or increase.

The white Mulleins.—These are charming, and we particularly commend them to the notice of all who care for picturesque companions to Foxglove, yellow Mullein, Meadow Rue, or other plants suitable for rough banks or wild gardens. The best kinds are the white Moth Mullein (*Verbascum Blattaria*) and the white variety of *V. nigrum*. We measured a plant of the white Moth Mullein over 7 feet high at Edge Hall, where both plants are to be seen plentifully. The various Mulleins are fitted to take a good place in our gardens. *V. olympicum* and *V. phlomoides* are superb plants.

Cyananthus lobatus.—This has long been to us the very type of the Plant Unhappy—away so far from its own zone and its own clime, that nothing our gardens can offer in the way of soil or position can console it. Little bits straggling with a single bloom or a few have hitherto met our view—whether at York, Kew, Glasnevin, Zurich, or Vienna. Judge of our surprise, then, in seeing various plants of it at Edge Hall, spreading like a free-growing Hairbell and with hundreds of flowers open. Growing on the beds composed of several feet of rough stone and good soil, they seem in this Cheshire garden to be as free and hardy as at home on the Indian hills.

Carnation Grenadin.—This fine scarlet border Carnation is from seed supplied by Messrs. Hartland, of Cork, of their Grenadin. I was advised last year to sow a packet, and told that it came true from seed. This is the first that has flowered, but as the other plants have much the same appearance, I conclude that they may give equally good flowers. The plants are vigorous, bush-shaped, and well furnished—nothing spindly—and the flowers are carried compactly on short stems.—G. JEKYLL.

* * Very fine in every respect. The colour is a bright crimson, the flower large and full, and particularly beautiful in bud.—ED.

Lilium Krætzerei.—I send you a weakly stem of this charming Lily. There are plenty stronger here with from eight to ten flowers on them. I have found it to be one of the hardiest of all Lilies, having now several established clumps of it in the garden, and it is certainly one of the best for pot culture. It has always been my favourite Lily, on account of its purity of colour, shape, and perfume, the auratum being too strong in perfume for any room.—A. L. PATTON, *Alpha House, Alpha Road, Regent's Park, NW.*

* * This graceful pure white Lily is a variety of *L. speciosum*, and better than the variety album. It is broader in the petal than album and quite spotless. The scent is delicate and good. It has been introduced a few years, but is still a rare Lily in gardens. It is as hardy as the other forms of *L. speciosum*, and does admirably in the open air in some soils. Captain Patton evidently grows it well in his London garden.—ED.

Æschynanthuses.—There is a good collection of these plants in the stove at Kew, where they are grown in teak baskets suspended from the roof, with the exception of *Æ. macranthus*, which is better grown in a pot, as it is of a much shrubby habit than the others. The following kinds are now in flower, viz., *macranthus*, *grandiflorus*, *Boschianus*, *Lobbianus*, *pulcher*, *bracteatus*, and *longiflorus*. Of these, perhaps, the most useful is *Æ. Lobbianus*, whose deep red corollas, springing from a dark purple cup-shaped calyxes, and with the bright green foliage are highly ornamental. Either as basket plants or planted in pockets in the side of or upon the top of a moist wall, the *Æschynanthuses* are amongst the best of plants, and as they grow and flower freely if properly attended to as regards moisture and heat, they are capable of being put to a variety of uses for the decoration of tropical houses. In the East India Orchid house these plants would thrive admirably and

form a pleasing contrast to the usual occupants of such houses.—B.

Olianthus Dampieri.—Mr. D. Dorward has sent us from Glencairn, Dumfriesshire, some fine flower clusters of this showy plant, which he says has been cut from plants in a cool greenhouse, but he cannot get it to flower out-of-doors as it does in some parts in the south of England. We find this is popularly called the Lobster Claw plant on account of the resemblance of its singularly formed scarlet flowers to claws of a boiled lobster.

Clethra alnifolia.—In a cool, moist spot this pretty flowering shrub has been in beauty some time, and many spikes of its pure white blossoms still remain in perfection. When in the bud state they are slightly tinged with green, but on expanding are pure white. The beauty of its blossoms and their time of opening should entitle it to a place in every garden where its requirements can be met, but in hot and dry places it will not thrive.

Lobelia fulgens Victoria.—Although an old plant, we have few half-hardy subjects so effective as this is from the middle of August to the end of September. With us it is now nearly at its best, and we have nothing so brilliant in colour which gives so little trouble. We take up our plants at the end of October, place them on the floor of an unheated Peach house, and plant them again in April. I believe that damp is more hurtful to this plant than actual cold.—J. C. C.

Lasiandra macrantha floribunda.—Grown in a cool house throughout the summer, this gorgeous flowered Melastomad is now an object of great beauty and the admiration of all, for when associated with other subjects, the large intensely brilliant violet-blue flowers are the first to attract attention, standing out as they do so distinct from all their surroundings. The plant is by no means difficult either to strike or to grow successfully, and it flowers so freely that when in small pots blossoms are often produced nearly as large as the whole plant.

Single Pyrethrums.—These are flowering with us for the second time this season; their flowers are not so large as the early blooms, but they are most useful to cut from now that single flowers are so much in request. To secure a good second crop of flowers, the plants require to be grown in good soil, and they ought not to remain more than one year in the same position. Early in the spring when the plants begin to grow we lift them with all the roots possible and transfer them to another place on the border; this gives them a change of soil, and the way in which the plants thrive shows that they like the change.—J. C. C.

Campanula (Wahlenbergia) hederacea.—This in habit and locality exactly accords with the Bog Pimpernel, but has leaves like a miniature light green Ivy and tiny bright blue bells. Hanging down over the edge of a pot or basket and clothed with elegant flowers, it has a grace matched by few plants, native or exotic. As some may not be able to meet with these little pets, I shall be happy to send a bit of either on receipt of a stamped addressed envelope. Both these plants will grow freely and make pretty specimens in pans of moist peat, a way in which many choice bog things may be grown successfully.—G. PIM, Monkstown, Dublin.

Ixora Duffi.—Although sent out by Messrs. Veitch about six years ago, this fine Ixora does not appear to have become a favourite. There is a plant in the Victoria house at Kew now bearing a fine truss of flowers larger by far than any we have seen on any other species of Ixora, measuring 10 inches in diameter and almost hemispherical in form. The colour is a deep scarlet, turning to orange as the flowers get older. They last in perfection for about a week. The habit of the plant is much stouter than that of most Ixoras, the branches being strong and erect. The leaves are about 1 foot in length and 4 inches in width. The plant at Kew has borne three similar bunches within the past fortnight. In flower in

the same house are I. Bandhuca, I. Prince of Orange, I. formosa, and I. laxiflora, the latter a white loose flowered species, very sweet scented.—B.

THE GALE.

THE storm of wind and rain which raged from Saturday till Monday made sad havoc in many gardens, judging by the numerous letters that have reached us respecting it. The effects seem to have been most disastrous in the south-western counties. We append the notes sent from Gosport, Taunton, and Padstow:—

SOMERSET.—A heavy storm of rain and wind passed over this part of West Somerset on the afternoon of September 1. The damage done to trees was considerable; many were blown down, and others lost large branches. The ground beneath the trees in the Apple orchards was thickly strewn with the fallen fruit; so many Apples were on the ground, that cyder making will commence earlier than usual. In the kitchen garden Peas and Scarlet Runners were much damaged by the wind, and Rose trees and other low-growing subjects were much blown about.—J. C. C.

CORNWALL.—Before the gale all our plants from the Sunflower to the creeping Mesembryanthemum were beautiful, and the garden a picture of brightness; now it is a complete wreck. Sunflowers, Dahlias, Sweet Peas, Gladioli, &c., are torn from their supports, and laid level with the ground. The young sheaths of Pampas Grass, almost ready to open, are broken off and blown quite out of the plants; the Pelargonium beds are nothing but leaves and flowerless stems; the lawns and walks are covered with rubbish torn from the surrounding vegetation. This is the result of one of the most severe early autumn gales, accompanied by torrents of rain, that I have ever experienced, and which commenced about nine in the morning of September 1. The next morning I found that a few things had ridden the storm and looked attractive, notably a bed of Coleus Verschaffelti dotted with Abutilon Thompsoni variegata and edged with Golden Feather. Lobelia cardinalis has borne the storm fairly well. We have it and its bronze-leaved variety, Queen Victoria, in the same bed; the latter is by far the best, as not only is the foliage more striking, but the flower is superior in size and, I think, in colour. Alternantheras and other carpet bedding plants are looking bright and very well in their way; tuberous Begonias also seem to be able to withstand any amount of rain, though the wind has injured them.—JOHN C. TALLACK, *Prideaux Place, Padstow.*

HANTS.—September has been this year ushered in by a violent gale that has done a great deal of damage to garden and farm crops. The Apple crop in particular has suffered much, for it is not only the best fruit crop, but certainly the best Apple crop, that we have had for many years. In this locality quite half the crop is blown down, and as the late-keeping, and therefore the most valuable, sorts require quite another month on the trees, I need scarcely add that their value as wind-falls is but very little. The only way that I can see by which we can guard against such violent gales as these is to grow the form of tree that suffers least from the effects of strong winds. I am decidedly in favour of the wide-spreading standard orchard tree, and in inland fruit-growing localities I would adopt it in preference to all others, but in localities liable to storms and gales they are quite unsuitable. In my opinion, the best form of tree to resist gales is the espalier trained. A long row (over 200 yards) of espaliers have scarcely lost a dozen fruit, for being firmly tied to stout wires, and closely pruned in, there is nothing for the wind to get hold of. The next best are dwarf bushes, closely spur-pruned, so that the branches stand out quite clear of each other; the wind gets through them and the fruit holds on bravely. Even little bushes on the Paradise stock only planted during this last winter have a fine crop of exceptionally good fruit. Large kinds, like Lady Henniker, New Hawthorn-

den, Lord Suffield, and Stone's or Loddington Seedling, have held on well, for they have short stubby shoots, that expend their vigour on fruit-buds instead of long, flexible growths. The long, pendulous shoots of the unpruned trees have stood worst against the gale; even the hardy Quince being not only stripped of its fruit, though hardly half-grown, but the leaves are quite blackened by friction. I hope a better report will come from inland orchards. While located in wind-swept localities, as here, I shall give preference to the form of training which, like close-reefed sails, offers the least surface to the gales. It is useless contending with the elements, so we ought to plant our Apples, like Currant or Gooseberry bushes, from 6 feet to 10 feet apart. This is the system suited to the requirements of the many, for the smallest garden can hold a cordon, espalier, or dwarf bush, but only the few have space for wide-spreading standards.—J. GROOM, *Gosport.*

CRYSTAL PALACE FRUIT SHOW.

AUG. 31—SEPT. 1.

A GOOD deal of interest attached to this show, inasmuch as it was the only one of the kind held this year either in London or the provinces. Moreover, its importance was not lessened this year as last by the magnitude of the gathering at Edinburgh or by that of the equally large show at Manchester the year previous; consequently there was no necessity for the most prominent exhibitors to withhold their first-rate produce from the Palace show this season. The result of this was a really good show, though, of course, not so extensive as the shows held here in years gone by. Fruits of all kinds were fairly represented as regards numbers, but the quality was variable. Grapes were numerous, but not very remarkable in point of quality. Peaches and Nectarines were uncommonly fine throughout, a pretty good indication that the crop generally of these is a good one as regards quality this season. The scanty show of Plums was a plain indication of the poor crop everywhere this season. Singularly enough, there were no classes for Apples and Pears, which we think a mistake, for these would serve a useful purpose to the public in selecting the best sorts of these fruits fit for use either for the dessert or kitchen at the end of August. Perhaps, as Mr. Head, the framer of the schedule, has made a departure in other details, he could see his way to open a class or two for these. On this occasion, however, the omission was in a measure compensated by the extremely fine collections of Apples sent by Messrs. Veitch, Messrs. Paul, of Cheshunt, and Messrs. Cheal, Crawley, each of whom had some hundreds of sorts, but then the uninitiated could not pick out the early sorts so readily as if classes were set apart exclusively for them. A glance at the prize list given in the advertising columns show that a good many of the leading exhibitors in the country competed for the prizes, which, as usual, consisted of liberal sums.

Collections of fruit.

The sum of £30 was offered in three prizes for a collection of no fewer than twenty-four dishes. This was an unusual number, and we hardly expected to find any competition, seeing how difficult it must be to muster so many dishes of distinct fruits even in the largest of gardens. There were, however, two competitors—Mr. Coleman, the well-known fruit grower and exhibitor, of Eastnor Castle gardens, Ledbury, and the Earl of Harrington's gardener, Mr. Goodacre, Elvaston Castle, Derby. These were both uncommonly fine collections, and the judges must have deliberated a good deal over them, though their decision in placing Mr. Coleman first was undisputed. Mr. Coleman's collection amply maintained his reputation as a first-class grower, for there was not a faulty dish among the whole two dozen shown. The collection consisted of Black Hamburg, Foster's Seedling, Alicante, and Muscat of Alexandria Grapes, all very fine; three excellent Pine-apples, Stanwick and Lord Napier Nectarines, Violette Hâtive and Bellegarde Peaches, Elton Pine Strawberry, Eastnor Castle

and Victory of Bath Melons, Magnum Bonum and Kirke's Plum, Moor Park Apricot, Negro Largo Fig, Quarrenden Apple, Bon Chrétien Pear, Red Grape Currants, Filberts, Oranges (home grown), Gooseberries, and Morello Cherries. Mr. Goodacre's Grapes were uncommonly good, the sorts being Buckland, Madresfield, Muscat Hamburg, and Muscat of Alexandria. The other dishes consisted of Cayenne Queen and Charlotte Rothschild Pine-apples, Royal George and Barrington Peaches, Pitmaston Orange and Violette Hâtive Nectarines, Pond's Seedling and Goliath Plums, Lockinge Hero and Read's scarlet-fleshed Melons, Red Currants, Filberts, Morello Cherries, Brown Turkey Figs, Moor Park Apricot, Jargonelle Pear, Early Margaret Apple, and Champagne Gooseberry.

The next class was for a collection of a dozen dishes—a much easier task. There were four exhibitors, the first being Mr. Coomber, a rising exhibitor of fruits, though he had to come all the way from Monmouth. The most remarkable of his fruits were the three bunches of Alnwick Seedling Grape, which were simply perfection in size of bunch and berry as well as finish, and showed admirably what a fine Grape this is in good hands. The bunches were the finest by far in the whole show. Mr. Coomber also had some creditable Alexandrian Muscats, and his other dishes consisted of Smooth Cayenne and Charlotte Rothschild Pines, Brown Turkey Figs, Hendre Seedling Melon, a large round fruit; Humboldt Nectarine, Royal George Peach, Hems Kirk Apricot, Kirke's Plum, Vicomtesse Héricart de Thury Strawberry, Jargonelle Pear. The second best dozen dishes were from Mr. Goodacre, who had Madresfield Court and Muscat of Alexandria Grapes, Cayenne Pine, Bellegarde Peach, Williams' Bon Chrétien Pear, Pitmaston Orange Nectarine, Conqueror and Read's scarlet flesh Melon, Goliath Plum, Morello Cherry, and Moor Park Apricot. Mr. Roberts, Baroness Rothschild's gardener at Gunnersbury Park, was third with some wonderfully fine Madresfield Court and Muscat of Alexandria Grapes, also Belle de Doué Peach (very fine), Lord Napier Nectarine, Red Astrachan Apple (the best in the show), Negro Largo Fig, Jefferson's Plum, Morello Cherry, Gunnersbury Gem, an oval, pale yellow seedling Melon.

There were four collections of eight dishes, Mr. G. T. Miles, gardener to Lord Carington, Wycombe Abbey, being first, having some superb bunches of Gros Maroc Grapes, also of Foster's Seedling Grape, a good Queen Pine, Victory of Bath Melon, Elruge Nectarine (very fine fruits), Crawford's Early Peach, Morello Cherry, Brown Turkey Fig. The second best eight dishes came from Mr. Mundy's gardener (Mr. Elphinstone), Shipley Hall, Derby, who had Muscat Hamburg and Muscat of Alexandria Grapes, Victory of Bath Melon, Brown Turkey Figs, Pitmaston Orange Nectarine, Bellegarde Peach, Goliath Plum, and Smooth Cayenne. The third collection, shown by Mr. Nash, contained some fine dishes. The other collections contained some creditable examples.

GRAPES, as we before remarked, were somewhat numerous, but on the whole their quality was not very remarkable. The class for ten varieties (two varieties of each) was not a large one, as might be expected, seeing what a strain it must be for even the gardeners in the largest places. There were but two collections—one from Baroness Rothschild's gardener (Mr. Roberts), the other from Sir A. Allsopp's gardener (Mr. Barker). Mr. Roberts was first, his collection being an uncommonly good one on the whole, consisting of Muscat Hamburg, large and well coloured; Buckland Sweetwater; Gros Maroc, very fine; White Tokay, large and green; Madresfield Court, excellent; Black Alicante; Muscat of Alexandria, green; Alnwick Seedling, uncommonly fine both in bunch and colour; Black Hamburg. Mr. Barker's collection consisted of Mrs. Pince, Alnwick Seedling, excellent; Trebbiano; Alicante, good; Muscat of Alexandria; Gros Colmar, very fine; Madresfield Court, Foster's Seedling, Black Hamburg.

The class of five kinds was better represented, there being seven competitors. Mr. Miles, of

Wycombe Abbey, was first with Black Hamburg, Foster's Seedling, Gros Maroc, Muscat of Alexandria, and Lady Downes. The second, from Mr. Tucker, consisted of Madresfield Court, Muscat of Alexandria, Alicante, Foster's Seedling; while in the third, from Mr. Woodbridge, were some excellent Alnwick Seedling, besides good examples of Foster's Seedling, Madresfield Court, Muscat of Alexandria, and Alicante.

There were classes set apart for three bunches each of Black Hamburg, Muscat of Alexandria, Gros Colmar, Madresfield Court, and Alicante, and in each there was a fairly good competition. The best Black Hamburgs among nine sets were from the Eastnor Castle, Gunnersbury Park, and Shardelose gardens, and of the nine sets of Muscats, which, by the way, were mostly all green, the finest were from Rainham Hall (St. Helens), Syon House, and Eastnor Castle. There were only three exhibitors of that fine looking Grape, Gros Colmar, the best being from Mr. Coleman, but it was only the matter of a toss up between his and Mr. Elphinstone's, both being superb in every way. There were seven sets of Alicantes, the best being from Badminton, Shipley Hall, and Park House, Streatham Common. The Madresfields were excellent on the whole, and there was a close competition between the three great gardeners, Messrs. Goodacre, Roberts, and Coleman, who won the prizes in the order named. The judges must have had to look over these three sets pretty closely, so near were they in finish, but Mr. Goodacre had rather the best of it in size; Mr. Hudson, of Gunnersbury House, showed the biggest bunches, but they lacked colour.

There was a class for any white Grape except Muscat of Alexandria. There were eight sets shown, and out of these the judges chose for the first place some excellent bunches of that much criticised Grape, the Duke of Buccleuch. These were shown by Mr. Tucker, and were really a credit to his skill. It would be interesting to know the exact weight of these bunches. Pitted against these were some admirable bunches of Golden Champion, though not quite ripe, from the Gunnersbury House vineries, and Buckland Sweetwater, from The Brookes, Reigate Hill, which were second and third respectively. Some good Foster's Seedling were also shown.

PEACHES throughout were excellent. In the class for four dishes there were five competitors, the most successful being Mr. Coleman, who had a fine collection of Violette Hâtive, Alexandra Noblesse, Royal George, and Bellegarde. Scarcely inferior, if at all, was a fine set from Mr. Roberts, which consisted of Barrington, Belle Rance, Belle de Doué, and Prince of Wales. The third, from Mr. Coomber, consisted of Stump the World, Royal George, Stirling Castle, and Thames Bank, a yellow Peach not often seen. Among the fourteen single dishes of Peaches the best was a remarkably fine one of Barrington from Mr. Blair, Shrubland Park, and this variety took both the second and third prize—a proof of its quality. It was also shown by several others. Walburton Admirable, Lady Palmerston, Late Admirable, Noblesse, Princess of Wales, and Grosse Mignonne were likewise shown.

It was an innovation to devote a class to a collection of Peaches and Nectarines, and was a capital idea, though probably on account of the number of sorts to be shown was indefinite, many were deterred from showing for fear of being outnumbered. As it was there was only one exhibitor, Mr. Coleman, who showed a capital collection of a dozen sorts all fine dishes, consisting of Peaches—Violette Hâtive, Galande, Noblesse, Exquisite, Royal George, Bellegarde, Prince of Wales; Nectarines—Old Elruge, Pine-apple, Albert Victor, Lord Napier, Pitmaston Orange, and Violette Hâtive.

NECTARINES, like the Peaches, were excellent. The best four dishes, from Mr. Coleman, consisted of Stanwick Elruge, Albert Victor, Lord Napier, Pitmaston Orange. Mr. Goodacre had, for the second place, Victoria, Pine-apple, Elruge, and Violette Hâtive; and in the third collection were Boston, Pitmaston Orange, Pine-apple, Elruge. Mr. Coleman was also first among nine with a

single dish, having some very fine fruits of Stanwick Elruge. Mr. Elphinstone was second with the same variety, and Mr. Ridout had some from Lord Napier for the third. Boston, Humboldt, Pitmaston Orange, Stanwick, Violette Hâtive, Pine-apple were the other sorts shown.

MELONS were not so numerous as usual, there being only fourteen green-fleshed sorts. Mr. Goodacre was first with Hero of Lockinge, Mr. Bailey second with his seedling Bailey's Green Flesh, and Mr. Coomber third with William Tillery; whilst among other sorts shown were Best of All, Victory of Bristol, Golden Queen, Hero of Lockinge, and Premier. Among nine scarlet-fleshed sorts the best was Blenheim Orange, the next Scarlet Hybrid, and the third Blenheim Orange; others shown were Hero of Lockinge, Read's Scarlet Flesh, Scarlet Gem, and Scarlet Premier.

PLUMS, though few, were of good quality, some being particularly fine. Among the three collections shown of yellow and green sorts, Mr. Goodacre was first with Golden Drop, Washington, Greengage, and Transparent Gage. Mr. Johnstone, Bayham Abbey, second, with Washington, Green Gage, Magnum Bonum, and Jefferson's. Mr. J. Bolton third, with Green Gage, Golden Drop, Jefferson's, and Washington. Mr. Bolton was the only exhibitor of red kinds. He had Pond's Seedling, Cox's Emperor, Prince of Wales, and Victoria. Of purple sorts Mr. Goodacre was first with fine dishes of Prince Englebert, Diamond, Kirke's, and Emperor. Mr. Bolton second with Kirke's, Orleans, Diamond, and Prince Englebert.

PINE-APPLES were few in number and not very remarkable in quality—in fact, scarcely worth comment.

A full list of prizes is given in our advertising columns.

RECENT PLANT PORTRAITS.

BEGONIA MARTIANA GRACILIS (*Revue Horticole*, August 16).—This plate is far inferior in accuracy to those usually appearing in this publication, as it gives no idea whatever of what the colour of the flowers of this beautiful species of Mexican Begonia really is, representing it as a pale pink, whereas it is in fact a fine deep purplish shade of rose colour. The flowers as represented are also much smaller than they are on the plant now beautifully in bloom in my garden. This species has been recently introduced from San Luiz de Potosi, and is in every way an improvement on *B. diversifolia*, to which it is closely allied, being of a much more compact and branching habit of growth, and producing larger and brighter flowers during the whole summer.

HEDYSARUM MULTIJUGUM (Regel's *Gartenflora*, plate 1122).—A rather elegant and slender-growing Vetch-like herbaceous plant, with spikes of pretty pink and white pea-shaped flowers.

PESCATOREA LEHMANNI (Regel's *Gartenflora*, plate 1123).—A handsome Orchid with large purple flowers, veined and edged with white, and with a bristling hairy lip.

TACCARUM WARMINGIANUM (Regel's *Gartenflora*, plate 1124).—A double uncoloured plate of a handsome Aroid, with large, much-divided leaves, resembling those of an *Amorphophallus*, and also showing the inflorescence in perfection.

CATTLEYA AUREA (*Illustration Horticole*, plate 493).—One of the handsomest of this beautiful family, which may be briefly described as *C. Dowiana*, with light lemon-coloured upper petals. It is also known as *C. Dowiana aurea*.

PELAGONIUM HYBRIDUM, new varieties (*Illustration Horticole*, 494).—A double plate showing a truss of each of the four new varieties of *Zonale Pelargonium* named *Le Cygne*, double white; *Madame Jay Gould*, double cherry colour; *M. Jules Malon*, simple pink with white centre; and *Commandant Riviere*, single orange-scarlet.

CIENKOWSKIA KIRKI (*Illustration Horticole*, plate 495).—A reproduction of coloured plate 320, appearing in Vol. XX. of THE GARDEN, page 504. W. E. G.

FLOWER GARDEN.

THE ATAMASCO LILY.

(ZEPHYRANTHES ATAMASCO.)

ALL the Zephyr flowers are very beautiful, this one particularly so; and, although it is said to

Graaf was quite proud to show me his pots of Atamasco Lilies in bloom in a cold frame. This was in April, and the plants were most robust and healthy, evidently well grown without any codling. Their treatment, in fact, was just that given to *Narcissus triandrus albus*, *Habranthus*

from the profit-and-loss point of view. Indeed, some few amateurs have been quite surprised to find that no temptation will induce the proprietors to depart from their usual practice as wholesale bulb growers. But I must return to these lovely blossoms, which, as the fable hath it, sprang from the caresses of the soft west wind. Those most usually alluded to in books are *Z. candida*, a white-flowered Peruvian species, nearly, if not quite, hardy, introduced in 1822; *Z. carinata*, a very beautiful pink-flowered species from Mexico, introduced two or three years later. The greenish flowered *Z. chloroleuca* is but rarely seen. From Texas the white or pale pink-blossomed *Z. Drummondii* was imported about fifty years ago; and *Z. mesochloa*, a white-petalled species with a green centre, came from Buenos Ayres in 1825. *Z. rosea* is from Havannah (1823); and *Z. striata*, another white-blossomed species, came from Mexico the following year; as also did *Z. tubispatha*, another white-flowered South American plant, together with *Z. verecunda*, a Mexican plant with rosy flowers. More recently we have had another white-flowered species, *Z. Treatia*, introduced from the American Continent, but none are more beautiful than the plant now illustrated. The sketch, as before indicated, was made at Leyden in the spring of the present year, and shows the buds and fully expanded blossoms of the natural size. The flower is pure white with a greenish centre, the perianth segments being fully expanded in the sunshine, but closed at night. The style is very much protruded, and the buds contrast in colour with the snowy perianth of the fully opened blossoms, being of a creamy white hue, suffused with red towards the apex. A compost of fibrous loam and coarse sand suits all the species, and they enjoy a period of absolute rest and drought in the sunshine after the foliage dies away. Anyone who can grow *Lachenalias* and *Freesias* satisfactorily should add a few bulbs of *Zephyranthes Atamasco* and *Z. carinata* to their collections.

F. W. B.

THE MIXED BORDER IN AUGUST.

It is a very favourite device with those who still advocate the bedding-out system as applied to private gardens in preference to mixed borders to refer to this month as a proof of its superiority. Go, we are told, into the garden where it is carried out; see the marvellously beautiful leaf gardening that meets your eye; mark the taste with which the various colours are arranged; see the exquisite patterns, and acknowledge yourself beaten, for what have you to show in your mixed borders now? In spring, and, indeed, up to July, you may make out a good case, but in August you are hopelessly to leeward. Your *Delphiniums* are over; your *Lilies*, the glory of your July show, are passed away; your herbaceous plants are done; it is true you may have *Phloxes* and *Antirrhinums*, but these are really florists' flowers, and unless you can fill your spaces with *Pelargoniums* and suchlike things, you have nothing but decaying stalks and dying foliage to show. Who has not heard and read over and over again such statements, and, although they are utterly fallacious, yet they find favour with many.

There is, however, a *prima facie* evidence in our favour. In order to make their position the stronger, they are forced to grant that up to this we have had the whip hand. Confessedly, then, while either their beds have been bare or the bedded-out plants have been doing their best to cover the ground, we have had a succession of beauty from our early spring-flowering plants and bulbs up to the glorious time of our *Liliums*, *Delphiniums*, &c., and as the glory of the leaf gardening now begins to wane, when cuttings must be taken off for next season, it is but for one short



The Atamasco Lily; colour white (natural size). Drawn at Leyden in April last.

have been introduced into English gardens two centuries or more ago, it is even now the reverse of abundant in our collections generally. We have several other white-flowered species of *Zephyranthes*, but none can, as I imagine, compete with this old favourite when it is really well grown. Last April I visited the quaint old university city of Holland—Leyden—and M. Simon de

pratensis, and a hundred, nay, a thousand, would be nearer the mark, of other half-hardy bulbous plants from North America, from the Cape, from Mexico, Chili, Peru, and from Asia Minor. Garden-loving tourists who visit Leyden should on no account neglect to visit the bulb grounds of De Graaf Brothers, wherein many rare and botanically interesting species are grown quite apart

month that all these pains, labour, and expense are undertaken; but even in that month I deny that they have the advantage over us, and I will take my small garden in evidence thereof, and will contrast it with one which I saw some time ago, where a space much larger than mine was occupied in leaf or carpet bedding, where everything was trimmed down to an exact height, and where the sound of the clipping reminded one of a hair-cutting saloon.

In looking out of my study window, my eye rests on a small three-cornered piece of ground which is at present a garden in itself; its size is 34 feet each way, and in this there are two long beds filled with Asters, grand in size and brilliant in colour, one bed of deliciously fragrant Ten-week Stocks (these beds were in the spring occupied by Tulips, Anemones, and Ranunculus); then there are two glorious beds of Gladiolus (which, by-the-by, are better than I have had them for, years), a bed of Tea Roses profusely covered with bloom, and a bed of double Zinnias and Pinks. Opposite is a small border in which various spring flowers have bloomed; it is now backed up by a row of Phloxes and edged with *Campanula pumila alba*. Various things are in flower; amongst others a large clump of *Anemone japonica* Honore Jobert, and a small clump of one of the grandest Liliaceous plants we have, although, unhappily, each flower is too short lived (the double *Hemerocallis*). The long bed edging my lawn, about 120 feet long by from 6 feet to 8 feet wide, is also edged with the dwarf *Campanula* still covered with bloom; a fragrant bank of Sweet Pea breaks the wind which is apt to sweep round by the angle of the house. In this border *Lilium superbum* is still in bloom, and *L. speciosum* opening, while *auratum* and its fine variety *platypetalum* are displaying their beauty; add to these the fine old Tiger Lily, and it cannot be said that although the grand Lilies of July are over, the time of Lilies is past. Then there is the double white *Achillea Ptarmica fl.-pl.*, with its pure white flowers; the grand *Senecio pulcher*, one of the finest of autumnal flowers; *Senecio Doronicum*, *Hypericum patulum*, the little white Rose Paquerette, *Rudbeckia Newmanni*, *Galega officinalis* and *alba*; again a large clump of the Japanese *Anemone*, *Statice incana*, *Agapanthus umbellatus*, *Chrysocoma Linosyris* (Goldlocks). Add to these a few patches of Sweet Sultan, *Chrysanthemum Dunnetti*, and about a dozen plants of the best and most distinct single Dahlias, and I think, taking it altogether, it is a border not to be despised; but I have another border about the same length opposite my small Rose garden, and here again, although there is no blaze, yet there is much of beauty; it is backed up by a row of Sweet Peas, and has been full of flower all the year. There are now in it a fine clump of *Aster alpinus*, a large bush (it is almost that) of *Gypsophila paniculata*, dear to all ladies for the elegance and lightness which it gives to a stand of flowers. Here still linger a few flowering stems of hybrid Columbines; *Senecio pulcher* is again in flower; some fine-coloured Phloxes are blooming well; a large clump of Echinops, with its brilliant blue flowers; while patches of *Linum grandiflorum rubrum*, *Agrostemma Cœli-rosa*, &c., give somewhat of more colour.

It is true that the glories of the small rockery have departed; spring is its time; but even now one can pitch on a little gem such as the pretty blue *Omphalodes Lucilia*, the bright *Linaria alpina*, the quaint spikelets of *Acena Novæ-Zelandiæ*, or the tiny, but pretty blossoms of *Androsace lanuginosa*; but we must not forget that at a time when the advocates of the carpet system were mourning perhaps over their plants fogging off, the rockery displayed its beauties of form and colour often in the midst of snow and all kinds of ungenial weather.

I should add that the bed fronting my greenhouse, which comes gay in spring with *Chionodoxa*, Snowdrops, Daffodils, Narcissi, and Hyacinths, is now fragrant with luxuriant Mignonette, on which my bees are disporting merrily; and here let me say is one great pull we have on the carpet system. There is not a plant amongst them that

sends forth any perfume; but all who can grow our Sweet Peas, Mignonette, Lavender, and Stocks have an immense advantage. I can at any time gather a nosegay from my garden, varied in the character and colour of the flowers, as one may imagine from the list I have given, and withal breathing forth that delicious fragrance which gives to flowers so great a charm.

I have written thus on the defensive, and although I have no bedding out, I am not insensible to its advantages, and do not agree with your correspondent that the mixed border is more suitable for public parks; there, I think, it is quite in place; the ever-changing crowd is not wearied by the sameness. It gives a mass of colour which, especially for distant effect, is admirable; nor is it correct to say that the mixed border has never had a fair trial in any public park. Those who recollect the Luxembourg Gardens under M. Riviere's care before the siege will remember how much care was bestowed on them, but the effect for such a place was not pleasing. As to people being educated by such places, that is simply deluding; people do not go to Hyde Park to be educated, but to enjoy themselves. In large places, too, there is ample room for both styles. As I stood a little while ago on the terrace in front of Cliveden, looking down upon the wide lawn in front, I could not but feel that if any garden was to be there (a point on which I had my doubts), no style was so suitable for it as the bedding out. My contention is against those who have spoiled many a villa garden—aye, and many a cottage garden too—by advocating this gaudy system. I know of many a cottage garden where the old-fashioned flowers have been banished to make way for Mrs. Pollock, yellow Calceolarias, and such like, and I cannot but deplore the change. Tastes on such points must and will differ; but I am thoroughly persuaded of this, that those who wish for a lengthened and varied period of enjoyment in their gardens will find that it is to be obtained much more by the mixed border system than by the more showy system known as bedding out, more especially that latest development of it, the leaf or carpet system.

DELTA.

GOOD SEPTEMBER HARDY FLOWERS.

I SEND you a few flowers from the open air, gathered in my garden, all of which I consider admirable and quite worth growing. They are, *Achillea serrata fl.-pl. alba*, very useful for bouquets; one of the blooms drawn through *Boule de Neige* *Abutilon* changes the whole character of the latter; *Anemone japonica elegans* and *A. japonica* Honore Jobert I have very fine this season, on account of the moist summer; Algerian *Marguerites* (*Chrysanthemum tricolor*), which grow wild on the coast of Algiers; *Anemone chrysanthemiflora* La Brillante, very fine from May plantings; *A. fulgens*, quite out of season from May plantings in easterly aspect; *A. pavonina*, the Double Peacock *Anemone*, brilliant scarlet. *Begonia Defiance*, from Germany, a really fine sort, as good as I have seen yet. *Coreopsis lanceolata*, most useful, and produces a fine effect planted alternately with *Paragon Dahlia*. *Carnation Grenadin*: This splendid variety forms a red line 200 feet long. *Gladioli*, Lemoine's hybrids, viz., Lemoinei and M. Lemoine: These increase wonderfully well with me. *Helichrysum bracteatum* vars., most useful to cut now and dry for wreaths in winter. *Iberis gibraltarica hybrida*: This has been in flower since April. I intend potting all my plants next year being well worth it. *Leptosyne maritima*, a very fine composite which Mr. Thompson, of Ipswich, introduced to commerce some years since. *Lobelia cardinalis* Queen Victoria: magnificent with me this year in beds of *Centaurea*. *Loasa vulcanica*: I do not like this; it stings, and you are apt to forget when gathering flowers. *Menziesia polifolia bicolor*: I wish I could get this to do better. My ground is rather dry. *Mimulus New Duplex*: I had this sort from Paris this year; I have some forms promising to be really fine. *Montbretia crocosmæflora*, Continental: Cost me too much money, but a fine plant when it can be got at a reasonable price. *Montbretia Pottsi*: The

parent of the preceding, a nice thing in pots. *Oxyura chrysanthemoides*, an annual composite, and the gem of my garden this season. I shall never be without it. *Pyrethrums*, seedling single forms: I never thought much of single forms until I saw your plate of *Rudbeckia purpurea*; the latter is a weed, the others are beautiful. *Pyrethrum*, double hybrid: Common, but fine for cutting. *Potentilla*, double forms, cut-and-come-again flowers for wide borders; Sultan, yellow, sweet scented, a puzzle to many to know what it is. Scabious, German, double forms; my boy calls this the bee flower, as bees are always lighted on them. *Viola Imperator* (Reading variety), rich plum colour, in flower since March; I consider it one of the best. *Viola Nannie* (Reading variety), a dwarf blue sort, not more than 4 inches to 6 inches; I also consider this one of the best grown for narrow lines. The *Etoile d'Or Chrysanthemum* I have planted out for the sake of colour and quantity of bloom. In making a bouquet for the Countess of Spencer, who was here last week, I was left to my own choice. It was composed of *Centaureas* (Cornflowers) pure and simple, worked in colours with the yellow Sultan as a rich centre next blue, &c. It was 12 inches wide and dotted with Maiden-hair Fern.

W. BAYLOR HARTLAND.

Temple Hill, Cork.

* * A very fine gathering of open-air flowers, which showed plainly that there is no dearth of beauty among hardy flowers in September. All the plants Mr. Hartland mentions are really good and worth cultivating.—Ed.

The Bardfield Oxlip.—This plant is much grown by Mr. Wolley Dod in his garden at Edge Hall, and he speaks highly of its beauty. We had not seen it since the author of the new edition of "English Botany" brought us, from its native locality, a plant some fifteen years ago, which plant, like many other good things, has long ago perished, its roots being in London clay, the leaves in London fog. In Cheshire it seems free enough.—V.

Harpalum rigidum.—By far the best of the many kinds of Sunflower is *Harpalum rigidum*, a hardy perennial that increases freely by division from its quick-spreading crown, from which it pushes up strong stems every year that branch out and bear numerous single heads of large bright clear yellow blossoms, that are remarkably showy and effective when seen in contrast with scarlet Dahlias, with the flowers of which they dress and associate well. As plants of this *Harpalum rigidum* grow about a yard high, they are specially suitable for the backs of herbaceous borders or the foreground of shrubs, in front of which they show off to great advantage, and attract notice and command admiration by their boldness of character and brilliant appearance.—S. D.

Tigridia grandiflora alba.—With regard to "F. W. B.'s" inquiry as to who may claim the honour of having introduced this beautiful Irid to the horticultural world, I would refer him to THE GARDEN of October 14, 1882 (p. 346), where he will find that M. Carrière describes it in the *Revue Horticole* as having been raised and sent out by M. Hennequin, of Angers, France. It is a great pleasure to be able to endorse every word of praise which "F. W. B." has lavished on this lovely flower. In breadth and substance of petal it is equal, if not superior, to the best examples of other varieties of *Tigridia*, and in richness of colouring there are few flowers which can approach it. The head gardener at Heythrop told me recently that he had never known *Tigridias* bloom so freely as they did this season with him after he had, for the first time, lifted them from the ground through the winter months and dried them off, and this exactly coincided with my experience. I lifted them in dry weather late in October, and kept them in an open basket in a dry heat till April, with the result that they have bloomed far more freely than when I left them in the open ground during the winter. I would add one word in favour

of *T. conchiflora*, most worthy of cultivation, but in my experience too rarely met with. Its colouring is unique, and a fine contrast to the old grandiflora and the new alba.—F. C. C. B.

Propagating perpetual Carnations.—I am astonished to read in THE GARDEN of the 25th ult. that layering is the best way of propagating these, and that at Mr. Charles Turner's it is preferred to cuttings. I have long been of opinion that the latter was the best and most rational way of propagating perpetual Carnations, and indeed for all sorts of plants (except grafting in the case of trees), and that layering is the infancy of horticultural art. It is a fact that when the branches of a plant are layered the plants feed the layers, while, when the cuttings are taken, the plant works to replace the parts which have been removed, and thus more cuttings can be obtained. Besides, cuttings of perpetual Carnations strike root very readily and quickly in all seasons, although for the horticulturist January and February is the best time, as they are fit in from three to five weeks to be potted and planted out in May, and make stout plants for potting in autumn for flowering in winter. Such cuttings do not require the protection of bell-glasses, as is sometimes supposed. Indeed, put in on a bed of sand, with bottom heat, in a span-roofed house, they root better, quicker, and surer without bell-glasses, a remark which also applies to Dahlias, Chrysanthemums, Zonal Pelargoniums, and many others. Cuttings also make better plants than layers. Let those who doubt it visit M. Laurent Carle's establishment at Lyons, and they will, I think, say, like Mr. George Paul and Mr. Cranston, that it is alone worth a journey to Lyons to see.—JEAN SISLEY, *Monplaisir, Lyons.*

SHORT NOTES.—FLOWER.

Double Poet's Narcissus.—I have always noticed in this plant that here, in the midlands, when the blooms fail it is always in dry, sunny, and rainless weather, as if the buds were starved or sunstruck. The sheath withers and does not open, but they are not empty when opened. Under trees it rarely flowers where other Daffodils do.—J. S. W.

Seedling Carnations.—A row of these along a border in front of an early Peach house, which I saw the other day, contained the best selection of varieties from one packet of seeds I have yet met with, and there was scarcely a single flower amongst them. There were whites, yellows, and crimsons in various shades, besides several striped flowers. These Carnations are found invaluable for cutting.—H.

Primula obconica.—From the first time I saw this Primrose in the hands of Messrs. Veitch I was charmed with its beauty and distinct character. Its continuous blooming habit I had noticed. I cut the other day quite twenty trusses of flowers in various stages of development from two plants, and left a few to produce seeds. Is it hardy? We lost our plants in a cold frame last year.—J. DOUGLAS.

The white Tiger flower.—We send you flowers of the new white *Tigridia speciosa* alba, and with it we also send a flower of the old type; though the latter is very beautiful, the white forms an agreeable change.—E. G. HENDERSON, *Pine-apple Nursery, Maido Vale.*

* The flowers kindly sent by Mr. Henderson came to us solid masses of pulp. The flower collapses very soon. It is a noble addition to our summer flowers.—ED.

Centaurea candidissima ranks still amongst the best of silvery-leaved plants for foliage gardening. This is the time to propagate it from cuttings; slip them off with a heel of old wood attached to them, and insert each cutting in a very small pot of fine sandy soil. Tie the leaves up to a stick and set the cuttings in a cold frame, keeping them close and shaded for a week or a fortnight, then gradually inure them to light and air. Apply water sparingly, and nearly every cutting will make a good plant.—J. G.

Lilium auratum.—I have in a raised bed of Rhododendrons, growing with other Lilies, three auratums growing close together; one has forty flower-buds, the other forty-seven, and the third eighty-seven; this last number appears so unusual, that I would ask through THE GARDEN if it has been exceeded. They have been planted three years and have never been disturbed.—K. K., *Taddyforde, Exeter.*

6042.—Coburgia incarnata.—Three years ago we planted this in the open border in plenty of sand, but, through some cause or other, it never appeared. Probably excess of wet was the principal evil; this in winter it dislikes, but under a south wall in sandy or gravelly soil it should succeed. We think the spring decidedly the best time for planting, and all the better if it can be started in pots and planted when root action has well begun. We have this year planted some more thus treated.—C. SMITH & SON, *Guernsey.*

Lilium speciosum was for a time likely to be completely overshadowed by its more gigantic relative from Japan (*L. auratum*), but, to my thinking, different varieties of *speciosum* are of equal merit as regards usefulness. I find that they all like a liberal coating of sea sand; even bulbs that have been partially withered in transit soon plump up if buried in it for a week or two. Last season I potted some quite small bulbs of *speciosum rubrum* in 5-inch pots, putting a good handful of sea sand right on the crown of each bulb. As soon as they began to grow and show their surface roots a top-dressing of manure was applied, and in these small pots they each produced a flower-stem from 2 feet to 3 feet high, with two or three large flowers in each.—J. G.

Carnations at Penllergare, Swansea.—Carnations are made a great speciality of here and they are better cultivated than any place I know of in South Wales. Mr. Llewellyn is thoroughly well up in all Carnation matters, and his florist gardener, Mr. Stafford, is an expert amongst them. The other day, while admiring large quantities of fine plants in pots and planted out in beds as well, I asked him to what he chiefly attributed the unusual robustness of growth and the cause of so many uncommonly fine blooms being produced, and he told me he was a great believer in using lime rubbish in his Carnation soil, and his mixtures for them always contained loam, a little manure and lime. The best of the blooms were shaded over from sun and wet in the same manner as I saw them treated at Messrs. Veitch's Chelsea nursery lately, and it seems necessary to give protection in wet, changeable weather.—CAMBRIAN.

NOTES FROM HECKFIELD.

Grapes cracking.—If "in the multitude of counsellors there is wisdom," we are likely soon to gain valuable information on this subject. I trust many others will give their experience, and that none will be deterred from doing so on the ground that it would be publishing their failures. This would be a poor excuse, for, in the long run, one invariably profits more by failures than by successes; besides, where one has succeeded in growing the Madresfield Court Grape without cracking, scores have failed, so that at all events we are a numerous company, and in this fact there is a certain amount of consolation. I myself hope to have another say in the matter; meanwhile, shall wait with interest the views of others.

Colouring Grapes.—We are sometimes apt to lay hold of a set of ideas in our treatment of certain plants; whether or no that treatment be the best or no, we consider ourselves perfect with regard to certain cultural details, and refuse to close our ears to further enlightenment. This is a sad mistake, as I can vouch from experience, with regard to the colouring of Grapes. The orthodox rules are somewhat as follows: As soon as the berries begin to colour keep a dry atmosphere night and day, let the foliage shade the Hamburgh section, but fully expose the bunches of the Muscat section to full sunshine. All very excellent advice this, which, if carried out, rarely fails to be successful. But then there is no rule without exception; other treatment might be just as successful, and in my case has been more so. The fact is that in everything our practice should be adapted to local conditions. The scorching sunshine of this district disfigures by scalding the bunches of Muscats when not partially shaded by the leaves, whilst they colour perfectly with partial shade from the foliage; whilst as to atmospheric moisture, were we to discontinue it, we should soon be eaten up by red spider. The conventional rules, as regards shade, I find to be the best for colouring Hamburghs, but not in regard to atmospheric moisture; this if continued, though of course in a reduced form, till the berries are quite ripe, and with both sections I find that an abundant lateral growth aids considerably perfection of colour and bloom.

Late Grapes.—A month ago there was but little prospect of late sorts being ripe at this date, but the change from dull to sunny skies has

quickly altered the complexion of things, and I was going to say without our aid, but this would scarcely be correct, as we have in a measure assisted by closing up the houses early, and so as to bottle up, as it were, the sun heat. This surpasses all artificial firing, not to say a word about cheapness, but then it is not at all times to be had, and when the present season is reached sunheat becomes less and less powerful, so that it would not do to depend absolutely upon it. My advice is to set the furnace to work if the Grapes be still unripe, for all kinds ought to be eatable by the end of the present month, then perfect keeping qualities will be ensured, but not otherwise. To start the houses of late kinds at a late period of the season under the impression that they will keep the longer is a delusion that is very nearly, though ought to be quite exploded. Grapes must have sugar to preserve them, and in the absence of sunshine, daylight and fireheat are the only elements that can infuse sugary properties in the berries. I have noted for years that the later formed lateral growths of late kinds, Alicantes in particular, are subject to mildew; this we make short work of by taking off the laterals as soon as the mildew is seen, or if it be not safe to remove them because the Grapes are unripe, dry sulphur is freely applied, and this has always proved effective.

W. WILDSMITH.

FERNS.

CULTURE OF FILMY FERNS.

THE following extract from a letter from a correspondent near Wellington, in New Zealand, may be of some service to those who take an interest in the cultivation of Ferns from that country. I believe that a cold frame is all that is necessary in dry localities to cultivate the more delicate sorts successfully, and even that protection in unnecessary where the atmospheric conditions are favourable. In many parts of the west coast of Scotland, for instance, our native *Hymenophyllum* grow luxuriantly. Such places would, I am sure, suit the New Zealand species admirably. Many of the more robust sorts, however, will grow and thrive almost anywhere alongside the common Ferns of this country. I have a little piece of rockwork in my garden specially devoted to exotic Ferns, and as they are growing side by side, species from New Zealand, Japan, North America, Himalayas, and Madeira, much might be done in growing exotics out of doors in this country, particularly in the south of Scotland and in England. The letter is as follows:—

"All the *Hymenophyllum* grow at high levels, and among them *H. Malingi*, *ciliatum*, *unilaterale*, and *rufescens* are only found near the snow line. *H. pulcherrimum* and *bivale* only occur at levels of 3000 feet or upwards or very rarely below that level, and most of the others are finer at high than at low elevations. All the *Trichomanes* grow best at high levels and are rarely met with at low ones. *Polypodium Billardieri* and *Novæ-Zelandiæ* also grow at high levels, the latter only there, though the former is met with down to the coast. *Hypolepis distans* occurs also at high levels, and *H. millefolium* only grows beside springs of snow water out in the open plain at the base of mountains. *Gleichenia circinata* occurs in similar situations, though I have met with it only a few feet above the sea level. *Gleichenia Cunninghami* only occurs at elevations of about 3000 feet, and seems as if it would not grow at low levels. I have kept plants alive by my camp at high levels for months with just a bit of rag round their roots, and they have produced fresh fronds and thriven well with no care at all, yet when brought home and put in pots, they soon died even in the coolest places I could find for them, and other Fern growers find the same thing happen with theirs. In fact, I only know of one plant that has survived moving and that is in an open garden. *Cystopteris fragilis*, *Alsophila Colensoi*, and *Aspidium cystostegium* only grow when they are covered with snow for several months

have done in every case, for the first year's sale is the best.

It has, however, been asserted confidently that a march can be stolen on those who follow this plan by propagating plants from cuttings of the green wood during the growing season, instead of allowing the same to grow into ripe eyes. By following this method, it is claimed that young Vines can be produced for disposal in summer and autumn; but let us just examine what is possible by this. In the first place the young green shoots of the Vine do not strike very readily in the form of cuttings. In fact, they will hardly strike at all, and very much time is lost in the process, for supposing the cuttings to root successfully, they stand still for a long while in the cutting pots, and are again arrested in their growth after potting off, and the result in the end and at the very most is perhaps a few miserable plants such as no one would accept as a gift. That being so, anyone may guess what plants propagated from the tops of other green cuttings the same year would be like, and what the Vines would be like that had been so topped and retopped in that way for cutting purposes may be better imagined than described. I have never seen any such, nor have I ever heard of any authenticated examples of the kind, nor met with any Vine grower who did or believed in them.

Practically, supposing the seven-limbed Vine grown into ripe eyes, as I have described above, had been treated on the green-cutting principle, it would have been robbed of its young growths as fast as they pushed, and the most that could have been made of these, supposing them to strike, would have been perhaps a score or two of weak, poor plants at the end of the season of no use for planting that season or for any other purpose; whereas had they been left on the parent Vine, they would in all probability have produced a thousand good eyes, all of which would with certainty have produced fine plants the following spring and passed the green cutting plants in the race clean and away. From this the fallaciousness of the green cutting theory will be seen, taking no account of the fact that green cuttings cannot be readily or frequently procured owing to the length of the joints and size of the leaves, and leaves cannot be had without much wood, as the points push far in advance of the foliage. Only a person inexperienced in Vine culture could imagine that he could steal a march on a stockholder of a new Vine, as has been suggested by buying plants at a high price, pushing them on and striking the green shoots at once; and as for the real stockholder, he would have no motive in trying such a plan. The idea is a purely imaginary one, and no evidence has yet been offered in support of it. J. S. W.

WATERING FRUIT TREES.

It is not every place where time can be spared for this work or where facilities exist for doing it, but where it can be carried out it should be during a dry period such as we have had when trees suffer, and many of them quite borne down under the weight of their load. Fruit is not much drag on them up to a certain time, but when the stones or pips, as the case may be, are forming, then comes the pull, the seed being a heavy tax on the energies of most plants, many of which are often much distressed in bearing and perfecting that which under natural laws is intended to increase or perpetuate the different kinds, and trees seem to throw their whole energies into the work. Watering, however, is of little use without a mulching; indeed, I am of opinion that it often does more harm than good by washing the surface of the ground and causing it to crack, which not only lets in the air, but opens a ready escape for any moisture within. The best plan with trees that are to be watered is to draw a little of the soil away from the stem outwards around them, so as to form a saucer-like edge, inside of which the mulching should be put, and when water is given it will be confined there till it soaks away down to all the roots, which will have the full benefit, as with the mulching it is impossible for

much of it to evaporate in the way it otherwise would. For Apples and Pears liquid manure is a great help, and at this early stage they will take it rather strong without the least risk of injuriously affecting the fruit. Dryness is a frequent cause of red spider on Peaches, and any trees that suffer must of necessity have great difficulty in forming and plumping their buds. A good soaking now will assist them greatly in doing this, and may be the means of enabling them to produce and bear fruit next year. Trees on walls are so screened from rain, that they hardly ever get enough to wash their leaves. This should be done by giving a good drenching from the garden engine, as the foliage being hard now will stand water driven against it with force. S. D.

OLD APPLE ORCHARDS.

In a note on the renovation of old Pear trees in THE GARDEN the other day I noticed the fact that where this could be satisfactorily carried out, the old trees were afterwards very serviceable until younger plants of perhaps more desirable varieties could be thoroughly established. The same remark applies with even greater force to the Apple. Bushes, pyramids, and espaliers are doubtless very useful, especially in small gardens, but where the demand is great the old-fashioned standard is not to be relied on. A piece of ground some ten acres in extent was set aside for an orchard here some years ago, and the trees, to all appearance, were well cared for during the early part of their career. A wild undergrowth of Brambles, Nettles, and Hazel has sprung up of late years, and the Brambles are in many cases well up to the tops of the Apples. The latter were condemned last winter, but have not yet fallen, and this season we have a fair crop. The trees themselves, with few exceptions, are not in good health, dead fruits showing all over the surface. The question is, "Are they worth keeping?" Say the ground is thoroughly cleaned, ploughed, a good coat of manure, and again the plough, will the old trees respond to the light, air, and feeding matter on and under the surface? Where the undergrowth has been allowed to roam at will for a considerable time, I take it there would be few feeders in the way of Apple roots near the surface, and consequently the trees could not suffer in such a case from a fairly deep ploughing; it seems, however, only natural to imagine that a radical change for the better in the neighbourhood of such feeders would so act upon them as to lead to vigorous growth overhead. In the case of the Pears our border was good and the growth vigorous; it was, therefore, principally a question of getting them into decent shape, but with the Apples new and healthy root action must be secured before satisfactory results can be obtained. A point always in favour of large orchards of standards in the seasons we often experience would be the natural protection afforded by the interlines of trees to those nearer the centre, especially where the orchard itself is not sheltered by belts of trees at points of the compass varying from E. to N. and N.W., a need felt most keenly in the spring of 1882. In the matter of pruning we can do little except take away dead wood and weakly centre shoots, thinning being limited to an occasional cross branch until our attentions to the roots are productive of increased vigour in the tree itself. Touching this same question of pruning standard Apples, the line should be sharply drawn between, allowing on the one hand a lot of useless wood to accumulate, and on the other the excessive use of the saw and knife occasionally practised. I am bound to confess that the finest Ribstons, Gilliflowers, and King of Pippins it was ever my lot to see or taste were the produce of trees that were subjected every winter to a most severe thinning; severe, indeed, to an excess that gave the trees a somewhat unnatural appearance. The fruit in this case was wonderfully fine, and the flavour exceptionally good, but as the soil and subsoil of this orchard were alike very good. I fancy the same result might have been attained had the saw remained in the background, that is nearly

the same result as to quality and size with the quantity largely increased. E. B.

Best culinary Apples.—The three best Apples for kitchen use which I saw in a recent run through the midland counties are Stirling Castle, Echlinville Seedling, and Pott's Seedling. Mr. Ward, Hewell, has trees of these kinds in the form of pyramids, and he says they never fail to bear good fruit. Bearing crops annually, as they do, they never get out of hand, so to speak, but, on the contrary, make short-jointed, fertile wood. —H.

Prolific cropping in the case of fruits.—Last year a bank of Black Prince Strawberry flowered thrice—in February, profusely in May, and in September, the berries of the last being the largest, but not thoroughly ripened. This year an Apple tree, the Yorkshire Greening, planted by me in November last, blossomed profusely in May; about forty-five of the blossoms set, but were reduced to ten in number at the midsummer shoot. When the tree blossomed profusely again, the ten Apples, half grown, dropped off, no doubt owing to the diversion of the sap; but, despite the exhaustion of the tree, many of the last blossoms seem to be setting.—W. R. ARROWSMITH, 99, *Adelaide Road, South Hampstead.*

Exhibiting fruit.—"W. B." will find the judges' decision supported by all the authorities. In collections of fruit no more than two varieties of Grapes are admissible, one white and one black. If more Grapes were admitted than two, then there would be nothing to prevent a collection of fruit being composed wholly of Grapes, as, of course, six, eight, or even a dozen varieties of Grapes could be shown. In other sorts of fruit, such as Peaches, Nectarines, Plums, Pears, Apples, Figs, only one dish of each is allowed in general collections of fruit. Sometimes, but not generally, two Melons are allowed, one scarlet and one green fleshed, but generally only one Melon. Grapes being held to be so important, and the distinction between black and white Grapes being so marked, two sorts are allowed. The practice of showing Muscats as the white Grape whenever practicable makes the difference wider between these and black, for the Muscat of Alexandria is not only distinct in colour, but a different fruit as compared with any other Grape. "W. B." will thus see that his disqualification for showing two dishes of white Grapes with one of black in a collection of six varieties of fruit was not only just, but reasonable in accordance with general practice, and also with common sense.—D. T. F.

SHORT NOTES.—FRUIT.

Diseased Grapes (R. O. T.).—The specimens sent show a bad case of what is termed shanking, a disease arising from various causes, but chiefly from weak or deficient root action.

Early Peaches.—Mr. Ward, Hewell, says Hale's Early is, with him, the best Peach for forcing. The Concorde, a new Peach, also forces well. The late Admirable Peach, in a Peach case, he intends removing, as it does not bear well. It wants warmth to ripen the wood.—H.

5049.—Peach stones cracking.—It is not easy to assign a cause for diseased kernels; my own impression is that the disease is caused by the want of fertilisation. The only remedy that I can suggest is that the flowers intended to remain for fruit should be always carefully fertilised; the Peach flowers so profusely, that the pistils of many flowers do not receive any pollen.—T. F. R.

Best flavoured Gooseberries.—"W. H. H." asks the names of the best sorts for flavour. Several years ago I procured several dozen sorts of the less known kinds, and out of the whole two of the best are Pitmaston Green Gage, a medium sized berry, and Green Overall, a large sort with a delicious flavour. Of course, in naming these I am keeping out of account the sorts usually grown.—P. NEILL FRASER, *Murrayfield, Edinburgh.*

—"W. H. H." will find the richest flavour among the small fruited kinds. The following can be recommended, viz., Whitesmith, White Hedgehog, White Champagne, Pitmaston Gage, Yellow Ball, Pitmaston Orange, Early Green Hairy, Green Walnut, Green Gascoigne, Red Warrington, Red Crown Bob, Red Champagne, Scotch Red, and Ironmonger. Our nurseries contain 250 kinds in all.—GEORGE BUNYARD, *Maidstone.*

Culture of Pine-apples.—I have 100 very strong Queen Pines planted out, but they refuse to fruit. They have been planted in the bed for a year in good friable loam mixed with some oyster shells and a little soot. The bed has for bottom heat four pipes and about 1 foot of Beech leaves; the top heat is kept at 70° to 80°. They have had no watering, or syringing, or shading the last two months. What am I to do?—DENMARK.

Passans de Portugal Pear.—A great variety of Pears are grown here, many of which are comparatively worthless. The above, however, is an exception. With us it is ripe early in September, and though it keeps badly, it just serves to fill up the slight gap between Jargonelle and Williams' Bon Chrétien. It would be a mistake to grow more than one tree in a small garden, as this, in our case, seldom fails to produce a sufficiency of brightly coloured, good sized, sweet juicy fruit.—W.

Duchess of Oldenburgh Apple.—We find this variety of great service. It seldom fails to bear well, and the habit of growth, being upright and not particularly vigorous, renders it amenable to bush culture, and therefore a suitable variety for small gardens. The fruit is very clear and attractive in appearance, and is very juicy and refreshing, not quite sweet enough for all tastes perhaps, but I find it is much appreciated by my employers at the present time, and it will keep good till the end of the month.—I.

Grapes cracking.—We find Madresfield Court Grape most liable to crack when grown in an unheated house or under such conditions as are generally suited to late ripened Black Hamburgs. The extra fire heat also greatly improves the quality. We also allow the growth, after the first stopping, to extend freely beyond the bunches, and this serves to attract or divert superfluous sap which at times appears to be very abundant, and is then a source of danger. Madresfield Court is truly a noble and valuable variety; unfortunately, it will not hang long without losing colour.—W. I. M.

The merits of the Madresfield Court Grape.—As there has been so much written in THE GARDEN lately about the difficulties of growing this Grape successfully, I should like to know what its special merits are in comparison with Black Hamburg as a summer Grape. At a flower and fruit show last week I exhibited two bunches of Madresfield Court weighing over 5 lbs., large berries thoroughly ripe and finished, not having lost a single berry by splitting, and was awarded an equal first prize with two bunches B. Hamburg irregular and small in berry, and not well finished. Knowing the difficulties of obtaining Madresfields, I was surprised to find that the judges did not prefer them for the first prize to such easily grown Grapes as Black Hamburg and those of a second-class quality. Could the flavour be considered inferior to Hamburg? if so, why are growers so anxious to be able to produce Madresfields?—J. W. W.

Early Peaches on open walls.—The crops of these are rather thin this season, but the fruits are of good size, very highly coloured, and good in quality. Early Alfred cropped well, and is the best of the English raised early varieties, while Hale's Early is the best American variety, and is decidedly superior to Early Alfred. Unfortunately, most of my horticultural friends have not received the true variety of the latter, and only one out of my two trees are true to name. The true sort forms sturdy and not very branching growth; the young wood is coloured, and the leaves broad, smooth, and of a dark green colour. The fruits are of medium size, highly coloured, and very sweet and juicy. The fruit of the spurious sort much resembles the true variety, both being much depressed on the apex with deep sutures, but ripens much later, and the growth is also very different. The flowers are small, while those of the true variety are large. Early York does well with us, and we are now pulling highly coloured fruit, which, though rather sour, are still very refreshing. Early Beatrice will be gradually cut

away, the fruit being too small and not well coloured.—W. I.

ROSE GARDEN.

ROSES AT CHESHUNT.

THE Old Nurseries, Cheshunt, have long enjoyed a well-deserved reputation for Roses, and the name of Paul is as a household word among rosarians. Those, however, who were familiar with these nurseries in the olden time can have no adequate notion of the marvellous development of Rose culture within the last few years. The Rose is running further and spreading wider in all directions. It is not only overleaping nurseries into fields and on to farms at Cheshunt, but is overrunning new nurseries and other farms in all directions. Thousands and tens of thousands of Brier stocks and Roses have been reared and planted, and all the available land in or near Cheshunt seems too limited for the wants of the firm; hence a new and bolder departure has recently been taken, and part of Epping Forest itself has been girded round with a broad band of Roses, and further lighted up with thousands of variegated Hollies and Rhododendrons. While this extension of area has been rendered needful by the ever-growing demands of an ever-expanding trade, it has also brought other advantages with it. Among the most prominent of these is the virtually inexhaustible supply of

MAIDEN SOILS of very diverse character for the culture of the Rose. The excellency of the stocks, and especially the health and vigour of the Roses, show how their roots feast in these maiden borders. The Roses seem less particular about the quality of soil, provided it is but new; hence probably in part the uniform excellence of the Roses over such a wide diversity of soil as that found in the Old Nurseries at Cheshunt and the new maiden soil of those at High Beech. Of course in such cases a good deal depends on culture, while change, rotation, transplantation, are at once the bases, life, and success of nursery business in general, and the rearing, growing, and selling of Roses in particular. Thus it comes to pass that the trade mostly grow their Roses on maiden soils, and hence, no doubt, to a great extent their distinguished successes in the growing and showing of Roses. Doubtless they also possess special skill and knowledge. But, apart from these, maiden flowers on maiden plants on maiden soils are likely to prove the very best. Such blooms, as it were, combine the vigour of youth with the strength of manhood, and it is comparatively seldom that they equal their first achievements. As a rule, one-year-old cut-backs seldom equal maiden blooms; two-year-olds yield inferior to the one-years; and so the perfection of individual blooms decline with age of plant and root run. This theory is not propounded as an excuse for the inferiority of the Rose blooms of private growers as compared with the trade. This could not be, for I deny the inferiority; given similar conditions as to age of plants and freshness of soil, each class of rosarians produce Roses of almost equal merit. No doubt at many shows the Roses of the amateurs are very inferior. But it is not always the finest Roses that get on to exhibition tables, and occasionally the amateurs are the best. Trade growers have also far more powerful motives for putting forth their full strength on such occasions than amateurs. And it is the trade that has discovered the superlative value of maiden soils for Roses, and how earnestly this lesson is put in practice is one of the first things to be noted in the Rose nurseries of Cheshunt and elsewhere.

CUT FLOWERS.—Roses are now becoming more generally grown for cut flowers in nurseries. Some forty or fifty thousand blooms in a day have not been unknown to meet the demand. As these go on growing in magnitude and number, whole farms will probably be devoted to Roses as permanent crops. It will probably be found more profitable to sell the flowers than the plants. Doubtless for the supply of these wholesale orders, cut-backs, that is old-established plants,

will yield the larger number of blooms, and it will hardly depreciate their value if but few of them reach to the highest possible individual excellence. Meanwhile, and under the present condition of the Rose trade, it may almost be accepted as an axiom that maiden soils prove the more profitable for the rapid rearing and growing of Rose plants into saleable condition. Their well-doing afterwards depends a good deal on the culture the Roses receive in the nursery and the nature of the maiden soils. It is quite possible to pamper and feed Roses so high in their babyhood, that they will do but little good ever afterwards. The greatest art, and it is one which the majority of the trade seem to be learning more perfectly every day, is so to rear and grow young Roses as to so firmly ground them in vigour and health as to enable them to hold their own creditably under ordinary conditions of soil, climate, and culture. A more promising set of Roses for this purpose it would be difficult to find than those that crowded the Cheshunt Nurseries and their branches early in August. Stronger—or, to write more correctly, more gross—growths might be met with, but hardly more healthy and vigorous plants or better rooted. The amount and quality of bloom were also all that could be desired. In addition to the most extensive collection of Hybrid Perpetuals, Teas, Noisettes, these nurseries have long held a distinct character for garden, climbing, and distinct species of Roses. Special arrangements are made for proving the different classes, the climbers being tried side by side with some of the best rambling Roses, such as Charles Lawson, Blairi No. 2, Fulgens, Dundee Rambler, Gracilis, Splendens, Félicité Perpetué, The Garland, Climbing Aimée Vibert, &c. The test is a severe one, but the following among others were found to have passed through it creditably: climbing Victor Verdier, climbing Jules Margottin, climbing Edouard Morren, climbing M^{me}. Eugène Verdier, Princess Louise Victoria, Cheshunt Hybrid, Gloire de Dijon, and Gloire de Bordeaux, &c. Several other Perpetuals, Noisettes, and Teas were also establishing their character for climbers, and, of course, Climbing Devoniensis and Maréchal Niel were climbing away with the best of them alike out-of-doors and in.

THE PERPETUAL AND TEA ROSES were as full of bloom as one generally sees them in June, the following among others being in full beauty at the time of my visit: Alfred Colomb, Annie Wood, A. K. Williams, Beauty of Waltham, Baroness Rothschild, Captain Christy, Boule de Neige, Chas. Lefebvre, Countess of Oxford, Countess of Rosebery, Duchess of Bedford, Dupuy Jamin, Duke of Connaught, Duke of Teck, and Duke of Edinburgh—the last three, being more than enough to make the lasting reputation of any firm, being all raised here. Emily Laxton and Glory of Cheshunt are two more of the Roses of this firm that seem more fresh and beautiful at home than elsewhere. Among other notable flowers were Etienne Levet, Ferdinand de Lesseps, General Jacqueminot, Gloire de Bourg-la-Reine, Horace Vernet, John Bright, John Hopper, La France, Le Havre, Jules Finger, and Madame Lacharme, with more substance and more petals than usual, Madame Ducher, M. Norman, M. Victor Verdier, M. Eugène Verdier, and Marie Baumann were also fine. The following were also noticed as especially good among the Hybrid Perpetuals: Victor Verdier, Xavier Olibo, Thomas Mills, Senator Vaisse, Reynolds Hole, Royal Standard, Prince Arthur, Pierre Notting, Monsieur E. Y. Teas, Mrs. Jowitt, &c. Among Teas the following were the more notable in the second week of August: Gloire de Dijon and of somewhat similar character and colour Bouquet d'Or, Beauté d'Europe, Madame Levet, Madame Emilie Dupuy, Fiancailles de la Princesse Stéphanie, Anna Ollivier, Madame Bravy, Belle Lyonnaise, Catherine Mermet, Devoniensis, Bougère, Comtesse Riza du Parc, Duchess of Edinburgh, Etoile de Lyon, Homère, Innocente Pirola, Jules Finger, Jean Ducher, Isabella Sprunt, Madame Charles, Madame Cusin, Madame Hippolyte Jarman, M. Willermoz, M. Trifle, Marie Van Houtte, Perle de Lyon, Niphotos, President, Reine de Por-

tugal, Rubens, Souvenir d'un Ami, Souvenir d'Elise Vardon, Safrano, &c.

AMONG NEW ROSES perhaps the place of honour must be given here to the White Baroness, which originated here, a sport from Baroness Rothschild. It is a decided advance on Mabel Morrison and most other white Perpetuals, and Messrs. Paul, judging from the fine stock of it, have faith in its future. Like all of its class, however, it needs several more petals to make it quite perfect. These large white Roses are, however, most useful in the garden and for decorative purposes, though few of them are quite full enough for the exhibition table. Among many other novelties among Perpetuals, Brightness of Cheshunt, a brilliant coloured small Rose of the Duke of Teck style, was one of the brightest. Duchess of Connaught, a short petalled, fully perfumed Rose of a dazzling crimson colour, will have a brilliant future for decorative purposes. Madame Mélanie Vigneron, light rose-coloured, edged with silver, is chaste and unique in colour, and a large full Rose of much promise. Merveille de Lyon is perhaps best described as a rival to White Baroness, though there is room enough for both and any number more of equally good or better white Perpetuals. George Baker, of a fine lake colour, full size, and good form. Pride of Waltham, a fine Rose, best described as a salmon coloured Countess of Oxford. Lady Sheffield, a first-rate rosy pink Rose of excellent form. Helen Paul, chaste flesh-coloured, changing to white, of excellent form and habit. Climbing Captain Christy, a good climber, and equal to the type in bloom. Violette Bouyer, almost pure white, extra fine cupped Rose. Ulrich Brunner, fine large flower of good substance, and a bright cherry colour, a decided refinement on Paul Neron. Madame Cusin, as a bouquet Rose, is of a decidedly new colour, excellent form, and moderate size. It is likely to have a great future of popularity and usefulness. Souvenir de Thérèse Levet, a deep rosy crimson-coloured Tea; Madame Eugène Verdier, rich chamouis yellowish Rose of peculiar richness of colouring; Hon. Edith Giffard, something in the way of Devonensis, and therefore alike welcome and desirable; Mélanie Soupert, a large white Rose, something of the character of Gloire de Dijon; May Paul, more delicate, but similar in colour to Pink Glory or Gloire de Bordeaux at its best; Etoile de Lyon, bright sulphur colour, perfectly shaped. Among uncommon varieties or distinct species, the single white and crimson Perpetuals and the miniature

JAPANESE OR POLYANTHA ROSES deserve special notice; the latter are charming for small beds or edgings, and may be had in the following four varieties, of which we prefer the pure white form, Paquerette, which is almost a continuous bloomer. The others are Anna Maria de Montravail, white, very fragrant, and double, blooming in miniature clusters; M^{me}. C. Brenner, a blush-coloured form of the above; Mignonette, rosy pink, one of the finest of these miniature or fairy Roses. Several species and varieties of the beautiful Macartney, microphylla, and Musk Roses are also kept in stock. These are admirably adapted for walls and other sheltered positions, and their flowers, foliage, and fragrance add new interest and even fresh charms to the most richly filled Rose gardens. The old Provence, Moss, Noisette, Bourbon, Evergreen, Banksian, and other Roses are also extensively cultivated, and also such distinct and interesting botanical species as Rosa anemoniflora, a pure white little gem; Rosa Brunoniana, lately noticed in THE GARDEN as grown at Bingham; Rosa clinophylla plena, a double white-tinted Rose of much interest; Rosa Camellia, a large single pure white Rose from Japan, with large yellow stamens, is very striking, reminding one from a distance somewhat of a Cistus.

Among the all too little grown Bourbons it was pleasing to note here the abundance of that fine old perpetual bloomer, Bourbon Queen, and several other of the older varieties. These rare species and varieties gave a new charm to these nurseries, as they showed how a love of culture and of science could survive and flourish

amid the many absorbing interests of an ever extending trade. Possibly, too, some of these comparatively unknown species may yet give us new families of Roses. Assuredly there are qualities of form, substance, fragrance, and even colour in some of these that we have neither fixed nor exhausted in our Hybrid Perpetuals, Teas, Noisettes, or Bourbons, almost the only four classes grown to any extent. No doubt these are extremely beautiful, perhaps almost as perfect as they are likely to be on the present lines of development. But with a freer mixture of species and following up any striking departures from present types, it is possible that much wider diversities of size, form, and fragrance might be reached. New scents would prove as welcome or more so as new colours, and it is astonishing that so little has been done to develop and fix new odours from Musk, Macartney and other species of Rose. In this and other directions it is quite possible that such distinguished rosarians as Mr. George Paul may reap richer victories in the future than he has done in the past. Of one thing we may all rest assured, that the rich mine of beauty and of fragrance originally hidden up within the petals of the single Rose is by no means worked out or exhausted. Hence, probably the pleasant surprises and successes in store for rosarians in the future will far exceed those already achieved in the past.

D. T. FISH.

Rubens is one of the very best of all the autumnal bloomers. During the heats of summer the delicate rose is too often almost bleached out of it by the sun. But as the nights lengthen and the dew begins to fall the rose gets more decided, and the additional vividness of colouring almost makes Rubens a new Rose. It also flowers with remarkable freedom in the autumn. It seems as if the longer spell of darkness and the heavier dews of the autumnal months favoured the fuller flowering, brighter colouring, and sweeter fragrance of Tea Roses.—D. T. F.

Roses running wild in shrubberies.—The training and pruning of Roses are both useful for the development of individual blooms to the highest perfection; but it will hardly be denied that the more either are practised the less picturesque the Rose trees or bushes will become. To give them a chance of showing what they are capable of in landscape, plant a few such Roses as Chas. Lawson, Coupe de Hebe, Madame Plantier, Aimée Vibert, Cheshunt Hybrid, Gloire de Bordeaux, Chénédole, Blair No. 2, Dundee Rambler, Queen of the Belgians at wide distances apart in rich soil, and with sufficient room they will grow into such things of fragrance and beauty as if the very spirit of the Rose were let loose in our shrubberies.—D. T. F.

SHORT NOTES.—ROSES.

Rose Ma Capucine.—Full particulars as to habit, form, and colour of this Rose desired. Will some of your readers kindly favour me?—E. V.

A big Rose.—In the old orangery at Ditton Park there is growing on the back wall a plant of Banksian Rose that has reached an unusual size. The stem, well above the collar, is some 18 inches in circumference. It has been planted here, I understand, about fifty years, and is annually laden with thousands of bunches of its pretty flowers.—T. B.

The best pink Rose for a glass wall.—This is without doubt Adam or President. The colour is, when perfect, a beautiful light rose, but, like others of this class or character, the colour varies with the age of the bud or flower. The form is most perfect, the perfume moderate; but it is always in bloom, and very welcome for hair or button-holes.—D.

Chas. Lefebvre.—Seldom has this prince of all the dark velvety Roses been more magnificent than this season. As a rule, it is not very much of an autumnal bloomer, but within the last few days (writing on August 23) as fine blooms have been seen as any during the season. These were grown on a west wall, and this noble old Rose, where it grows freely, is one of the best of all for clothing walls.—F.

Rose Mrs. Bosanquet.—One of the prettiest Rose sights seen this season were nice bushes of this delicately chaste and sweetly pretty old Rose, forming goodly masses in a mixed border of good things. Its pale whitish, waxy looking flowers made it one of the most distinct Roses of the season. Its buds used to be prized for bouquets many years since, and would still add a new character, almost also a new colour, to most floral decorations.—D. T. F.

GARDEN FLORA.

PLATE 404.

DENDROBIUM NOBILE VAR. NOBILIUS.*

It is now a long time since the late Mr. Reeves, when one day walking in the market-place at Macao, was delighted to meet with flowering plants of an Orchid being exposed for sale by the natives which was quite new to him, and in the following year living plants found their way to England. This was in 1836, and ever since that date Dendrobium nobile has been a favourite Orchid in our gardens. Now-a-days D. nobile is and has been so largely imported from the Indian continent, that we are in danger of forgetting that the typical D. nobile originally came from the Celestial Empire. At a later date, the variety Wallichianum—species, indeed, it was originally called—came from Nunklow, on the northern face of the Khosea (Khasia) range of mountains, where it is found at an altitude of 4000 feet above the sea level, growing upon rocks and tree trunks in moist situations. Wallich, in his MS., distinguished it as D. coerulescens, but it was afterwards named in England in compliment to Wallich himself (see Lindley "Sertum," No. 17, *Botanical Register*, xxx., 1844, misc. 62). D. nobile is figured in "Sertum Orchidaceum," t. 3; also in Paxton's *Magazine of Botany*, vol. vii., t. 7; and a variety is figured in the *Botanical Magazine*, t. 5003.

The particular and highly coloured form here-figured in colour for the first time was recently flowered and exhibited by Sir Trevor Lawrence, and is one of the most highly coloured forms we have as yet seen. The plate illustrates its colour and size faithfully, as seen in contrast with the paler flowered D. Wallichianum. Like most other Orchids which are found to naturally spread themselves over a wide geographical area, D. nobile is a very variable plant, scarcely [any two individual plants being precisely alike; indeed, some botanists are of opinion that D. Linawianum, D. amicum, D. transparens, and D. lituiflorum are nothing more than distinct varieties of this species. Be this as it may, the varieties of what are generally considered to be the typical D. nobile are by far the best for decorative uses in the garden. When well grown there are but few other species so floriferous, and I remember admiring some remarkable specimens at Chatsworth some few years ago. The finest specimen of D. nobile I ever heard of, however, flowered at Rushton, near Kettering, and was nearly 6 feet in height, bearing in all 1200 fully expanded flowers. When grown in this way but few other Dendrobes could compete with this old favourite for beauty. As a winter and spring decorative Orchid, this has no equal when fairly well grown either in pots or in baskets. For small plants basket culture is preferable, using a compost of fibrous peat and Fern roots, crocks, and Sphagnum. The basket should be as small as possible, and the plants must be secured quite firmly. A friend who grows this species remarkably well writes as follows in March last: "This grand old plant is now in perfection with us, the larger specimens bearing 500 flowers and buds. I do not believe in the 'drying-off' process in order to bloom this plant, but trust rather to firm, stout growths, the result of abundance of light and air in a warm temperature. Our plants are in baskets

* The drawing of D. nobile nobilius was made in Mr. Southgate's garden, Selborne, Streatham; that of the Wallichianum variety in Mr. Soper's garden, 307, Clapham Road, in May last.



DENDROBIUM NOBILE NOELIUS & LARSEN D. NOBILE WALLICHIANUM LIGHT.

suspended close beneath the glass with a piece of thin tiffany only over them during bright hot sunshine. So treated, the plants require an abundant supply of water during summer and grow like Leeks."

The origin and history of *D. nobile nobiliss* is brief, but interesting. It dates its appearance in our gardens from one of the sales at Stevens' rooms, where it formed part of a lot bought by Mr. James, of the Castle Nurseries, Lower Norwood, with whom it bloomed and was much admired. Mr. James sold the plant to Messrs. Rollisson, of Tooting, who exhibited it in flower at the Ghent International Exhibition in 1877. At the time Messrs. Rollisson's collection was sold, Mr. James again bought back the plant in a very weak state, but managed to save its life and to increase it rather sparingly. So far as is known at present, the plant exists only in three or four collections, Sir Trevor Lawrence and Mr. Southgate having good specimens. It is so far acknowledged to be the highest coloured variety of *D. nobile* in existence in our gardens, although Mr. Lee, of Leatherhead, has an imported variety nearly as good, but smaller in its dimensions. Between this richly coloured form we have all shades of colouring until an almost pure albino is reached.

I must not omit to mention *D. nobile grandiflorum*, which recently flowered with Sir W. Marriott, of The Down House, near Blandford. This bears flowers $4\frac{1}{2}$ inches in diameter, the petals being fully an inch in width, the lip of proportionate size. If ever the plan is adopted as practised by rosarians of taking a consensus of opinion as to the pre-eminent position of any one species of Orchid for universal culture, I feel quite sure that this, our old friend *D. nobile*, would not be the last in the race for public favour. Even the common imported varieties are most lovely when well grown, but a really well grown specimen of the variety, now illustrated in colour for the first time, could compete with any other Orchid whatever.

F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

WIGANDIAS.—These are plants of noble aspect, the foliage sometimes being as much as 18 inches across and 2 feet in length. Plants in good soil from seeds sown in heat in February attain by August a height of from 4 ft. to 5 ft. For sub-tropical gardening they are invaluable, and look well grouped together in a large bed, but are still better for planting in isolated positions in the sub-tropical garden, or on the turf, or to break the formality of straight lines by planting them on the turf in front of or at the angles of beds. There was a large bed of them at Battersea last year, the groundwork being scarlet Gladioli, the long spikes of which were shown off to the best advantage by the large green foliage of the Wigandias.

SHRUBBERIES.—The rearrangement, thinning out, or making of new plantations of shrubs may now be commenced as soon as circumstances permit, on light soil more especially. Autumn planting is preferable to spring because of the longer period there is for the plants to get established before there is any danger of drought affecting them; indeed, only when very heavy soils are concerned is it desirable to defer planting till early spring. From the middle of September to the end of November may be said to be the best shrub and tree planting season of the whole year. Deep trenching is the first essential, and manure in proportion to the requirements of the soil. Light sandy or gravelly soils should be given all the stable manure that can be afforded; indifferent peaty soils the same manure or else plenty of decayed leaves; but good loam and peat need

no other preparation than to be broken up deeply and to be freed from all perennial weeds, such as Couch, Nettles, and Docks. The margins or borders of shrubberies where no alterations are contemplated, after being cleared up, may be planted with spring flowers, such as Forget-me-nots, Silenes, Primroses, Violas, bulbs, &c., there usually being plenty of such plants to spare after due provision has been made for the regular flower beds and borders.

ROCKERY, FERNERY, AND SUB-TROPICAL GARDEN.—Weeding and cutting away dead flower-stems and fronds, keeping paths free from weeds, and taking cuttings of such rockwork plants as it is desired to increase are operations that require attention. Amongst sub-tropical plants, tying to supports is the most important need. Castor-oils, Hemps, Blue Gums, and similar tall growers, now when they are so large, quickly snap off with but little wind or wet unless tied up as growth advances. Keep edgings neatly cut and the undergrowth plants stopped back before they encroach on or mar the effect of the larger plants. Single Dahlias seem to be appropriate plants for intermixing with some kinds of non-flowering sub-tropicals; they associate extremely well with the Castor-oils and white-foliaged Solanums. Note should be made of this fact and of other striking arrangements for next season's use.

GENERAL WORK.—This increases daily, there being now so much sweeping up of leaves and worm-casts; where practicable use lime-water for the destruction of worms. Pick over the flower beds frequently, and if the cuttings for next season's stock are not yet taken, that should now be one of the first jobs for completion. Cuttings struck should be placed in cold frames, and the lights be drawn off daily; those that are being struck in frames should be exposed as soon as rooted to bring them up sturdily, the better to withstand the winter. Tie up Asters, Everlastings, and any plants of a herbaceous character that would be better for such supports.

INDOOR PLANTS.

STOVE PLANTS.—All that have been for a time in greenhouses or conservatories should be no longer allowed to remain there; this applies to both flowering and fine-foliaged kinds, for, although there is no better way of giving the short rest such plants require, it will not answer to allow them to remain until the nights get too cold, otherwise they will be apt to suffer at the roots as well as in the foliage. It is not well to place plants that have for a time been in cool quarters in strong heat, especially if there is much moisture in the atmosphere, otherwise it will excite them into active growth, which is not now advisable. Any that happen to be affected with the worst kinds of insects should be well washed with insecticide, as now when the leaves are hardened up and little tender growth present they will bear a stronger application than at any other time of the year. Those who have the small, white-flowered *Dipladenia boliviensis* will find it one of the best flowers for bouquet-making or use in shallow stands; if the flowers are cut when young they will last for a week in water. For the production of cut flowers it is a most useful plant; it is best grown close to the roof, as in such a position the blooms have more substance in them, and will last better in a cut state. Where such kinds of plants as usually find a place outdoors during the summer months are largely grown, no time should be lost in getting the houses and pits wherein they are to be wintered prepared for them.

OVER-CROWDING is the bane of good gardening, and more especially with pot plants. With the addition of new plants, and the yearly propagation of others, combined with the increase in size of all, there is a continual tendency towards glass structures getting fuller than is consistent with the healthy existence of the whole. To avoid this it is much better at this season to go carefully over the whole stock, and without hesitation to discard such as are of least value and

use. By this course not only will the supply of flowers during winter and spring be more plentiful, but the plants retained will be immeasurably better than where by attempting too much the object in view is defeated. The advent of frosty nights often comes on with little warning, necessitating tender plants that have been in the open air being hurried indoors, and if such work as above suggested is at once completed much labour and confusion is avoided. Where there are several houses and pits to be thus filled, care should be taken that the best and lightest places are given to all such as naturally make more or less growth through the winter. This applies to both hard and soft-wooded things, for although amongst such of the former as make a little shoot extension in the winter months, the growth will not be so much as to cause so great mischief as in the freer-growing, soft-wooded kinds, still the injury in their case is more lasting. Camellias, Azaleas, and others of like nature, that make no leaf progress until after the turn of the days, will bear standing closer than many varieties of Heath, or such others of the hard-wooded family as keep moving more or less. Pelargoniums above all others must have enough room, and require the best light position that is at command.

KALOSANTHES, again, should be alike favourably dealt with, keeping them as close to the roof glass as possible; upon this depends the successful flowering of several of the less free-blooming sorts, such as the old *K. coccinea* and some of the finer new Continental varieties, which, in addition to full exposure to the sun in the open air during summer, require all the light that can be given them in winter. In houses or pits that from their position are constructed to afford insufficient light to the inmates, and where there is an absence of permanent staging, such as to sufficiently elevate the plants to the roof, improvised shelves or stages may often with advantage be used. The condition in the spring of all plants that make any growth in winter, when so accommodated, will be found very different from that of those less favourably situated.

VERONICAS AND SALVIAS.—Where these have been planted out for the summer, with a view to their being taken up and potted, it is well to have all the necessary materials in the shape of soil and pots ready, and to make a beginning to so transfer them, for in all cases they will be much benefited by being stood in pits or frames for a few days, where, by putting on the lights and keeping them shut up, they will begin to root, and will then suffer little or no loss of their leaves. With soft-wooded, vigorous-rooted things of this nature give plenty of water, so as to fully moisten the soil.

TREE CARNATIONS AND BERRIED SOLANUMS.—Those planted out for the summer may now be lifted and potted, as, with the Carnations in particular, it is not well to let them stand out until their growth, which for the last month will have been considerable, gets at all checked. These Carnations should on no account be potted in a like way to the generality of plants—that is, by compressing the soil hard in the pots. If made near so solid as found beneficial to most things, they root very indifferently; they also require lighter soil than many plants—good fibrous loam, not too heavy, with the addition of a considerable amount of leaf-mould and some sand. Leaving it in a comparatively light condition about their roots usually results in their doing best if carefully taken up; placing them in no larger pots than will fairly admit their roots, lightly watered, and set in frames or anywhere where they can have a glass covering overhead in the case of heavy, continuous rains, will be best. Solanums must be well soaked immediately they are potted, and should be stood for a fortnight under a north wall or in pits or frames where they can be kept shut up somewhat close until they have got established, when there will be no loss of their lower leaves, which, if absent so much, disfigures them.

BOUVARDIAS.—Young plants of these that were struck late in the spring and are now in cold frames or pits will this season be deficient in size

through the absence of sun heat. Where this is the case they should be at once taken up and potted, and placed where they will receive enough heat to keep up free growth until sufficiently large to yield a full crop of flowers. Early-struck stock that have attained enough size should be treated in accordance with the time they are required to flower. Such as are intended to bloom later on during the winter ought to be kept cool, but when the weather gets colder they must not remain in too low a temperature, otherwise they will flower indifferently. Old plants that were cut back in the spring, and may have been stood out in the open air, will now be well set with flowers, and should not be allowed to stop out after the nights are chilly.

CHRYSANTHEMUMS should now have sufficient stakes and ties put to them to support the shoots without giving a stiff, formal appearance. Willows with the bark on can with advantage be used for these and other plants that only want support for a limited time, as they cost less than ordinary painted deal sticks and look better. Chrysanthemums are setting their flowers generally earlier this season than they have done for the last year or two, and at this period of their growth must be liberally supplied with manure water, for as the soil in the pots will now be full of roots, any deficiency of sustenance will affect both the quantity and size of the flowers.

HERBACEOUS CALCEOLARIAS.—A second sowing of these may yet be made, but must not longer be deferred, or the seedlings will not become strong enough to get satisfactorily through the winter. Plants from this late sowing will give a successional crop of flowers after the earliest are over. As soon as the plants from the first sowing are large enough to be at all handled, they should be pricked off into shallow pans about 1½ inches apart. Young hands at the cultivation of these most effective flowers should be careful in all stages of their growth not to pot them in too heavy soil; good friable loam with a fifth or a sixth of leaf mould and a good sprinkling of sand with the soil not pressed so hard in the pots as most things require is what they like. If material of this description is sifted and used for pricking them out, they can be removed from it at potting time without the loss of roots, which is unavoidable when heavy soil is employed.

PROPAGATING.

THIBAUDIAS.—These pretty flowering shrubs are, like many other Ericaceous plants, rather difficult to strike from cuttings, or at least they often remain a long time without rooting. The method by which we succeed best is to take cuttings of the young wood as soon as ever it commences to ripen off a little, that is, directly the young shoots have lost their soft succulent nature and become slightly firm, so that if the shoot is bent it will not snap like glass, neither will it offer much resistance before breaking. For soil we use fine peat with a liberal admixture of small broken crocks, pounded charcoal, and silver sand. The pots should be well drained, filled firmly with the above mixture, and finished off with a slight layer of sand on the top. We find that most delicate-rooting subjects strike far better in such soil than when fine peat and sand alone are used, that is to say, if the cuttings are of sufficient size to be inserted firmly in such, for of course when small, as with most of the Heaths, it is necessary to sift the soil very fine to obtain any degree of firmness, and a piece of crock or charcoal, however small, would prevent the solidity being acquired that is possible with fine peat alone. On the contrary, among larger cuttings, the roots, as soon as produced, will twine round the crocks so employed, and hold them so securely that there is no danger of falling off while there will be but few roots in the peat.

The same remarks apply to all of the greenhouse Rhododendrons, for which we use about one-half peat and the rest crocks, sand, and charcoal in equal parts. For large-leaved kinds, single pots are preferable, and with a few crocks in the bottom

of the pot and filled with such soil we have been very successful in striking many kinds. In making the cuttings, leave as many leaves on as possible, and for the base, instead of a cut straight across, a slanting one of half an inch or more in length is to be preferred, as the roots will be produced all up to the wounded parts, while if cut directly across, should any symptoms of decay set in at the base, the action of rooting is at once arrested, even if the cutting does not perish altogether, while in the other case should such a thing happen the part not so affected roots at once. The temperature of an intermediate house suits the greenhouse Rhododendrons perfectly, and they must of course be kept thoroughly air-tight either in a close case or under a bell-glass.

No time must be lost in putting in cuttings of any hard-wooded plants that one desires to propagate before winter sets in. Of course they would strike better earlier in the season, but any that could not be obtained at that time if wanted must be got in at once, choosing for the purpose weak side shoots in preference to the stout and gross ones. Put them firmly in pots of sandy peat, and cover with a bell-glass, but even more care will be required as to watering and guarding as much as possible against decay than was the case earlier in the season. Choose the cuttings from plants under glass in preference to those out of doors. These remarks apply to such plants as Epacris, Correas, Acacias, &c. A good place for them is a cold frame till they are callused, then a little heat will assist rooting.

KITCHEN GARDEN.

WE are now making preparations for our early Cabbage crop by heavily manuring the border this season occupied with Peas. It is our usual custom to sow Spinach after Peas, but we find this to be anything but a paying crop, and Cabbages early and good will pay. We find early Cabbage ground to be a good site for Brussels Sprouts, put in crowsbar fashion. We used to grow Brussels Sprouts as large as small Cabbages, but was told they had no flavour, a statement which first set us thinking that fresh manure was not the thing to use; hence ground after Cabbage gets nothing in the shape of manure. Young Cauliflowers should now be up and growing. Keep weeds down by hoeing between the rows, an operation which loosens the soil, and thus does the plants great service. Planting Lettuce, Endive, and earthing up Celery must have just now our best attention. Sowing Lettuce (Black-seeded Brown Cos) for a spring supply must be done at once. As traps for slugs we adopt the good old plan of laying handfuls of Pea haulm round the border or quarter to be planted; every second morning we visit these wisps and scatter fresh lime on the slugs, which kills all at once. The Celery quarter is treated in the same way. We shall be lifting Magnum Bonum Potatoes this week; add Champions to them, and your collection of late Potatoes for the present time is complete. Cut all herbs for drying, distilling, &c., and do not forget to have a general brush up every Saturday.

FRUIT.

PEACHES.—With the exception of late houses in which the fruit is now in use, the principal work in this department will be the re-arrangement of the trees for another year, and as this should always be performed as soon as the foliage is ripe and the flower-buds are well formed, advantage should be taken of dry days for mixing and moving the compost. In the formation of new borders, the quality of the soil is of more importance than the quantity, as it has been proved over and over again that a well drained border made of strong calcareous loam, in which stone fruit trees fruit freely, need not be so large as was at one time imagined, and that the best bearing wood and the finest crops of Peaches can be produced for a number of years where root space is limited and the latter are kept in a state of activity near the surface by means of good mulching and feeding during the season of growth. For early

and succession houses they should always be made inside the house, as the roots can be kept warm and entirely under control; but for late use efficiently drained external borders answer equally well, and, being exposed to the elements and well mulched, they require very little attention beyond an occasional soaking with the hose in unusually dry seasons. In gardens from which a constant family supply of fruit is expected, a judicious selection of sorts for succeeding each other, particularly where the houses are large, is of the greatest importance, otherwise a glut will be followed by scarcity, as ripe Peaches cannot be kept for any length of time, and the attempt to retard by means of shading generally leads to the loss of colour and flavour. On good Peach soils, some twenty years ago it was the custom to plant the everlasting old friends, Royal George, Noblesse, Grosse Mignonne, Chancellor, Late Admirable, and perhaps Barrington, and as several of these come in together, and a thoughtful man would never think of destroying such sterling kinds, the cheapest and best way to get them to succeed each other will be secured by dividing large houses into small ones, when some of the trees may be stripped and retarded up to the flowering period and again after the fruit is set.

CHERRIES.—The most important work here will be the maintenance of conditions favourable to complete rest of buds and roots, as far as roots can rest, until the weather becomes colder and there is no longer any danger of these excitable trees starting into premature growth. To succeed well the foliage should never be allowed to suffer from the ravages of spider or other insects. It should always have the benefit of summer rain and morning dew, and the roots should receive sufficient water prior to mulching after the fruit is gathered to prevent the leaves from ripening off prematurely. If any alterations are contemplated or fresh trees have to be introduced, no time should be lost in getting the work done, as Cherries, like all other stone fruit trees, succeed best when moved before the leaves fall. They also enjoy a firm, resisting, calcareous loam thoroughly drained and well mulched with manure, but the manure should never be mixed with the soil, as it induces a strong, unfruitful growth of wood, which is apt to grow and become unmanageable. If any of the pot trees remain to be top-dressed or potted, no time should be lost in getting them out of hand and placed thinly in a warm, sheltered corner fully exposed to the sun, where they may receive an occasional washing with the syringe and remain until the time arrives for storing them away for the winter.

PLUMS.—Where the choice kinds of Plums, including the Gages, Golden Drop, Ickworth Impératrice, and others, are permanently planted in borders, and trained under the roof as Peaches are trained, all the early and midseason kinds in pots should be removed to another house as they are cleared of fruit if they want repotting, or to the open air, where top dressing is all that is required. Having cleared the house of all damp-producing subjects, see that the internal borders are moist enough to prevent the trees from suffering from drought, otherwise the fruit will ripen prematurely and shrivel. Then mulch with some light non-conducting material, discontinue direct syringing, and keep the house cool, airy, and well ventilated. As birds, notably the blackbird, and wasps have a great liking for good Plums, and liberal ventilation is absolutely necessary, scrim canvas or Haythorn's netting should be drawn over all the openings before the fruit is ripe; but where wasps do not trouble the gardener, ordinary fishing-nets will keep back our feathered friends. If any of the above late dessert kinds are fruiting in pots, the latter should be surrounded with dry Fern or litter to keep the roots moist and cool, and to reduce the necessity for frequent watering.

CUCUMBERS.—A cold, wet autumn being unfavourable to frame Cucumbers, no time should now be lost in getting hot-water pits cleared and thoroughly cleansed for the reception of August-sown plants. The most important points in winter culture are heat, light, and scrupulous cleanliness.

ness; and so essential is the latter that no pains should be spared in getting rid of every vestige of insect life by scalding and limewashing before the plants are placed in their winter quarters. In our last paper we drew attention to the advantages which attend pot culture, as the warmth given off by the fermenting Oak leaves and short horse manure, while economising fire heat, is highly congenial to the plants through every stage of their growth. In shallow pits, where the plants can be placed near the pipes without being too far removed from the light of a few sods of fresh turf will form a solid base for the pots; but in deep pits in which the fermenting material is always sinking, we have found pedestals formed with dry bricks answer well, as the open joints through which the stimulating liquid can pass freely offer strong inducements to the roots as they travel downwards surrounded by the steady warmth which can always be secured by renovation without disturbing or checking them. The best way to prepare the plants is to put single seeds or cuttings into small pots, and when well rooted to keep them near the glass, and shift on from time to time before they get pot-bound until the pit is ready for them. When transplanted into the fruiting pots all the stem leaves should be carefully preserved, male and female blossoms rubbed off, and training confined to single stems until they nearly reach the top of the trellis.

INDOOR GARDEN.

LUCULIA GRATISSIMA.

In this fine evergreen shrub we have vigorous growth, a remarkably free habit of flowering, delicious fragrance, and a disposition to bloom through the autumn—a combination of good properties surpassed by few plants in cultivation. Considering the length of time during which it has been known in this country—over half a century—it seems strange that it is not more generally met with than it is, a circumstance that can only be accounted for by the fact that it does better with a little more warmth than that of a greenhouse, and yet it cannot bear so high a range of temperature as most of the occupants of the stove, where, if kept, growth is so much over-excited, that it appears never to have time to flower, or if it does the bloom is of a meagre description. With sufficient room this plant attains a considerable size, reaching where desired a height of 14 feet or 16 feet when trained so as to occupy the end or back wall of the house in which it is located. For this purpose few plants are more suitable, and in such positions its clusters of pinkish white flowers are most effective. It is equally suitable for training round a pillar, or it can be grown in a pot or tub, trained bush fashion, for which its natural habit adapts it. But although, from its free disposition to flower, it will bloom in a small state, yet to have it in a condition such as to exhibit its full beauty when grown as a bush, it should neither be stinted for root room nor the head kept too much cut in.

PROPAGATION.—It is propagated by cuttings of the young shoots, which should be put in early in spring—say, in the beginning of March—for with this, as with most things of like character, it is of importance to start sufficiently early to admit of the plants attaining size and strength before autumn. There is one thing connected with the *Luculia* that it is necessary to impress on the cultivator; that is, the cuttings must never be allowed to flag, for if they do they rarely afterwards succeed. Insert them singly in small pots, drained and half filled with a mixture of sandy loam and peat, the upper portion sand. Keep them moist, cover with a bell-glass, and let them have a night temperature of from 60° to 65°. They take longer to strike than many plants. When rooted, gradually admit air until the propagating glass can be dispensed with altogether, when the young plants should be placed where they will receive plenty of light. As soon as growth commences pinch out the points, so as to induce the formation of several shoots near the

base. When the pots are fairly filled with roots' shift at once into others 4 inches larger, using a mixture of two-thirds loam to one-third peat. A liberal sprinkling of sand is indispensable, as, being of fairly free growth, the plant requires a plentiful application of water during the growing season. A night temperature of 60° or 65° through the summer will be sufficient, with a rise in the day proportionate to the state of the weather; for, being a native of the high, comparatively cool, yet humid, country of Nepal, it will do better in such a temperature than if warmer. A little shade in the middle of the day during very bright weather will be an advantage. Syringe freely in the afternoons. So managed, the young plants will make satisfactory progress.

AUTUMN AND WINTER TREATMENT.—Treat them as already advised until the middle of September; then dispense with the shading, giving more air, but keep on syringing for another month, after which it may be discontinued. A night temperature through the winter of from 46° to 50° will suit the plants, keeping them drier at the roots, but on no account withholding moisture even at this season to the extent that some things would bear, for it must always be borne in mind that the moisture-loving nature of these hill-region plants does not in any way change under cultivation, and if ever kept too dry they get into a languid state, which renders them susceptible to the attacks of red spider and other insect pests, which appear to prefer preying upon plant life when under conditions that reduce its vital force. By the middle of March they may have a 3-inch or 4-inch shift, now using the soil in a more lumpy state, if possible containing more fibrous matter. Pot firmly by ramming the new material well in, which, with most plants, has the effect of inducing a more bushy habit of growth, with shorter-jointed wood, more disposed for an even production of flowers than the few gross, over-luxuriant shoots generally resulting from light potting. Pinch out the points of shoots that are taking an undue lead, training the strongest growths out to sticks inserted just within the rims of the pots, leaving the weaker ones in a more erect position, by which means they will acquire strength to an extent that will more evenly balance the plants. All now required through the summer is to treat as recommended the previous season, giving them liberal applications of water at the roots and syringing freely.

TREATMENT AFTER BLOOMING.—By the beginning of September the plants will push up strongly, and when in bloom they can be removed to a conservatory kept at a temperature such as is in accordance with their requirements. When the flowering is over they may be moderately shortened back and kept on through the winter as before, giving them a liberal shift in the spring, and, to still further promote growth, supply them with manure water during the summer. They will this season make fine decorative objects when in bloom, after which treat as previously, giving more root room as required. Where intended for planting out, a moderate extent of border must be prepared, sufficiently drained by means of a layer of 2 in. or 3 in. of broken bricks, pebbles, or anything of a similar character. Where a considerable space has to be covered, with a corresponding amount of root space, several gallons of water will need to be applied at a time. The plants should be turned out in the spring just before growth commences; if delayed until later on, some check to the young shoots will follow the necessary disturbance of the roots, which if coiled to any extent round the ball inside the pots should be loosened so as to direct them into the new soil, which make moderately firm, otherwise the water will pass through it in a way to leave the ball dry, a condition essentially opposed to free growth. When preparing the soil, if, in addition to sand, a sprinkling of broken sandstone or potshreds is added to it, it will benefit the plants, as I have always noticed that the material in inside borders is more disposed to get into a sour, unhealthy state than when it is fully exposed to the

open air. The plants should be spread out to cover the wall or end of the house, as the case may be, so as to furnish the whole properly from the first, as where attention is not paid to this matter the growth is naturally directed upwards, leaving the lower space deficient, a condition which it is afterwards difficult to remedy. Where a pillar has to be clothed, instead of stopping the plants, so as to induce their branching out more than requisite, it will be well to allow one or two of the strongest shoots to take the lead in a way to attain the required height, merely pinching the points at intervals that will cause them to sufficiently furnish the space as they progress.

L. PINCEANA, also a native of Nepal, has white flowers, sometimes slightly tinged with pink. It requires treatment such as advised for *L. gratissima*.

INSECTS.—The less injurious kinds of insects will in a great measure be kept down by the syringing advised. If affected with scale or bugs, syringe and sponge with insecticide. T. B.

POINSETTIA PULCHERRIMA.

This is one of the comparatively few members of the numerous family of Euphorbiaceous plants that are adapted for cultivation under glass. The flowers, strictly speaking, are insignificant, but the crimson-scarlet bracts upon which they immediately rest possess such an intensity of colour, and when the plant is well grown, are so large as to produce an effect scarcely equalled by anything else which we cultivate. Not the least point in its favour is the fact that, in addition to being easily managed, it blooms freely through the autumn and winter months. The flowers, moreover, last very long in perfection, and by treating the plants so as to admit of their blooming in succession, this *Poinsettia* may be had in flower from November to the end of March. It was introduced from Mexico about the year 1834, and has ever since been a great favourite. Yet though generally cultivated, it is anything but universally well grown, or even grown so well as it was when first introduced. This *Poinsettia* is naturally erect in habit, yet admits of bearing treated so as to make a branching specimen or confined to a single stem, a form in which it is most useful. It is not necessary to

STRIKE CUTTINGS of it so early in spring as is required in the case of most other winter flowering stove subjects, because if they have too long a season of growth they are apt to get taller than many people like them, although this can be in some measure corrected. On the other hand, it does not answer to delay the propagation of it so late as is frequently done, or the plants have not time to attain the strength and solidity requisite to enable them to bear full-sized flowers. If old plants that have bloomed are placed about the beginning of April in a temperature of 65° at night and proportionately increased by day, they will soon produce cuttings. Like some others of the Euphorbiaceous family, the shoots contain a great quantity of milky sap which renders them unsuited for propagation in the usual manner, that is, from the points of the young shoots severed where the wood has got a little firm. If treated in the way that cuttings ordinarily succeed, very few will root; consequently it is necessary to have them with a heel of the old wood at its juncture with the new growth. Such shoots should be taken off when about 6 inches or 7 inches in length, and placed singly in small pots, crocked, over which a little sandy soil is placed; the remainder filled up with clean sand. Water slightly, and keep them close and shaded in a striking frame or under propagating glasses in a temperature of 65° or 70°. They will strike in two or three weeks; when well rooted, and they have been inured to the full air of the house, move them into pots two sizes larger, using good loam, to which add one-seventh rotten manure and some sand. Pot firm, shade from the sun so far as necessary to prevent flagging, and do not give more water than requisite to keep the soil moist. From the time the roots begin to lay hold of the soil let the plants be as much elevated up to the glass as circumstances will permit. It is

necessary to be particular about this with a view to correct the natural disposition to grow long-jointed and tall, as nothing in the way of stopping the shoots is of any use with this *Poinsettia* the first year on account of its inclination to throw all the strength into the stem. Ordinary stove warmth through the summer, such as given to the majority of heat-requiring plants, will suit it, giving a fair amount of air in the daytime, and using no more shade than is found necessary to prevent the leaves scorching; damp overhead with the syringe at the time of closing the house. By the beginning of July they should be ready for moving into their blooming pots, which may be from 8 inches to 9 inches diameter, according to the strength of the plants, using soil similar to that in which they were first potted, and continuing to treat as before until the end of August, when gradually give more air and cease syringing; but all through the season do not let the soil get so dry as to cause the leaves to flag, as if this occurs they will fall off before the blooming time, which detracts materially from their appearance.

AUTUMN AND WINTER TREATMENT.—Keep them cooler through September, which will check further growth, and admit of the wood getting matured, but the temperature should not be allowed to fall too low in the nights. If very large heads are wanted, the plants must be kept their full length, which, if they have been well managed and are strong will probably now be 4 feet in height; if smaller heads on dwarfed growth are preferred, the plants should be kept in a growing temperature, and about the end of September the shoots should be half cut through some 8 inches or 10 inches below the point, leaving them thus half severed for a fortnight, in which time the base of the cut part will get callused over, when they may be cut away altogether, and the heads each put in 6-inch pots filled with fine sandy soil. Treated by keeping close and moist like ordinary cuttings they will soon root, when they must be kept on growing slowly, and in this way they will produce nice heads of bloom on stems that will not be more than 15 inches or 18 inches high when in flower, but the bracts will not be near so large as if the plants were left their full length. If a portion of the stock are kept somewhat cooler, say in a temperature of about 55° until after Christmas, and then removed to a little more warmth, they will come in later and last correspondingly longer. Such of the old plants as are grown on a second year should be cut back to within a few inches of the collar and started about the time advised for the production of cuttings; when they have broke into growth partially shake them out, giving pots a size or two larger. They will make several shoots the second season. They may be kept dwarfed if desired by treating them cooler with more air through the growing season, but, so managed, the heads will be smaller. There is a variety of the plant with double bracts, that is, the coloured floral leaves are much more numerous than in the ordinary type; it is well worth growing, as also the white-bracted form of the original kind. They all succeed under the same treatment.

INSECTS.—The juices of these plants are too acrid for insects to trouble them much, although aphides will sometimes attack them, which may be destroyed by fumigation. T. B.

Ardisia Oliveri.—Unlike the species of *Ardisia* commonly cultivated, this depends more for its beauty upon the flowers than the berries, as these latter are but a minor part of the beauty of the plant. It is a very free-growing kind, with leaves 8 inches or 9 inches long and 3 inches wide, which are of a pleasing shade of green, and render it a bold-looking evergreen shrub when not in flower. The blossoms are borne in large crowded heads after the manner of an *Ixora*, but individually the blooms are somewhat smaller and of greater substance. Their colour is a kind of purplish pink, varying somewhat in shade according to the length of time they have been expanded. This *Ardisia* was introduced from Costa Rica and

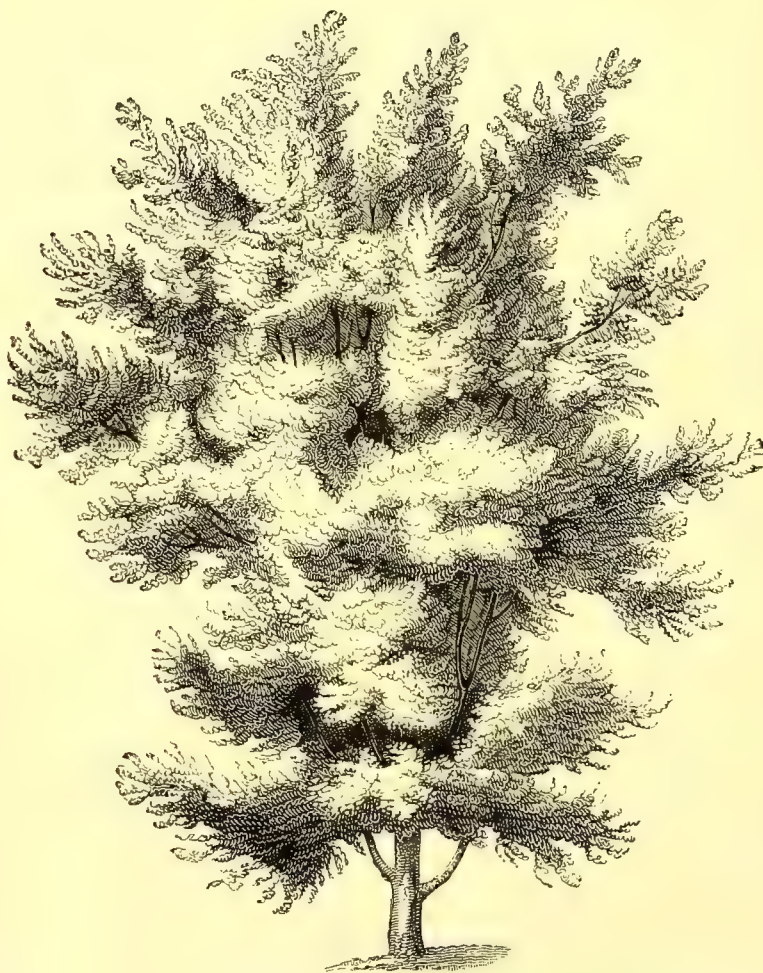
sent out by Messrs. Veitch some five years ago, but is yet far from common, though it strikes readily from cuttings.

THE SPECIES OF *TABERNÆMONTANA*.

As Mr. Baines, in his excellent series of articles on choice stove plants, now being published in *THE GARDEN*, has given us (p. 186) full cultural details concerning these plants, it is unnecessary for me to say much on that subject. I have, however, made a few notes on all the species known to cultivation, and these may prove interesting to those

though a most ornamental plant in Ceylon, where it is common all over the island. In Ernst Hackel's charming account of his visit to Ceylon this plant is mentioned as forming, along with *Plumieras*, *Neriums*, &c., delightful pictures in various parts of the island. It was introduced into England in 1840 by the Duke of Northumberland, and is a white-flowered shrub of some 16 feet in height.

T. CORONARIA is an East Indian shrub of about 4 feet in height, with shining green foliage and large white single flowers. It appears to have been known as *Nerium coronarium*, and, so far as the forms of the flowers go, the name *Nerium* might



Young tree of *Sophora japonica* 20 feet high (see p. 211).

who wish to know something of these comparatively rare plants. The following note from Lindley's remarks under a figure of *T. dichotoma* in the *Botanical Register* may prove interesting just now, though perhaps about as reliable as Shapira's Moabite manuscripts: "The sages of Ceylon having demonstrated, as they say, that Paradise was in that island, and having, therefore, found it necessary to point out the forbidden fruit of the garden of Eden, assure us that it was borne by a species of *Tabernæmontana*—the 'Divi Ladner' of their country, and probably the plant before us. The proof they find of this discovery consists in the beauty of the fruit, said to be tempting, the fragrance of the flowers, and in its still bearing the marks of the teeth of Eve. Till that offence was committed, which brought misery on man, we are assured that the fruit was delicious, but from that time forward it became poisonous, as it now remains." Be that as it may, *T. dichotoma* is a plant seldom seen in cultivation,

have been not far out were it not for the difference in the foliage of this plant and that of the true *Neriums*. This single form is quite destitute of odour, whilst the double one is deliciously scented. It is the pure white flowers, crisped and double, with so sweet an odour, that have made the latter so popular in gardens for cutting from, and also for growing as a decorative plant. By some cultivators, indeed, this plant is preferred to *Gardenias*, owing to its perpetual-blooming character and less overpowering scent. It is so easily propagated and grown, and flowers so freely in quite a small state, that it may be said to be at least as useful as the *Gardenias*. The name *T. Camassa* has been substituted for the proper name for this plant in some gardens.

T. GRANDIFLORA is a pretty small-leaved West Indian species with yellow flowers, which are 2 inches across and borne in the autumn months. It is a distinct little plant, not more than 2 feet high, and one that flowers freely through the autumn

and winter months. *T. Barteri* is an Old Calabar species with oval shaped, dark green leathery leaves about 6 inches long on large plants. It forms a shrub of about 8 feet in height. The flowers, which are almost 3 inches in diameter, a pure white and of good substance, are borne in bunches of about half-a-dozen in the axils of the leaves near the ends of the shoots. As the flowers age they gradually turn from creamy white to deep yellow. They are slightly scented. *T. longiflora* is another African species, with large Laurel-like leaves and long tubed creamy white flowers, deliciously fragrant. The genus has a wide geographical range, as will be seen from the above. A species, viz., *T. crassa*, has been introduced as a

rial into which it may probably have pushed its large fleshy roots, and treat it to a lower temperature, he will probably get less leaf growth and more flowers. I find it to be a plant of easy culture, and by no means liable to be attacked by insect pests.—J. GROOM, *Gosport*.

***Francoa ramosa*.**—This makes an excellent window plant, and very beautiful is a well-grown specimen, with its pure white branched spikes from 3 feet to 5 feet high. I find it goes by the very appropriate name of Bridal Wreath, and certainly a more beautiful wreath than a spray of this lovely plant it would be difficult to imagine; it is readily increased from seed or by cuttings, and only needs the protection of a glass

TREES AND SHRUBS.

THE SOPHORAS.

THE genus *Sophora*, although embracing comparatively few species—about twenty-two, according to the "Genera Plantarum"—is widely distributed throughout the tropical and temperate countries of both hemispheres. Few are, however, in cultivation, and, with the exception of *S. japonica* and its varieties, *S. angustifolia*, and perhaps a Chinese species (*S. Kronei*, of Hance) not yet introduced, probably none are quite hardy in this country. Several will succeed in very sheltered situations in favoured localities, and against walls



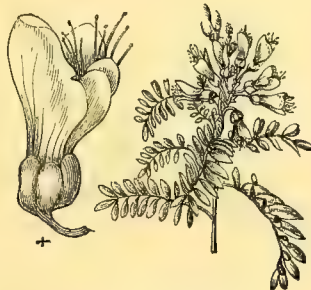
Branchlets of *Sophora japonica pendula*.



Branchlet of *Sophora japonica*.



Flowers of *Sophora japonica*.



Sophora macrocarpa.



Sophora microphylla.



Sophora tetraptera.

valuable rubber-yielding plant. The order to which the *Tabernamontanas* belong is especially strong in plants whose milky juice forms a rubber.

B.

5047.—***Strelitzia regina*.**—I would recommend Mr. Nisbet to remove his *Strelitzia* at once from the stove to a cool light house, keeping it moderately dry; not so much as to cause it to wither, however, but merely to check growth, as it has probably been over-excited by too much heat. I find that a warm greenhouse, or what is usually called a conservatory temperature, suits this plant in winter, and if rested now for a month or six weeks, and then placed in the conservatory, it will probably flower freely during the winter. I have a large plant that was in bloom nearly all last winter in a house in which the night temperature was about 50°, and the blooms lasted a great length of time. They are so singular, too, in shape and colour that they always command attention. I observe that our plant is already sending up several strong flower-stems from the axils of the leaves, yet it has had no particular attention, and if Mr. Nisbet takes his plant out of the plunging mate-

roof in winter, as it may be grown out-of-doors from the time it ceases flowering until October. If the seed is sown as soon as ripe in the autumn, and the seedlings grown on in single pots, they will produce one branched spike the first year, but if shifted into larger pots, so as to get several crowns, every one will produce fine spikes of bloom. A most beautiful object when well grown.—J. G., *Hants*.

SHORT NOTES.—INDOOR.

***Hyacinthus candicans*.**—I have lately had in flower quantities of this—three bulbs in 6-inch pots. They were grown out-of-doors until the flowers commenced to expand, when they were transferred to a cool house, and being of erect habit, and the spikes ranging from 3 feet to 4 feet in height, they were, for convenience, placed amongst double and single Zonal Pelargoniums, and the effect which their pearly white bell flowers produced was excellent.—J.

Eucomis punctata is again in flower, and although by no means showy, is nevertheless not destitute of beauty. Its large mottled foliage and erect spike of greenish white flowers with yellow anthers form together a very effective plant for conservatory or indoor vase decoration. Its chief attraction, however, is its perfume; and I may add that, as regards culture, it grows freely in any good soil, and the shelter of a cool house suits it perfectly.—J. G.

in many spots with but little care as regards shelter in severe weather; some of these are highly ornamental and thoroughly deserving attention. The best known member of the genus is undoubtedly

SOPHORA JAPONICA*, one of the most handsome and distinct of hardy deciduous trees. In most localities the *Sophora* is a quick-growing tree, admirably adapted for the landscape in parks and pleasure grounds, and also for avenues and public squares. The feathery foliage is retained even in the driest of seasons longer than that of most of the pinnate-leaved Leguminosae; and long after the Locust (*Robinia Pseudacacia*) has shed most its leaves, either by reason of drought or otherwise, those of the *Sophora* continue to clothe the tree with a mantle of intense green. Apart from the graceful habit and the beauty of the bark and foliage, which alone are amply sufficient to recommend it for much more extensive cultivation than it can at present boast, the large, loosely

* IDENTIFICATION.—*Sophora japonica*, L. "Nouveau Duhamel," iii., t. 21; Loudon; "Arboretum et Fruticetum Britannicum," ii., p. 563, &c.; Koch, "Dendrologie," theil 1, p. 12; *Styphnolobium japonicum*, Schott in Wien, Zeitschr. iii., 844.

branching panicles of creamy white pea-shaped flowers render it at this time of year by far the most conspicuous of outdoor trees. In well-drained, rich ground it grows with remarkable vigour and soon attains considerable size; under such circumstances seedlings will reach a height of a dozen feet or more in four or five years. That it is by no means very partial in its requirements in this direction is proved by the fact that it thrives perfectly on the dry, sandy, gravelly soil at Kew, where there are several fine specimens of different ages and sizes, which are now one mass of bloom. Seeds are never produced at Kew, and, indeed, probably nowhere in Britain; in Central and Southern France, and elsewhere on the Continent, they are ripened annually.

THE HARDINESS OF SOPHORA in this country is now established in spite of Loudon's assertion that "north of London they are rather tender." In Colonel H. M. Drummond Hay's pamphlet (1882) "The Comparative Hardiness of Hard-wooded Plants from Observations made at Seggieden, Perthshire, during the winters of 1878-79, 1879-80, 1880-81," *Sophora japonica* is spoken of as being perfectly hardy. It may be as well to call the attention of tree lovers to this pamphlet, as it contains, in a concise form, a good deal of valuable information; all the trees and shrubs grown by the author are arranged in four sections, according to their relative degrees of hardiness. Section No. 1, in which *Sophora japonica* is placed, contains "those which have passed scathless through the severest winters and coldest springs, and therefore may be considered as truly hardy."

HISTORY.—The first trees of *S. japonica* were raised in Europe in 1747 from seeds sent from China by Father d'Incarville to Bernard de Jussieu. These seeds were sown in the garden of Louis XV. at Trianon, but it was about a quarter of a century later before any of the plants raised had ripened fruits. The first record of the *Sophora* in England is in 1753, some half-dozen years after its introduction into France. It was then grown in the celebrated nursery at Mile End by Gordon, to whose skill in the propagation and cultivation of new and rare plants Collinson, the friend and correspondent of Linnaeus, pays a grateful and graceful tribute. It was probably at the suggestion of Collinson that Linnaeus formed his genus *Gordonia* to perpetuate Gordon's name.

LARGE SPECIMENS.—I am indebted to Mr. J. Smith, the ex-curator of the Royal Gardens, Kew, for information respecting the early history of the large specimens at Kew, detailed measurements of which are given below. It appears that five plants were at an early date procured for Kew (two of these no longer exist), and, under the impression that the species was tender, all, with one exception, were planted against walls. There is a fine tree between the new rockery and the new range; a circular seat surrounds the trunk. It grew in the angle of the meeting of two walls, and in Mr. Smith's day the trunk pressed against them. With regard to the specimen in chains, it flowers abundantly, and when the flowers fall they whiten the ground, and are then much frequented by bees; you cannot even walk without treading on them. It thus appears that the bees cannot get at the honey until the flowers fall. This may account for the tree not producing seed-pods, the flower not being in a state for the bees to enter to disturb the pollen. A third specimen is still growing in the village of Kew against the house formerly occupied by Mr. Aiton, the first director of the Royal Gardens. Loudon states that the finest tree in the neighbourhood of London was at Syon; he gives its dimensions as 57 feet in height, diameter of trunk 3 feet, and of the head 80 feet. Mr. Woodbridge has furnished me with the present measurements of the largest tree now at Syon—in all probability this is the tree mentioned by Loudon—height 70 feet, circumference of trunk at 2½ feet from the ground 12 feet, and spread of branches 70 feet. The Kew specimen stated by Loudon to be 50 feet high is probably the one on the lawn. This specimen, at a few feet from the ground, divides into several branches of considerable size, some of which are

now supported by strong chains. It forms a very picturesque object, and has been frequently sketched by artists and photographed. The height at the present time is 50 feet, circumference of trunk at 1 foot from the ground 13 feet 6 inches, and spread of branches 65 feet; the circumference of largest branch is 6 feet. The tree near the rock garden has a trunk 11 feet 6 inches in circumference at 1 foot from the ground, and a spreading head 50 feet in diameter; the height of this was not taken, but it is between 40 feet and 50 feet. The tallest *Sophora* at Kew is near the Richmond end of the Holly Walk; tape-line measurements make this 75 feet high with a trunk of 7½ feet in circumference at 3 feet from the ground; no branches are given off below 30 feet from the ground, where the trunk measures 6 feet in circumference.

VAR. PENDULA.—This is one of the most remarkable and beautiful of all weeping trees. Even when deprived of its leaves, the bright, smooth green branches render it truly ornamental. Loudon speaks of this variety as follows: "The pendulous variety is well deserving of culture as an object of singularity and beauty; and where it is desired to cover a surface with intense green foliage during summer—for example, a dry hillock—a plant of this variety placed on the centre will accomplish the purpose effectually. When grafted on the common form at a height of 8 feet or 10 feet or more, the branches fall gracefully on all sides of the stock, and form what one might designate as a leafy cascade of darkest green. I have been unable to trace the history or origin of this variety. Considering its peculiar aspect and good qualities, perfect hardiness and vigorous growth, it seems strange so charming a tree should not be more frequently planted."

VAR. VARIEGATA.—Except to collectors, this form is next to useless. The variegation is by no means striking, being a dull yellowish white, generally at the margin of the leaves. It is, moreover, not so robust as the type or the weeping form above mentioned.

Two other names are given in M. Lavallée's "Arboretum Segrezianum," viz., *violaceum* and *pubescens*. The former of these I have not seen, but what I have noticed under the latter name do not seem to differ in the least from typical *Sophora japonica*, different seedlings from which will exhibit various degrees of hairiness. With regard to this so-called variety, Koch makes a similar statement in his "Dendrologie."

MEDICINAL PROPERTIES.—The dried flower-buds furnish a drug, which finds a place in the Chinese *materia medica*. Their principal use, however, appears to be that of a dyeing material, being employed in preparing the fine yellow silk which is used for the garments of the mandarins; they are also used for dyeing blue cloth green. In Europe *Sophora* has been noticed to possess purgative properties. Nearly half a century ago M. Fleurot, of Dijon, from chemical examination concluded that the active principle is an uncrystallisable substance analogous to the cathartine of Senna leaves. The same chemist also remarked that the dust of the wood inhaled by turners is found to have a purgative effect. Similar effects are, it is said, caused by the leaves and flowers. "In the botanical garden at Dijon is a well beneath a fine *Sophora*. When its leaves or flowers are about to fall the gardener carefully covers the well, having found by experience that the water acquires laxative properties through the *Sophora* being infused in it."

SOPHORA ANGUSTIFOLIA.*—I am not aware that this species is cultivated in England, but its name is included by M. Lavallée in his list of the trees and shrubs grown by him at Segrez. It differs from *S. japonica* in its more numerous narrower leaflets and dense racemes of smaller flowers. A native of Japan.

SOPHORA SECUNDIFLORA.†—This is grown at Kew in the temperate house, and in the neigh-

bourhood of Paris, as we learn from the *Revue Horticole*, it requires the shelter of an orangery during winter. It is, however, well worth growing in a tub for conservatory decoration. The handsome blue violet-scented flowers are produced at the ends of the branches. "A small tree about 30 feet in height; the wood yellow, hard, and heavy, called *Lignum-vite*. . . . The tree forms small groves on the shores of Matagorda Bay, where it is the only firewood. The wood dyes yellow. An exceedingly poisonous alkaloid, to which the name of *sophorin* has been given, is produced from the (bright coral red) seed of this species."—Prof. C. S. Sargent, "Catalogue of the Forest Trees of North America," p. 16.

SOPHORA TETRAPTERA.*—A native of New Zealand, where it forms a tree with a trunk of 1 foot to 3 feet in diameter; and also of Chili and Juan Fernandez. In England this requires the protection of a wall and even a certain amount of protection in severe weather. Its golden yellow flowers, nearly a couple of inches in length, are produced in spring. A coloured plate will be found in THE GARDEN, Vol. XII., p. 160, and a woodcut in Vol. XXIII., p. 441. Other references to this handsome shrub are Vol. XXIII., pp. 394 and 477. *Sophora microphylla*, Ait. (*Edwardsia microphylla* of Salisbury), is only a form of the preceding, with more numerous leaflets and rather smaller flowers.

SOPHORA MACROCARPA † was introduced by Loddiges in 1822. In Chili, where the inhabitants call it *Mayu*, it forms a fine tree. Lindley, in the *Botanical Register*, vol. xxi., t. 1798, gives a coloured figure of the plant, which he says "proves to be a hardy, handsome tree, flowering in May in great profusion. We believe that it at present exists in no other collection." This was in 1836, and the establishment Lindley speaks of is that of Loddiges. Like the preceding species, *S. macrocarpa* no doubt requires the shelter of a wall in the open air in Britain. GEO. NICHOLSON.

Royal Gardens, Kew.

Hydrangea paniculata grandiflora.—

This is one of the most beautiful and useful of all the *Hydrangeas*. Its leaves are narrow and of a pale green colour. It grows very freely, and under good culture will make many shoots from 1 foot to 3 feet in length in one season. The flowers, which are produced at the end of each shoot, come in large panicles, frequently a foot in length. On strong shoots the flowers stand quite erect, but on weakly ones they droop. At first their colour is a rich cream, then they become as white as snow. As a pot plant or an open-air subject for the flower garden and pleasure grounds we hardly know of anything to surpass this *Hydrangea*. When grown in a 6-inch pot it will produce from six to a dozen of its massive spikes, and it is quite suitable for the very choicest kinds of decoration. It is capable of being used with the greatest advantage in the flower garden. Last autumn it was very conspicuous in several of the beds at Drumlanrig, and since then I have seen it used with excellent effect in the same way in several instances. It is very hardy, too, and will bear a great deal of frost without injury. Some plants of it turned out in the open last winter had soon to bear a great deal of severe weather, including 18° of frost, and we were greatly afraid they would be killed, but when spring came they started into growth again quite freely; since then they have produced blossoms at the apex of every branch. Although well supplied with the ordinary *Hydrangea* here, having some plants which have borne as many as 900 blooms at one time, we have plenty of space in which to grow, and reason to admire, this one, which we regard as one of the best and richest of all our beautiful flowering shrubs.—J. MUIR, *Margam, Taibach, Glamorganshire*.

* IDENTIFICATION.—Sleb, and Zucc. *Fam. Nat.*, p. 10. So mokou Zoussetz, vol. xiv., fol. 23, sub *Koura ra*.

† IDENTIFICATION.—Lag. in D. C. Cat. Hort. Monsp., 145; "Revue Horticole," 4, 3, 201, t. 11.

* IDENTIFICATION.—Hooker, "Flora of New Zealand," p. 52; *Edwardsia grandiflora*, Salisb.

† IDENTIFICATION.—Smith in Ree's *Encycl.*; *Edwardsia chilensis*, Miers' "Travels in Chili."

NOTES.

An old-fashioned garden.—It pleases me to think that I am ever a welcome visitor in a neighbouring old-fashioned garden—a garden which is ever slightly and always pleasant, but not trim or formal. Just now the streaked Eve and the perfumed rosy Peach Apples hang temptingly on the lower boughs and rival the garden blossoms themselves in fragrance. Sunflowers make the place warm with golden light. An old Pear tree, draped from top to bottom with Travellers' Joy, is a picture; so is the Ivy, green as well as golden, which glistens and glows on the old grey walls. Sweet are the Roses and the large-flowered white Jasmine also. The autumn Cyclamen, with snow-white blossoms, peers up in little lines and groups beside the blue *Crocus speciosus*. Earlier in the year white Lilies, Cabbage, Moss, and Banksian Roses; earlier still, Pinks and Wallflowers make this old pleasure a wilderness of sweets, and on the dullest of winter days, Violets, Snowdrops, Christmas Roses, and fresh green leaves are there.

*

Flower drawing.—"The world is old in generations of men; but external Nature has still many fresh appeals to our brains and senses, and of these not the least potent is that she makes through the lips of her flowers." Thus, speaking of flowers, a writer in the *Magazine of Art* for the current month speaks sympathisingly with the flower paintings of Leclair and with those of Pelouse, while deprecating the enormous waste of time and labour wasted upon flower painting by young ladies and others who have neither ability, training, nor feeling for the work. Somehow or other there exists the belief that any school-girl can draw flowers, and the result is very painful to those who know aught of what flower beauty really is. Some day flower drawing will be thought not unworthy of study by artists of note, just as some did so regard it in times past. It does not appear to be well known that Paul Potter, "the Landseer of Holland," was very fond of studying flowers. In the Berlin Cabinet of Engraving are four volumes of Potter's original sketches, and the fourth volume consists entirely of floral studies in water colour, outlined in Indian ink. Among other flowers represented are Anemones, Asters, Poppies, Crocus, Mayflowers, King-cups, Tulips, Iris, Corn-flowers, and one example of fruit, the Strawberry.

*

Tyerman's Groundsel.—This showy plant, otherwise known as *Senecio pulcher*, is now very showy, the colour being a bright rosy purple, quite distinct from that of most other composite plants now in flower. Easily increased by root cuttings in a little heat, and it prefers a deep rich sandy soil on a cool, moist bottom. Well grown, it is a first-rate hardy biennial, or rather it does best when treated as such. It is now blooming quite freely, and its large Marguerite-like blossoms are much admired for cutting, as they endure fresh and fair for several days indoors. Another species, *S. speciosus*, is also in bloom from seeds sown in March, the young plants having been planted out in May. Its blossoms are, however, neither so large nor so showy as those of *S. pulcher*, nor are they so useful for indoor decoration. Flowers of the last named, arranged along with those of sulphur Marguerites, are very bright and effective.

*

Anemones as annuals.—On all soils where Anemone tubers succeed fairly well I am sure more satisfactory results, so far as quantity and quality of bloom is concerned, would be gained by sowing seeds on a prepared bed early in April or the beginning of May. The treatment usually given to a bed of Onions suits them exactly, and by making two or three successional sowings, a long continuance of their fresh flowers may be obtained. I have now before me freshly cut blossoms from a seed bed sown in April last. It is not always easy to be quite sure of good seed being obtained, but if a selection of good named tubers be grown in the first instance, it is easy to save seeds from the finest flowers, and so on year after year until a really fine standard of excellence is

reached. Good deep loamy soil enriched with cow manure suits the Anemone better than any other.

*

Variegated Comfrey (*Symphytum officinale variegatum*) is one of the most effective of all hardy border plants, and is most effective as seen in contrast with bold clumps of blue Delphiniums or of crimson-flowered Phloxes. It has just thrown up its autumn growth of yellow-margined leaves and is very showy. It is easily increased by dividing the established clumps in March or April, just as its spring growth appears, and if well planted in deep rich soil it soon forms a really bold and effective mass. In some gardens this summer we have been quite charmed with plants of the golden-leaved *Laburnum* as used for distant effects. Planted near to the purple-leaved Beech it is most effective, being of a much richer and decided shade of golden yellow than either the golden forms of Elder or Catalpa.

*

Cool Orchids.—When Dr. Paterson sold off a portion of his Orchid collection at Edinburgh last year, it was observed that there were, properly speaking, no cool Orchids among them, and now we note that another celebrated amateur Orchid grower—Mr. Salt, of Ferniehurst—"is disposing of all his Orchids which require other than cool treatment." Other growers, especially the older ones, are also gradually disposing of their East Indian Orchids to make room for the more showy of the mountain species from South America, and yet it is not above ten or fifteen years since the advocates of cool Orchids were laughed at and their views regarded as illusory! To-day, however, not only are cool Orchids most popular, but much lower and more airy temperatures are the rule in cultivating the other species from the eastern Tropics; in fact, the effect of cool treatment, in its application to Odontoglots and Masdevallias, has quite revolutionised the old high temperatures supposed essential for all other species, and as the result, Orchids were never so popular or so generally well grown as they now are.

*

The great perennial Sunflower (*Helianthus multiflorus major*) is one of the best and certainly the most distinct and showy of all the perennial Sunflowers, and it is very interesting to observe its different growth and habit on various soils. I saw it quite rampant the other day growing 8 feet high in deep, rich earth, the leaves being far larger in proportion than the blossoms, but in another place, on poor soil, it was barely half the height, with much smaller leaves and thrice the quantity of great yellow flowers. It evidently becomes too plethoric in some soils, but does best on a dry sunny border, and I find it advisable to divide old clumps into separate crowns every spring. So treated, a much fresher growth is made, and the flowers are also larger and finer on our deep sandy soil.

*

Polygonum sachalinense.—This giant Knotweed is now in flower with us, and is much admired for its stately habit, noble leafage, and profusion of white Spiræa-like blossoms. When well grown in deep, rich soil, it attains a height of 10 feet or more, and a mass of its graceful wand-like stems springing from the mossy turf forms a noble object. The plant is not often seen in gardens, not nearly so often as is *P. Sieboldi*, but it is well worth looking after by those who admire large-leaved plants of graceful habit. I saw its stout, Asparagus-like shoots spearing up quite abundantly in M. Siebold's old nursery at Leyden last spring, so that there can be no great difficulty in obtaining the plant. Grouped along with the giant leaves of *Gunnera scabra* and with hardy Bamboos, or with *Arundo Donax*, this plant would be most effective on moist lawns or in sheltered sunny glades near to pond or brook margins.

*

Hardy Bamboos.—*Bambusa Metake* is now generally acknowledged to be the best and most vigorous of all the really hardy Bamboos for ordinary garden culture. Once well planted it suc-

ceeds almost everywhere, but there are two others which do fairly well with us, and are, like *B. Metake*, most distinct and ornamental. *B. Mazeli* is somewhat like *B. Metake* in habit, but more branched and of a fresher and paler green colour. It is now making young wands 5 feet high, and bids fair to succeed permanently with us. *B. nigra* also is distinct with dark purplish stems, and of the dwarfier kinds, *B. Ragamouki* is spreading in all directions. These graceful plants are never so effective as when planted in sheltered positions on the turf from which their leafy wands can spring unrestrained. Even in cold or bleak positions where tender kinds fail in the open-air climate, the wonder is that they are not more often utilised for planting out in cool conservatories. Certainly they would add a light and graceful charm to our gardens if more freely used.

*

Gardeners and gardening.—The position of the gardener is and ever has been an anomalous one. He may, by his ability and position, be anything from the friend of princes to the odd man about a country farmhouse. And in this undefined chaos and uncertainty gardeners will no doubt long remain unless they are willing to adopt the tactics of other professional men, and organise themselves for mutual assistance and protection. The Gardeners' Benevolent Institution, about which we hear so much, does not represent gardeners generally any more than the Royal Horticultural Society itself is representative of them; indeed, both bodies seem to have degenerated into helpless, rather than helpful, bodies, so far as the higher interests and wants of the gardener are concerned. As it is, gardeners practically have no influence as a body. True, other societies, masonic lodges, &c., are open to them as individuals, but what is most desirable is an association of all recognised professional gardeners into a club or society, organised and managed by themselves, a sort of mutual aid and protection society on a broad basis. No true man, be he gardener or not, cares to belong to a society dependent upon the charity of others. The true and best way for gardeners is to help themselves by organisation.

*

Garden Daffodils.—These are now so numerous and beautiful, that I am very glad to hear that Mr. Peter Barr is about to publish a little catalogue entirely, or nearly so, devoted to these charming old-fashioned spring blossoms. Few flowers have been more praised in classic literature, the very name *Narcissus* carrying us back to the eastern shores of beauty-loving Greece in its brightest days. It is very pleasant to know that the golden Daffodil of our gardens to-day is the one which delighted "the bard of Avon"—the Daffodilly which Milton besought to fill its cup with tears to strew the hearse "where Lycid lies." From the numerous letters and enquiries which reach me anent these beautiful hardy bulbs I should imagine that they will soon become far more popular than is even now the case. Popularity in all gardens is a fate *Narcissi* of all kinds deserve, for they, of all other spring blossoms, "give a golden radiance to the young year's charms, and 'take the winds of March with beauty.'"

*

The Guernsey Lily.—All the *Nerines* are beautiful, and this one is no exception to the rule. Imported bulbs may now be obtained, and these generally flower in a week or two after they are potted. We obtain the best results, however, from old-established bulbs. *Nerine sarniensis* is really a native of Japan, and Thunberg says it is (or was) quite common on the hills about Nagasaki. Its introduction to Guernsey was quite accidental. A ship from Japan, having some bulbs of this plant on board, was wrecked on the coast, and the bulbs bloomed soon after they were washed ashore. Shortly afterwards, on its appearance in England, it received its now popular name of Guernsey Lily. When well grown few bulbous flowers are more beautiful than these *Nerines*, their rose-crimson or scarlet blossoms being seemingly be-

sprinkled with gold dust when seen in the sunshine. Belladonna Lilies (*Amaryllis Belladonna*) may also now be obtained as imported, and are very showy for greenhouse or window decoration when bloomed in pots. Planted out in well-drained sandy soil in front of a hothouse or vinery wall in sunshine, they are quite hardy, and, as a rule, bloom more abundantly when so treated than they do under pot culture.

VERONICA.

ORCHIDS.

CULTURE OF CALANTHES.

WHILE admitting that *Calanthes* are well grown in noted Orchid gardens, I still hold that they are

summed to know all about them, and although I propose to begin at the beginning, it is one particular mistake I am principally concerned about. It would appear that no particular compost is really necessary for *Calanthes*. For instance, some grow them well in a compost consisting of three parts turfy loam to one of peat, adding charcoal, sand, and horse droppings freely; others use much less loam and substitute cow manure for the droppings, while others, and I believe these are in a minority, employ no loam whatever. I have tried each with fairly good results, but lately have discarded loam entirely, and find instead of our bulbs of *C. Veitchi* ranging from 6 inches to 9 inches in length, they now range from 9 inches to 12 inches in length, and produce proportionately stronger

before the very tender young roots have grown more than a quarter of an inch. The old bulbs are disposed on the surface, the old roots being trimmed off to within 2 inches of the bulb, and these being covered and the bulbs supported by short stakes and matting, they remain steady enough. We grow all our *C. Veitchi* singly in pots, ranging from 3 inches to 6 inches in size, according to the size of the bulbs, while the bulbs of *C. vestita* type are usually grown three in each 5-inch or 6-inch pots. From the potting time till colour is showing in the bloom the *Calanthes* are grown on the back shelves near the glass of a half-span forcing house, an ordinary stove temperature being maintained. No water is given them at the commencement, but according as the roots extend moisture



Sophora japonica. Full grown tree at Syon 70 feet in height (see p. 211).

better appreciated and much more extensively, if not better grown, by gardeners who have to meet the demands of large establishments for cut flowers and decorative plants. The latter, among which I must class myself, are always on the look-out for serviceable plants, whether they be flowering, fine foliage, common, or choice. Among the many Orchids grown, I find none so generally serviceable as *Calanthes*, and I know I am far from being alone in that opinion. What other Orchid have we that is available for decorative purposes from November till late in February, the individual bloom of which can also be employed for hand and button-hole bouquet making? I consider *Calanthes* invaluable, and ought to be extensively grown wherever cut flowers are in demand, especially seeing how easily they may be managed.

It is only recently that I have grown them really satisfactorily, this being simply owing to following certain rules laid down by those whom I pre-

spikes of bloom. It must be understood our loam is very clayey and comparatively fibreless, and we have to be very careful how we employ it for any choice plants. At the same time, if I could select much superior turf, I should still adhere to the compost we now employ. This consists of rough Orchid peat and fresh or old Sphagnum in equal parts, freely adding charcoal and crocks broken up rather finely, and about one part in five of fresh horse manure. Into this the *Calanthes* rapidly establish themselves, the pots at the present time being crowded with roots, and can then be frequently supplied with liquid manure without any fear of the compost becoming sour. Ours get liquid manure about three times a week, commencing when the pots are full of roots, and ceasing when the foliage is changing colour or near the flowering period.

POTTING.—The plants are potted after fresh growth has commenced, or early in March, and

is given, and when thoroughly established a good soaking is given whenever dry—this sometimes happening twice in one day. They are never syringed, nor are they exposed to bright sunshine, but are shaded rather heavily with newspapers at the commencement, and more lightly later on. According as the foliage changes colour less water is given, but at no time prior to blooming are they allowed to become dust dry, nor are they transferred to a cooler house to ripen, flower, or rest.

COOL CULTURE A MISTAKE.—It may be necessary in some cases to transfer *Calanthes* to a cool house for decorative purposes, but it is a great mistake at any time to do so under the impression it is beneficial to them and the proper thing to do. On the contrary, to place them for any great length of time in a lower temperature than say from 50° to 60° is simply very injurious to them, and will greatly impair the vitality of the bulbs. On the other hand, if kept in houses where a

high temperature and a moist atmosphere is maintained the flowers become badly spotted, and last but a short time. Ours flower splendidly in a large span-roofed stove, which is principally devoted to Ferns, among which the bulk of them are disposed. According as the spikes of bloom cease to flower or are cut, the pots are shifted to a shelf in the same house, where they remain till started afresh. They require little or no water during the flowering period or till the fresh growths are rooted afresh, the bulbs being the store houses from which both the bloom, spikes, and subsequent new growth derive the requisite amount of nourishment. This self-supporting nature of the *Calanthe* renders them highly suitable for house decoration, and we have had them in a heated entrance-hall for three weeks together without any apparent injury accruing to them. Being leafless at flowering time, they require to be grouped among Ferns or other plants, and a number of their long beautifully arching spikes of bloom springing out of a bank of Maiden-hair Ferns is especially attractive.

VARIETIES OF CALANTHE.—We have two forms of *C. vestita* and three of *C. Veitchi*. Of the latter the darkest coloured is much the best, these, when out of bloom, being easily distinguished from the others, owing to the bulbs being only very slightly or not at all contracted near their centres. The commoner or paler coloured variety is rather more vigorous, but has a washed-out look when in bloom beside or contrasted with the superior form. The other form of *C. Veitchi* which we have is not common or particularly valuable. It throws up an almost erect and sturdy spike; the flowers are disposed thickly, and these have very pale and slightly spotted lips.

PROPAGATING.—I have never attempted to increase the stock very rapidly, preferring rather to proceed slowly, and have all raised as strong as possible. At one time we allowed strong bulbs to perfect two growths from their base, the tops also of the bulbs being cut off about 2 inches in length, and these fastened uprightly in pans of light Orchid soil also produced a fairly strong growth. Now we are content with one strong growth from each bulb, and these same bulbs give us a second, though much weaker, growth the following season, so that our stock is still increasing considerably. Has any of our readers succeeded in obtaining a second growth from bulbs that have been rested in cool quarters? Are they not too much exhausted the first season? W. I. M.

Odontoglossum crispum guttatum.—A fine spike of this superb variety has been sent to us from Sir William Marriott's collection at The Down House, Blandford. Its petals and sepals are heavily blotched with a deep chestnut-brown on a white ground, thus rendering the flower strikingly handsome.

Odontoglossum Uro-Skinneri.—A very fine variety of this rather uncommon species has been sent to us by Dr. Paterson, Fernfield, Bridge of Allan. Its blossoms are remarkable for their large size and richness of colour. The sepals and petals, which are three-quarters of an inch broad, are pale yellow, heavily mottled with chestnut brown, while the labellum, which measures 1½ inches across, is white, mottled and speckled with deep violet-purple. We have not before seen such a fine variety as this is, hence infer that it is rare.

SHORT NOTES.—ORCHIDS.

Maxillaria venusta.—A grand plant of this useful Orchid I lately saw at Rendlesham Hall, carrying no fewer than sixty-seven fully expanded flowers, and the plant was in excellent health. I also noticed how robust *Maxillaria grandiflora* grows here. Both receive somewhat cool house treatment, with plenty of water and not much shade when growing.—A. I.

Houlletia Brocklehurstiana.—This pretty Orchid has again bloomed in Major Lendy's large Orchid house at Sunbury. It bore two spikes, each about 15 inches high, on which there were seven and eight blooms respectively. The flowers were 3 inches across, wax like, ground colour yellow, spotted with reddish brown, cinnamon-scented. It thrives well in the intermediate house.—J. O'B.

Cattleya speciosissima.—As a late summer Orchid this lovely *Cattleya* has but few rivals, and we have never seen such a fine form of it as that in Messrs. Shuttleworth & Carder's nursery a few days ago. The flower of this variety measured upwards of 6 inches across, and the sepals and petals (the latter 2½ inches wide) were of a delicate soft mauve. The lip was very broad and exquisitely frilled at the margin; its colour was a brilliant amethyst with a lemon yellow blotch in the throat. Such a splendid form as this is scarcely if at all inferior to the true autumn flowering *C. labiata*, which on account of its rarity is so highly esteemed. In this nursery may be seen some uncommonly fine forms of *Cattleya Eldorado*, an Orchid that should be in every collection for late summer bloom.

Orchids from Falkirk.—We have received through Messrs. Sander, of St. Albans, some Orchid flowers from Mr. Gair's rich collection at The Kilns, Falkirk. Among these is the new and rare *Pescatorea Gairiana*, an extremely handsome species, combining as it were the characters of three *Bollaëas*, viz., *Patini*, *Lehmanni*, and *coelestis*. There is also a specimen of the lovely *Cattleya Wallisi*, a white variety of *C. Eldorado*, with just a blotch of yellow to set off, as it were, the purity of the white petals. It is an Orchid that should be highly prized, being the only white *Cattleya* in late summer. Another rarity is *Odontoglossum Andersonianum lobatum*, differing from the type in having narrower petals and sepals, but is scarcely less beautiful.

SOCIETIES.

NATIONAL DAHLIA SHOW.

AUGUST 31.

THE second annual exhibition of this Society, devoted to improving and popularising the Dahlia, took place at the Crystal Palace in conjunction with the fruit show. Mr. Moore and his colleagues have, we imagine, good reason to be satisfied with the results that have attended their work, for they had a capital show in every respect, whether we regard its extent or the high quality of the blooms sent by almost every exhibitor. Some time ago it was feared that the Dahlia—indisputably the finest of autumn flowers—was losing popularity; hence the present Society was formed with the view to make its culture more universal, and, by offering prizes for improved and new forms, to awaken an interest in seedling raising. The present show was a sufficient indication that there is no falling off, at any rate among growers for exhibition, for, taken collectively, it is doubtful if there ever has been a finer exhibition of the Dahlia as that which drew so many of its admirers to the Crystal Palace to witness. The show was, moreover, a pretty sight, different and not nearly so monotonous in character as those of other special shows, such, for instance, as Carnations, as there were three distinct types of flower, viz., the show, bouquet, and single, and the latter two sections created a particularly fine effect, as the blooms were shown in good sized bunches, with sufficient foliage to tone down the brilliant hues.

Throughout the whole show there was an excellent competition, and the classes were well represented both by the trade and amateurs. The schedule was admirably framed, and great care seems to have been bestowed upon it in order to make it embrace all classes of Dahlia growers, from the nurseryman with his acres to cut from to the amateur, who would probably have a job to muster a dozen, or even half that number, of decent blooms. The schedule was mainly divided in sections for nurserymen, amateurs, and open classes, and these were again divided into classes for four, two, one, and half-dozen blooms. The amateurs were numerous, but the trade classes contained the finest blooms. Among the amateurs the chief prize winners were Messrs. Glasscock, West, and Boothroyd, who showed some fine productions.

SHOW VARIETIES.—The principal class in this section was for four dozen blooms of distinct sorts,

and, as may be imagined, there was but a limited number of exhibitors of such a quantity as this. There were five competitors, and a keen contest took place between Mr. Turner, of Slough, and the noted firm of Keynes, of Salisbury, which has done more than any other for Dahlias of late years. The collections of both these exhibitors were remarkably fine, and it required the eyes of the specialist to discern the points of distinction between them, but it was said that Mr. Turner was a good first. We append a list of the sorts in Mr. Turner's collection, as it may be useful to those who wish to make a selection of the very best kinds, for no doubt the list comprises all that is good among show Dahlias:—

Alexander Cramond, maroon-crimson	H. W. Ward, yellow, edged crimson
Aurora, buff	J. B. Service (new), a fine yellow
Bessy Ford, rosy pink	James Cocker, purple
Celestial, French white	James Vick, purplish maroon
Cardinal, rich scarlet	J. W. Lord, orange-buff
Canary, a fine yellow	J. N. Keynes, yellow
Champion Rolls, orange pale edges	John Standish bright red
Charles Lidgard, deep yellow	John Wyatt, crimson-scarlet
C. Ridley, rich crimson	Joseph Green, bright crimson
Comet, deep red	Julia Wyatt, creamy white
Constancy, yellow, edged with lake	Lady Gladys Herbert, white, edged crimson
Drake Lewis, bright scarlet	Lizzie Leicester, pink
Ethel Britton, bluish white, edged reddish purple	Lord Chelmsford, maroon-crimson
Emily Edwards, white, edged purple	Michael Saunders, crimson-purple
Flag of Truce, white, tipped with lilac	Pioneer, very dark, almost a black
Fair Imogene, white, tipped lavender	Prince Bismarck, puce, shaded purple
George Smith, bright magenta	Revival, rich crimson
George Rawlings, maroon-crimson	Rev. J. Godday, maroon-purple
George Barnes, lilac, striped crimson	Royal Queen, pale yellow purple edged
Georgina, creamy white	Sunbeam, clear buff
Goldfinder, yellow, tipped red	Thomas Goodwin, dark maroon
Harriett Tetterill, bluish, edged purple	Thomas White, maroon-crimson
Herbert Turner, French white, tinged lilac	Walter Williams, bright scarlet
Hcn. Mrs. Fery Wyndham, yellow, edged rose-purple	William Rawlings (new), crimson-purple, very fine

The class for a dozen blooms was more numerous, there being eight collections; all these were different from those shown in the first two classes, for it was a wise provision in the schedule that exhibitors in one class could not show in another of the same section. The other collections were good, and were composed of much the same sorts as that of Mr. Turner's. Among the fine collections of twenty-four blooms, Messrs. Rawlings, who are celebrated Dahlia growers, had a superb collection for the first prize, and the second was taken by Messrs. Paul, Cheshunt, who seem to have taken to the cultivation and exhibition of the Dahlia as a supplement to their successes in Rose showing.

FANCY VARIETIES.—There were two classes set apart for these—one for twenty-four, the other for twelve blooms. To the uninitiated it seemed that there was a very fine line of distinction between the show and the fancy sorts, and we noticed that in the larger classes for show kinds there were some few of the fancy class. The best collection of twenty-four blooms came from Messrs. Keynes, who had an excellent collection, the sorts being as follows:

Annie Pritchard, white, striped lilac	Hercules, yellow, crimson-striped
Charles Wyatt, rose, flaked crimson	Hugh Austin, orange-scarlet, striped red
Carnation, white, flaked purple	James O'Brien, yellow, crimson stripes
Fanny Sturt, red, tipped white	John Lamont, maroon, striped black
Frederick Smith, lilac, striped purple	Lady Antrobus, red, tipped white
Gaiety, yellow-buff, striped red	Mrs. Saunders, yellow, tipped white
George Barnes, lilac, striped crimson	Oracle, yellow, striped crimson
Henry Glasscock, buff, crimson-striped	Professor Fawcett, dark lilac, striped chocolate

BOUQUET VARIETIES.—This charming section was, perhaps, more admired than all the others by the general public, as they possess such a combination of beauty, having the varied and brilliant hues of the shows and fancies without their

lumpiness. The race that has been obtained are, we might almost say, miniature models of the finest show blooms, so perfect are they in form and build, as the florists say. There was a competition in the Pompones classes. Some five or six collections of two dozen varieties were shown, Mr. Turner being first, with a very fine collection set up in a charming way—the blooms cut with plenty of stalk and foliage, and bunched in clusters of tens. The following list comprises the best of the shown sorts, which comprise the cream of the Bouquet or Pompones Dahlias. As may be seen by the names, most of them were raised by Germans, who seem to have paid more attention to this class than we have.

Adonis, rosy carmine	Prince of Lilliputians, dark
Comtesse Von Sternberg,	maroon
yellow and white	Professor Bergeat, rosy
Fair Helen, white, tinged	crimson
Ilac	The Khedive
Grass au Wien, shaded buff	Titania, yellow, bronze-
Lady Blanche, pure white	tipped
Little Arthur, orange-scarlet	White Aster, one of the
Middle, Valentine Faconet,	best whites
white, purple-striped	Wilhelm Nitsche, red, tipped
North Light, bright scarlet	with white

The other exhibitors of Pompones contributed some fine blooms, notably Messrs. Paul, of Cheshunt, who showed the finest dozen varieties among six. Conspicuous in their collection were Butterfly, Little Mabel, Little Nigger, Pure Love, Fanny Wiener, Dr. Webb, Dora, and Dove, all capital sorts.

SINGLE VARIETIES.—This comparatively new race seems to be coming more and more popular every year, and certainly they are very beautiful and well deserve popularity, but there is some fear lest they should supplant the double kinds, as they are so easily raised from seeds. Everybody now-a-days seems to be raising single Dahlias, and donning them with pretty names without even enquiring if their seedlings are identical or not with sorts already named. In a short time, if this practice continues, there will be a perfect chaos of confusion with regard to the names of single Dahlias. It is a simple matter to select a creditable single Dahlia from a bed of seedlings, but it is a rare hit to obtain a first-rate show sort, such, for example, as the new William Rawlings. There were two classes for single sorts—one for a dozen and the other for six blooms. The best dozen were set up by Mr. Turner, and very fine they were, as fine a dozen sorts as one could select from the scores now in existence. The setting up, too, of this collection was perfection, and never had we seen single Dahlias set off more to advantage as these were. The flowers were in bunches of about a dozen each, and every one was perfect as regards size and form. The sorts were, Mauve Queen, deep mauve; Alba, the finest white; Yellow Gem, one of the best yellows; Firefly, bright scarlet; Beatrice, plum-purple; Gracilis elegans, scarlet; Paragon, maroon-crimson, edged magenta; Beauty of Cambridge, deep red-crimson; Purity, a good white; Duke of Teck, bright red; Rob Roy, vermilion; Highland Chief, a fine yellow. Messrs. Keynes, Paul, and Cannell also showed collections of two dozen sorts very fine. The sets of six varieties, too, were good; the best undoubtedly was that shown by Mr. Robert Veitch, of Exeter, but he was disqualified on account of his having a sort (Pantaloon) which had a tendency to have a double row of florets. It certainly is not a perfect single, and ought not to be admitted as such. The other sorts shown by Mr. Veitch were Vivid, a very bright red; Daisy, a capital white; Ascalon, a very fine magenta; Paragon, and Mauve Queen.

THE BEST BLOOM of a show variety in the whole exhibition was found in Mr. Turner's stand of four dozen. It was a fine example of Georgina, a creamy white one of Keynes' raising. The judges selected as the best fancy sort in the show a bloom of George Barnes in Messrs. Rawlings' collection of two dozen fancies.

CERTIFICATES were awarded to Mr. Hurst, Enfield, for a show variety named MRS. HURST. It is first rate in size and form, and of a delicate blush pink, distinct from any old variety. To

Messrs. Saltmarsh, Chelmsford, for single variety, MRS. BOWMAN, a perfect flower, large and admirably shaped, and of a bright crimson-purple colour. To Mr. Turner for fancy variety DUCHESS OF CONNAUGHT, excellent in form and other points, and of a singular shade of orange-buff. New varieties were also shown numerous by Messrs. Turner, Ware, Keynes, and others.

MISCELLANEOUS EXHIBITS were numerous, and contributed in a great measure to the attractions of the Dahlia show. An extensive collection of single Dahlias, probably the finest that has yet been exhibited, was shown by Mr. Ware, Hale Farm Nursery, Tottenham. Besides several new seedlings there were upwards of a hundred named sorts, and about a thousand blooms in all. Messrs. Laing, Forest Hill, had a large collection of tuberous Begonias. Messrs. Paul, of Cheshunt, had a magnificent collection of Roses, uncommonly fine for autumn, about sixteen dozen trusses. Messrs. Cannell, Swanley, showed Pelargoniums in fine variety; Messrs. Carter a large and fine collection of China Asters; Messrs. Cheal, Lowfield Nurseries, Crawley, a rich and varied collection of hardy herbaceous plants; and Messrs. Kelway, Langport, a grand collection of Gladioli, consisting of about a hundred superb spikes of the best sorts besides numerous seedlings, of which the following were awarded first-class certificates: W. E. Gladstone, scarlet; Duke of Buccleuch, salmon-pink; Duchess of Teck, white, flaked crimson; Sir Stafford Northcote, bright scarlet; and Thomas Moore, deep scarlet. All these were perfection as regards size of spike and form and size of flower.

A list of prizes is given in our advertising columns.

ROYAL HORTICULTURAL.

AUG. 30.

At a meeting of the Fruit and Vegetable Committee, held at Chiswick on the above date, Mr. Charles Silverlock in the chair, the collections of Tomatoes, Potatoes, and Onions growing in the garden were severally examined, first-class certificates being awarded to the following: *Tomato Improved Large Orange* (Henderson).—Fruits large, round, smooth; deep orange-yellow in colour. Very handsome. *Tomato Chiswick Red*.—A selection from General Garfield. Fruits medium sized, obovate, smooth, deep red. Very productive. *Onion White Globe* (Vilmorin).—Bulbs medium size, of a true globular shape, remarkably firm and solid, with a very white silvery skin. Very handsome and distinct. *Potato Welford Park Kidney* (Ross).—White kidney, fine handsome shape, clear skin. Excellent cropper. *Potato Beauty of Eydon* (Hughes).—Large, oblong, fine clear skin. Very heavy cropper. Fine quality. *Potato Midsummer Kidney* (Dean).—Large, long, clear skin. As early as the Ashleaf and with larger tubers. Fine quality. *Potato Snowdrop* (Perkins).—Somewhat resembling Snowflake, but of firmer texture, and better colour and quality. An extraordinary cropper. *Potato Clarke's Maincrop* (Clarke).—Type of Magnum Bonum. Early. Great cropper and fine quality. *Potato Desideratum* (W. Smith).—Long kidney, skin of a dull fawn colour. Moderate cropper. Extra fine quality.

Eclipse Cauliflower.—I grew this the first season it was distributed by Messrs. Dickson, Manchester, and since then have invariably been well rewarded for my trouble. It may be briefly described as an early form of Veitch's Autumn Giant Cauliflower, as it much resembles that well-known invaluable sort. Sown, however, early in the spring, at the same time as Veitch's, it hearts in fully three weeks earlier, and the solid, close heads are very superior to any other sort that may be fit at the same time. We have it very good now, and commenced cutting August 10.—I. M.

New Pea Sturdy.—I am well pleased with this new Pea; in fact, no other sort has proved so profitable. Sown with such varieties as Criterion, G. F. Wilson, Marvel, and Veitch's Perfection, it

was fully ten days later than either, and produced heavier crops. It is rightly named Sturdy, grows from 3 feet to 4 feet in height, is very branching, and crops down to the ground. The pods average 4 inches in length, and are closely packed with extra large Peas, surpassed in quality by Ne Plus Ultra only. We have in good condition for a very late crop. It requires to be sown thinly. It should eventually become popular amongst market growers.—W. I.

Mowing machines.—Having worked both Shanks' and Green's machines for a number of years, I used to prefer Shanks' on the whole, but the discharging mechanism of Shanks' was more liable to get out of order. A good deal depends on the date on which the several machines were made. We used at one time a Green's machine eleven years with very little repair. It had been five years in use previously, and it continued in use for a further length of time. Of all horse-mowing machines I know none to beat Kennans & Son's. We have two here which have seen sixteen years' service, and we are replacing them by the same maker, the original pattern, 30-inch machines, drawn by a pony.—WM. DICK, *Phoenix Park, Dublin*.

Rochester Castle, one of the finest Norman relics in the country, is about to pass from private ownership into the hands of the corporation of Rochester, who are to pay the present owner, the Earl of Jersey, £8000 for the structure and surrounding grounds. The corporation have for some years had a lease of the property at an annual rental of £240; and the grounds are laid out as public gardens, for which purpose the Earl stipulates that they are to be maintained, while the castle is to be kept as a ruin.

OBITUARY.

THE death is announced of Mr. JOSEPH UPJOHN, at the age of eighty-four, which took place on August 3 at Rondebosch, Cape of Good Hope. He was an enthusiastic collector of bulbous plants, and cultivated a fine collection. For the past fifty years he has contributed in no small degree to the knowledge of the South African flora. His search for bulbs extended into Kaffirland, and he had some adventurous travels some years ago about the Kei River.

Diseased Grapes (Vitis).—Your Grapes are both shanked and mildewed, but the diseases are too far advanced to be remedied this season. We advise you to look to the border this autumn and remedy any defect in drainage that has caused the shanking of the berries. The mildew is an easier matter to remedy if taken in time.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of fruits.—W. E.—Apparently Barrington (a very fine specimen). It arrived in a fairly good condition, but you did not put enough packing material beneath the fruit consequently it became bruised.—Devon.—Apples—1, Lord Suffield; 2, Keswick Codlin; 3, Kerry Pippin.—D. T.—The Pear is not sufficiently ripe to name.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—E. Colville.—1, Hydrangea Hortensis; 2, Clematis lanuginosa (variety); 3, Cuphea platycentra.—G. Bull.—Diplacus glutinosus.—S. G. H. (Newlands).—Lælia xanthina.—J. G. Kirsten.—Cyrtodeira fulgida is the red flowered plant; send a better specimen of the other.—C. White.—Nicotiana noctiflora.—M. Johnson.—Lilium tigrinum (Tiger Lily).—A. A.—Microlepis hirta.—A. J. Coleridge.—Stapelia variegata (Carrion flower).—H. Harris.—Benthamia fragifera.—G. S. W.—1, species of Malva, not sufficient to name; 2, Lysimachia vulgaris; 3, Alchemilla alpina; 4, do not recognize. The other is apparently an animal production.—E. Beveridge.—Chrysanthemum segetum (annual).—W. H. M.—Syringa Emodi.—Mac.—Antennaria margaritacea (white), Galega persica.—F. J. Hubert.—Nerine Fothergillii major.—Constant Reader.—1, Lobelia cardinalis ignea; 2, Sedum Sieboldi. We do not name varieties of Pelargonium.—R. S.—None of the specimens sent were in a fit condition to name.

No. 617. SATURDAY, SEPT. 15, 1883. Vol. XXIV.

This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE PHYLLOXERA AND VINES IN OUTSIDE BORDERS.

PERMIT me to ask those of your readers who have been so unfortunate as to have to battle with the above-named pest if they ever knew it to attack Vines planted in outside borders? I have some recollection of reading instances recorded in your columns in which in clearing out borders where the Vines were attacked the pest was said to be less frequent on the roots, as they got outside the usual arches in front walls, but I have never read of a case in which the roots were attacked if entirely outside—hence my query. While on this subject I would also like to hear the opinions of some of your Grape-growing correspondents as to the advisability of planting Vines in outside borders more frequently than has been done, say for the last twenty years. My own experience and observation lead me to the conclusion that it would be better if more Vines were so planted for several reasons. Were I called upon to plant a number of vineries now, I should not for a moment hesitate to plant all the permanent Vines outside—save, perhaps, the earliest house—unless the subsoil was a cold clayey one, and even in that case I should do so if I could conveniently raise the borders somewhat above the surrounding soil.

The principal advantage of inside borders is that Vines planted in them usually grow well the first few years while the soil is fresh and aerated; after that, even in well-managed inside borders, where provision is made for the roots to go outside, there is always more healthy roots in the outside border than inside; such, at least, is my experience in a good many cases. Muscats, which are usually considered more delicate than other sorts of Vines, seem to particularly like to luxuriate in a well drained outside border. I have under my care two houses of Muscats not 30 yards apart; one house is planted outside and forced early, say to come in the end of June and July; in the other the Grapes are now nearly ripe. In both cases the treatment is alike, but the early house always produces the finest fruit and the best crops. The Vines are about seventeen years old, and this year we cut many bunches 3 lbs. each from them. In the late house the fruit is not nearly so fine, the only advantage being that it becomes better coloured. In this house the roots are entirely inside. There is, moreover, a considerable saving in labour in the case of outside borders, seeing that they require much less attention in watering, and, all other things being equal, the Vines are much longer lived; consequently there is not the frequent replanting and remaking of borders which in these days of more or less reduction in many gardens is no small advantage. One important point in planting Vines outside is to see that the apertures through the front wall are sufficiently large to allow for the swelling of the Vine stems and also to have them a few inches below the surface of the border, so that the stems may be covered with a few inches of soil to obviate injury from frost.

H. J. CLAYTON.

NOTES.

The white Tiger Iris.—A friend has kindly referred me to *THE GARDEN*, Vol. XXII., p. 346, where this plant is alluded to by "W. E. G." It appears, according to Mons. E. A. Carrière, that this lovely variety was raised by M. Hennequin, of Angers, France, and we trust that he may give us further particulars, or that M. Carrière may aid us in the history of its parentage. It is catalogued pretty generally as *Tigridia speciosa alba*, but there seems a doubt as to whether it originated from *T. Pavonia* or from *T. conchiflora*, which latter it most resembles in habit and pose of flowers. Whatever may be its origin or parentage, however, matters less to us than a full knowledge of the fact that it is a first-rate and distinct garden plant, our plants being quite as robust and floriferous as those of *T. Pavonia* and *T. conchiflora*, which were planted on the same date as the white variety. A warm soil near a sunny wall and a spadeful of sand to each tuber is the secret of success.

*

Smilax tamnoides.—Of all fresh and graceful green-leaved trailing plants for a cool greenhouse, this is one of the most satisfactory. Distinct alike in habit as in leafage, it is but rarely seen. In warm localities it is hardy, but frost and high winds rob the leaves of that glistening freshness which is their greatest charm. Its long and elegant shoots are most useful for grouping with cut blossoms indoors. Another species, *S. aspera*, has narrower leaves, marbled with silvery grey, and is quite hardy on a dry bank among stones or boulders, or near an old tree stump, over which it may ramble. *S. latifolia* does well near the sea on a wall, and its large glossy leaves are very beautiful, somewhat resembling those of *Hedera Rægnieriana*, but larger and of a paler and brighter green hue. I am very glad to see those interesting letters in *Gardening Illustrated* on "The Unheated Greenhouse," by Ashmore. They are most suggestive, and illustrate a phase of gardening long neglected. How lovely these graceful species of *Smilax* would be in such a structure, so also many Bamboos, Himalayan *Rhododendrons*, and giant Lilies; in fact, all plants which require shelter only at our hands, and to which fire-heat would be a positive injury.

*

Autumn colours.—What a dreamy richness there is in the garden on these warm September days, when Sunflowers, Tiger Lilies, and Flame Flowers are at their best, and the *Wistaria* leaves hang in pale golden wreaths on the old gray walls! Passion Flowers, too, and purple *Clematis* dangle gracefully in the golden light, and the bee and butterfly alike love to linger on the Yarrow-like flower-heads of the big *Eupatoriums*, or they cluster among the pale blossoms of the great rosy *Sedum* on honeyed sweets intent. The auratum Lilies and scarlet *Gladioli* rival each other, and the *Commelina coely* opens her bright blue eyes to the sun. The Tiger Iris and Morning Glories have shrivelled a little in the warm wind, but are yet fair to see; and those constant friends, the *Violas*, purple and yellow, freshened by their nightly bath of cool white mist, yield again their fairest glints of colour, reminding us of the time they heralded in for us the golden radiance of spring Daffodils and Iris blossoms. There is a crisp coolness and a leafy fragrance mingled with the warm sunshine; the mountain Ash berries gleam here and there like brightest coral; then there is the rustle of falling leaves and the robin's song, and the *Dahlia* blooms alike remind us of the fruity autumn time—ever delicious, perhaps the more so because ever uncertain in mood.

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Sweet Lavender.—All of us may not wander along the sandy Surrey lanes, near Mitcham, during the Lavender harvest, when the evening air is redolent with sweet odours, but in every cottage garden the Lavender bush should find a place. In some old-fashioned gardens, on dry soils, we have seen long lines or hedges of Lavender and Rosemary "all for delight," as Parkinson

so often says in his "Garden of Pleasant Flowers." In the olden time, when every country house had its still room, there was no dearth of sweet herbs and blossoms grown for the home-making of perfumes or sweet waters. There were no *Piesses* or *Rimmels* in those days, and so in all old gardens of note there was a closer connection between the flower garden and the still room than in our own time. Of Lavender, Rosemary, Lemon Thyme, and Sweet Roses there was no stint, and, of all the sweet smelling things, Lavender was not the least highly prized. Even to-day the best Mitcham Lavender water ranks as high in estimation and value as Eau de Cologne, but time was when dried bunches found a place in every chest and drawer and wardrobe alike, and snowy linen had ever among its folds some fragrant memories of the garden. Even to-day in summer time it is customary to burn the prunings of Rosemary and Lavender bushes in the breakfast room grate, thus adding a breath of balmy freshness to the house, a whiff of incense which otherwise would be wanting. The chemists tell us that sweet herbs and many blossoms add ozone to the surrounding air; if this is true, our houses and gardens alike cannot well be too full of Nature's own perfumery.

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The Flame Flowers.—The *Tritomas*, or Torch Lilies, as they are sometimes called, are among the noblest of all the flowers of autumn. A hundred of their red-tipped wands are now blazing in the sunshine before me, and no other garden flowers equal them at this season for bold effect. Seen in the distance, amid the silvery plumes of *Arundo conspicua* and golden Sunflowers, they are gorgeous, and nearer the eye they lend their colour well to brighten both beds and borders, where *Lilium auratum*, *Phloxes*, and clumps of bright green Maize bear them company. Next year we hope to have a bold bed or group of them on the Grass, edged with the rosy *Sedum Fabaria*. Perhaps we shall plant auratum Lilies, in between the clumps for the sake of contrast and surface the remaining bare earth with *Violas* purple and white or yellow, as the case may be. On islands and near the margins of ponds or lakes large groups of these brilliant Torch Flowers have a most effective appearance, especially if planted so that their flowers are reflected in the water on still, clear, sunny days. Once well planted in deep rich soil, they will require no culture for years, except an annual top-dressing of manure or leaf-mould, where such is plentiful.

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Acæna microphylla.—A lovely little creeping or carpeting plant for bare earth on border or rock garden alike, easily increased and so easily grown, and yet by no means so common as its merits would lead one to expect. Here it now forms a rosy carpet a yard or more square on the border, its tiny Rose-like leaves being covered with its bright red or rosy "burs;" indeed, so characteristic is its ornate fruitage, that the "Rose-bur" is by far the best popular name we have yet heard applied to this pretty New Zealand weed. It creeps along the ground like a mossy Saxifrage, and we propagate it in a very simple and, perhaps, as some may think, an original way. A piece of the plant, a foot square, is taken up with a fork or spade, and divided into a dozen or more little pieces. These portions are laid on the soil where it is intended that they should establish themselves, and a stone the size of the fist is then laid upon the plant and pressed firmly, but gently into the ground with the foot. So treated, not one piece in a hundred will fail to grow. Mossy Saxifrages, *Cerastiums*, dwarf *Phloxes*, *Aubrietias*, and many other dwarf plants also do well planted in this simple and effective way. Not only does the stone prevent the plant being displaced by birds or upheaved by frost, but it preserves the plant beneath cool and moist until new rootlets appear.

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The oriental Catchfly.—This plant is known in Latin as *Silene orientalis*, and differs from the common *S. Armeria* by being magnified three times in size of leaves and flowers, and it is, moreover, a true perennial—not annual, as is the

last named species. During July and August it was most effective, and when better known it will become a favourite with hardy plantmen, its soft smooth glaucous leaves and great heads of deep rosy crimson flowers being alike very pretty and distinct. It came to us from Mr. Smith, of Newry, who may some day at his leisure tell us more of its history. It agrees with *S. Armeria* in having zones of a gummy exudation or a band of sticky matter below each of the upper pairs of leaves, thus preventing certain unnecessary insect visitors from approaching the flowers by way of the stem (see Kerner's "Flowers and their Unbidden Guests," by Dr. Ogle, pp. 52 and 130). The plant is readily increased by seeds or by division, and as grown in little colonies or groups it is quite showy. The native *S. Armeria* is naturalised here with us, and a deep rosy crimson form of it obtained by selection is one of the most showy of all annuals for a dry, hot, sunny position.

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Blue Spike Grass.—Visitors to the old Apothecaries' Garden—the Physic Garden it used to be called—at Chelsea cannot fail to notice how well adapted *Festuca ovina* is as an edging for beds in town gardens. The Blue Spike Grass (*Festuca punctuaria*) is still more effective, having much bolder rigid leaves, forming a pale blue tuft of foliage so distinct that but few of our visitors recognise it, or think of it, as a Grass. Since writing the above, I quite accidentally came across a reference to this plant or to a closely allied species in Kerner's work on "Flowers and their Unbidden Guests," p. 31. Speaking of prickly leaves and other protective or defensive appendages possessed by plants, he says, "In the district of Monte Baldo, as also in the mountainous regions lying to the east and stretching beyond the Etsch, a species of *Festuca* (*Festuca alpestris*, Röm. et Schult.) is to be found very frequently growing in thick patches. This Grass has thick leaves which end in needle-shaped points, and when it grows in any abundance it is burnt by the shepherds, because the grazing animals in search for other plants that grow with it often get their nostrils pricked and come home bleeding from their pasture grounds." Thus it will be seen that, apart from its value as an ornate garden plant, this Spike Grass is also interesting from a botanical point of view.

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Oxalis floribunda.—On warm dry soils this plant is now a mass of bright rosy blossoms, its pale green Clover-like leafage being almost hidden by its wealth of flowers. Those who have it not should jot it down, and put three crosses after the name as indicative of a first-class plant; indeed, it may be considered as one of the very best of all really hardy Oxalids. Another well-known species, *O. Bowleyi*, is a conspicuous plant on warm sandy soils, or as a pot plant in a sunny greenhouse, but, as a rule, these plants are rather neglected in our gardens. At Tregoney, I hear many species are perfectly hardy, but in the generality of gardens a little special culture seems needful. I have an idea that we should succeed well in growing many of the Cape bulbs of this class by making deep beds or borders of pure coarse sand immediately in front of sunny hot-house walls. The bulb gardens of Holland seem originally to have been made on natural deposits of sea sand, and sea sand and cow manure seem to contain all the elements, mechanical and chemical, for the most luxuriant of bulb growth—indeed, of plant growth generally. In beds of pure sand, or of sandstone grit, and leaf-mould, covered with a cold frame and glass sashes, I feel sure many bulbs would be quite at home which now fail with us.

VERONICA.

Double-flowered Brambles.—The rambling kinds of Bramble will only root with difficulty from cuttings taken in the ordinary way, but plants are readily obtained by dividing up pieces of the larger roots in the early spring and putting them in a frame as cuttings. A couple of inches

is a good length, and they should be just covered with soil. Another way that may be often seen in the case of the common Bramble is to bring the point of a shoot in contact with the ground, when roots will be produced, and a young plant quickly spring up, which, when large enough, can be detached. This method is very useful for the propagation of the handsome double-flowered varieties.—H. P.

ORCHIDS.

Vanda Hookeri.—I send you a flower of this lovely Orchid. We have only two small plants, but they have both flowered this season; this flower is from the smallest plant and is not so large, but about the same in colour, and I have no doubt will come better when the plant gets fully established.—THOS. DENNY, *Down House, Blandford.*

*. Not quite so good in colour as that of the flowers from which our plate was drawn last year; neither is the flower so large, but sufficient to show what a beautiful Orchid this *Vanda* is.—ED.

The Phalænopsis house in the Royal Exotic Nursery, Chelsea, now exhibits a charming display of flowers, there being some hundreds of plants in blossom of *P. grandiflora* and *amabilis*, both white-flowered species. We hardly know which is the more beautiful sight—a houseful of these white-flowered kinds, or a houseful of the pink *P. Schilleriana* in May. On the whole, perhaps the present is best, the long spikes of snowy white blossoms being so lovely in contrast with the deep green foliage. Some of the flowers measure as much as 4 inches across.

Odontoglossum grande.—This Orchid happily is not among the high-priced kinds, though it is one of the most attractive, even among a large number of others now in bloom. A good variety in my collection has flowers over 6 inches in diameter, all mottled and barred with different shades of yellow and chestnut, and as many others are now past their best, the fresh appearance of the just-opened flowers of this Orchid at once brings it into prominence. It is of free growth and easy culture, requiring to be kept as dry as possible without injury during its season of rest.—H. P.

Peristeria elata.—This plant flowers freely every year in the gardens of Mr. J. Marshall, Taunton. There may now be seen there a plant in a 10-inch pot with three flower-spikes, each of which reaches a height of between 3 feet and 4 feet. I did not count the number of flowers when I called there the other day, but in previous years I have seen as many as thirteen fading and expanding upon a single stem. It may be well to remark that the plants of this *Peristeria* are thoroughly well established, which may account for the freedom with which they bloom, as this species does not in every case blossom regularly.—J. C. C.

September Orchids.—During the present month and October the season of flowering Orchids is considered to be at its lowest ebb; it is surprising, however, to find what a number there are when they are brought together in one house, as Mr. Bull has them in his nursery at Chelsea, where there is an admirable display for the season, though of course not nearly so fine as the grand exhibition that has been on view uninterruptedly here since May. There are about half a hundred distinct species and varieties now in bloom, of which the following are the most noteworthy: *Lælia elegans Schilleriana splendens*, a truly splendid variety, with broad, white sepals and a broad amethyst lip; *L. irrorata*, extremely rare and beautiful, the flowers being blush white and with a crimson-purple lip; and *L. Rothschildi*, a new species formerly named *L. Amanda*, and possessing a distinctive beauty of its own, though at first sight it reminds one of *Cattleya maxima*. This superb Orchid is almost unique. Among *Epidendrums* are fine specimens of *E. prismatocarpum* and *E. raniferum*, both handsome species; and besides several commoner *Oncidiums* are the pretty *O. ornithorhynchum*, *O. Forbesi*, and a very

fine form of *O. Weltoni* named *superbum*, with much deeper and richer colours than usual. *Cattleyas* were represented by some grand varieties of *C. gigas* and the pretty *C. Eldorado*, of which there was one variety with blotches in the sepals as in *C. Trianae Backhousiana*. Of *Odontoglossums* were *O. grande*, *Roezli album*, and various others, such as *crispum* and *Pescatorei*; and among *Masdevallias* were the rare and curious *M. macrura* and a pretty new species named *M. inflata*, with golden flowers of globular form. *Cypripedium Spicerianum* was in bloom among the rarer *Lady's Slippers*, also the true and largest flowered form of *C. purpuratum*, as well as the handsome hybrid *C. Crossi*. *Spathoglottis Lobbi*, a rare yellow flowered species of elegant growth, was just commencing to flower, and will be very pretty in a few days. Among other conspicuous kinds were *Mormodes pardina* and *unicolor*, both handsome Orchids; *Zygopetalum Gautieri* and *maxillare*, *Dendrobilum filiforme*, *Cypripedium Stonei*, *C. niveum*, *Aerides quinquevulnerum*, *Saccolabium Blumei majus*, *Dendrobium Dearei*, very fine specimens of this, the finest of all white *Dendrobies*; *Masdevallia bella*, and *Pleione præcox tenera*, a new variety, with pretty mauve tinted flowers borne at the same time as the foliage.

Dendrobium Dearei.—This plant, although of recent introduction, I think will prove exceedingly valuable for decorative purposes, independently of its handsome appearance, as the blooms keep fresh a very long time. I have one that has now been in bloom for seventeen weeks, and, as you will perceive from the flowers now sent, cut from a spike of ten blooms, still looks fresh to the eye, and I have no doubt from the appearance at a distance will show its white flowers for three or four weeks longer. Another advantage seems to me to be its free flowering properties, as the young growths made this year on the same plant are now in full bloom, which, together with the old flowers on the same plant, produces a splendid effect amongst the green foliage of *Cypripediums* and other plants. *D. bigibbum*, which recently was comparatively scarce (a small plant of only three growths about 9 inches long fetching at the nurseries 21s.), is also very valuable; one plant now in bloom in my collection consisting of two spikes bearing about twenty-five flowers has been in bloom nine weeks.—H. L. BUCHAN, *Wilton House, Southampton.*

Rare Orchids in flower.—The following rare Orchids are now in bloom in Mesers. Veitch's nursery, Chelsea: *Cypripedium Fairieanum*, a fine plant of this exceedingly pretty and rare *Lady's Slipper* with three flowers; *C. concolor*, not a great rarity, but not often seen in bloom; *Angraecum Kotschyi*, one of the finest of the genus and very rare; the plant bears a pendulous spike with thirteen flowers; *Lælia Felix*, a hybrid in the way of *Cattleya exoniensis*, and almost as beautiful as *L. Philbrickiana*, also a handsome hybrid; *Zygopetalum Wendlandi*, a singular and not very attractive plant, but rare; *Saccolabium Hendersoni*, a gem of the first water, bearing small erect spikes of deep rose flowers of waxy transparency; *Trichocentrum albo-purpureum*, a small-flowered species with white and plum-purple flowers, very pretty; *Coelogyne Massangeana*, with a long pendulous spike of buff coloured blossoms; *Dendrobium Dearei*, with twenty-one flowers on one spike; *D. Rhodostoma*, a pretty hybrid variety in the way of *D. Huttoni*; *Epidendrum prismatocarpum*, a fine specimen with a dozen spikes; and *Cattleya Wallacei*. These are some of the most noteworthy of the rarer kinds, but there are numbers of other commoner kinds, such as *Phalænopsis*, *Odontoglossum*, *Calanthe veratrifolia*, *Epidendrum nemorale*, *Lælia Dayana*, and numerous hybrid *Cypripediums*.

The International Horticultural Exhibition that was to have taken place at South Kensington next year is, we learn, postponed until 1885, so as not to interfere with an exhibition of a similar character to be held in Edinburgh next year.

FLOWER GARDEN.

CAMPANULA PERSICIFOLIA.

A WEEK or two ago we received from Miss Jekyll an extremely fine variety of *Campanula* from her garden at Munstead, Godalming. So distinct was it from any other *Campanula* we knew, that in the absence of leaves we thought it could have no affinity with the Peach-leaved Bellflower. Miss Jekyll, however, considers it to be a variety of it, and she sends us the following note respecting it: "A fine variety of *Campanula persicifolia*, 4 feet high, blooming long and late, still in flower (September 7) and likely to bloom for another fort-

sarily wild, as the spot is near a populous place with many gardens; but on asking at Kew I was told it was by no means impossible for such a variety to occur in Switzerland. It is very easy of culture, increasing rapidly at the base by underground stems, as in the ordinary garden forms."

SOME SUNFLOWERS OF THE AUTUMN GARDEN.

AMONG the many additions to the hardy plants of our gardens during the past fifteen years, few are more valuable, none more effective, than the bold yellow Sunflower-like plants often now called yellow Daisies, far as they are removed from the

in Cheshire, there is now in flower the finest collection of these plants we have ever seen, adopts, in the case of the strong perennial kinds, the plan of frequent transplantation to secure a good and prolonged bloom. The plants are so vigorous in growth, that when they have a chance to grow alone in good soil they "exhaust" the spot they grow in, and themselves too. In a wild state such plants generally have active competitors for the soil which saves them from repletion. In gardens, having it all their own way, they soon eat their heads off, so to say; and though the tufts may survive for many years, the bloom lasts a shorter time, and is poorer, than that from young plants. This point is very important as regards some perennials; by frequent removal to fresh soil the flowering is greatly improved. There are some, such as the *Fraxinella* and the flowering *Yucca*, like to be let alone; but the free-going hardy Asters and Sunflowers are best re-planted in fresh ground every two years. A bit from the outside of an old tuft placed in a fresh position is all that is necessary as a rule. What the plants want is simply a kind of rotation.

On the last day of August, a most important time in many gardens, the following were among the best kinds for general culture at Edge Hall. We might enumerate more, but those who secure the following may expect a good result, and will, after growing them, be able to judge of the merits of any others that may be offered. As so many people visit their gardens at this season really good hardy plants that flower now are worth attention.

THE PERENNIAL SUNFLOWER (*Helianthus multiflorus* and vars.).—The old double form of this is pretty well known, and used to be a common plant in some of the London squares, particularly Euston Square. Of late its single form has found a place in cultivation, and later still a large single form, called major or maximus, is seen in gardens where choice hardy flowers are looked after. At Edge Hall its effect is very fine in the open garden, the flowers being very large, coming nearest in size to the single Sunflower. This large single form grows to 7 feet and even 8 feet high, having a bold, rich habit—a fine subject for anyone with taste to place it well. And here it may be said that placing such plants properly is as important as growing them well. No matter how fine the kinds and good the culture, if all be jumbled together, the effect is confused, poor, and impressionless. If in doubt what to do, it is a good rule to put such a fine plant as this in a recess among shrubs alone. Let it tell its own story; and if a few other kinds like it are secured, by no means put them together—unless, indeed, they go in nursery beds for comparison or increase. No garden should be without this great perennial Sunflower.

THE PRIMROSE SUNFLOWER (*H. annuus* var.).—It is needless to speak here of the common Sunflower which has been often seen in recent years. But the newer Primrose variety of it is very good and distinct, and a few plants of it will be welcome in the garden borders. The effect of the soft yellow ray is very good, and quite distinct from that of the common Sunflower.

HELIANTHUS DORONICOIDES is the name (not of certain accuracy in its application, perhaps) of a very handsome Sunflower, of the very highest value both for cutting and the open garden. It resembles the following kind, but is taller and later, reaching 6 feet or more. It does not seem to run so much at the root as the following, and it is not so rough in the leaf. It is indispensable for every garden where hardy plants are cared for.

THE ROUGH-LEAVED SUNFLOWER (*Helianthus rigidus*).—This, like the preceding kind, is of a fine deep golden colour, with a rich dark centre, and of exquisite form; but it is usually a somewhat earlier plant, and not so tall, growing generally from 3 feet to 4 feet. In rich soils it runs a good deal at the root, but by care in placing it will do no harm. If the gardener should not be able to find room for it in his "garden proper," so to say, it should be grown, for the sake of its flowers for cutting, in a line in the kitchen garden.



Portion of flower-stem of a fine variety of *Campanula persicifolia* (colour bright blue-purple).

night, but coming into flower when the ordinary garden kinds are going out of bloom. There is a large variety of *persicifolia* figured in Curtis's *Botanical Magazine*, vol. xii., p. 397, as *C. persicifolia maxima* nearly agreeing with my flower in general dimensions, but different in form, being of a broad cup or bowl shape with the edges of the segments very slightly turned outwards; whereas this flower has a true bell shape, with the segments of the corollas from the point of junction prolonged outwardly and then recurved, this outer part projecting five-eighths of an inch beyond the rim of the bell, and giving the flower its handsome, wide-spreading character. I am unable to say certainly where I obtained it, but think it was one I found, out of flower, in a valley near the north-east end of the lake of Geneva, not neces-

little true plant of that name. Their colour, frequently of the purest golden yellow, is a fine addition to the garden in August, September, and October; but to all who look beyond the mere flowers the plants have a further value in their height and stately form, hardiness, and vigour. Some of the qualities enable us to add a welcome variety to the ordinary flat and monotonous autumn flower-garden plants. Some are of the highest value for cutting for the house; those who know how to arrange flowers can make splendid use of them. "Splendid," often of doubtful application to plants, may well be applied here. Their culture is easy, and some, indeed, are too free. They may require repression, and become troublesome if not carefully placed at first. They should not be placed near any fragile plants; their appetites are so good that any weaker thing near has a very poor chance. The Rev. Wolley Dod, in whose garden at Edge Hall,

Those who, brought up wholly on "massing system" notions, know nothing of the wants or habits of hardy plants, and place fragile alpine and Siberian Cow Parsnips in one hopeless garden jungle, where death soon seizes all the weaker flowers, cannot easily make a mistake by getting good kinds, and growing them in simple lines for the sake of their flowers.

Other Sunflowers, such as *H. decapetalus*, *Maximiliani*, and *giganteus*, have merits more or less for the garden, but, on the whole, less important than the preceding. One new annual kind, however (*H. cucumerifolius*), is very distinct from its rich black centre in a soft large ray, and this would be worth a place on a warm and good border.—*Field*.

CLASSIFICATION OF SINGLE DAHLIAS.

THESE are becoming so numerous and assuming so many differing forms, sizes, and characters, that it has become almost needful to determine in what direction and to what end they shall be developed or encouraged. Not that any hard and fast lines should be laid down for them, such as Gleenny's properties for double Dahlias, properties almost universally accepted by florists, and, what is more wonderful, very generally conformed to by the best double Dahlias. But single Dahlias are, if possible, more erratic than double ones; hence were rules laid down and acted upon, many most useful varieties for decorative purposes would probably be rejected and some of the chief merits, such as their freedom and infinite variety, would be lost. For the fact must be emphasised that such Dahlias are, by no means limited as to colour. This is varied almost to infinity, but the forms of the flowers range from an almost perfect cup to a level line of petals, and beyond until the flowers reflex back on to the stem, and the centre of golden or other coloured crowns of stamens of various sizes and heights, sometimes nearly level with the disc of outspread petals, at others rising considerably above, and in more rare instances standing up boldly in a similar way, though not to the same extent as in the *boliviensis* type of bulbous-rooted Begonias. And then the sizes of these single Dahlias cover the whole wide field from a Daisy or Poppy to a Sunflower. This wonderfully wide range of size and diversity of structure might assist somewhat in the classification of these beautiful flowers. Large, flat, or slightly cupped single Dahlias are now the most popular. Of course the brilliance of the selfs, the nice adjustments of striped, flaked, or parti-coloured flowers, the style of the eye, and the inner discs at its base, and the finish and substance of the petals all go for something in the determination of quality.

But any standard that awards one or several points of merit to size necessarily disqualifies numbers of the most showy and useful single Dahlias. I send you a bunch of such under the appropriate name of Daisy Dahlias, or Marguerite Dahlias, if that will make them more popular. As you will see, several of them are but little larger than Daisies, and as nearly all colours are represented among them they are among the most useful of all flowers for cutting. One or two of these Pompones are semi-double, and if small like those sent, they will hardly be less useful on that account. A second bunch I have ventured to christen Poppy Dahlias, owing to their exceeding brilliance and dazzling beauty at a distance, resembling more than aught else a blaze of the common field Poppy overtopping a waving sea of golden Barley. The flowers, however, of this section are moderately reflexed, and are distinguished alike by their numbers and a peculiar richness of finish.

One more section, and it is the last I will trouble you with at the present, is labelled the Begonia Dahlia. These are distinguished by the prominence, height, and narrowness of the eye of stamens, by the narrowness of the petals, their peculiar relation to the centre, enfolding it at a respectable distance like a cup, with its inner edge bent inwards beyond the perpendicular, and by their general resemblance to Begonias of the *boliviensis* type. Possibly it may be from the comparative rarity hitherto of these three classes of single Dahlias;

but to my mind they are by far the most interesting of any I have seen. The Begonia Dahlias especially seem a new departure in which the eye, that night-mare of the florists through all the years of Dahlia culture, becomes one of the chief elements of beauty, and, by raising itself higher and narrowing its base, gives to the blooms a new character and decorates them with a higher beauty. No doubt many may question the latter assertion (and I am not careful to uphold it), but this rivalry of some of our Begonias in the matter of floral centres is a new departure in structure, which gives us, not simply a new Dahlia, but virtually a new plant for decorative purposes.

While, therefore, watching with a keen interest, which is almost hourly rewarded with a good find that discovers rich prizes among our hundreds of seedlings, a yet deeper interest is taken in these three classes, samples of which are sent with this communication. Among our general collection one of our last finds is a black, so deep and dense that I should like to name it *Cetewayo*, and send it out to him as an expression of the sympathy of a horticulturist with his sorrows and misfortunes.

D. T. FISH.

AGATHÆA CÆLESTIS OUT OF DOORS.

AFTER a lapse of a quarter of a century, I have given this plant a trial as a bedder in the open air. I cannot say that I am in any way disappointed with it, because I have a pretty good recollection of its behaviour in times past. At the same time, I am bound to say I am not much charmed with it, as it is not effective enough to please me when bedded out. Its greatest merit appears to be the colour of its flowers, which, being of a very pleasing shade of blue, is certainly a gain, as blue composite flowers are rather rare—especially for use in the open air. As a matter of fact, it has also other good bedding qualities, for it has a neat habit, never exceeding 12 inches high in growth, and it is so compact and short-jointed that it does not require either pinching or pegging to keep it in order, and if fair sized plants are bedded out at the proper time, and placed about 9 inches apart, they will cover all the space, and at the same time continue to give a succession of flowers all the summer. In regard to management, it is as easily grown as Verbenas. Cuttings put in now in sandy soil and placed in a cold pit or frame and kept shaded for a week or two will soon make roots, and if potted into single pots as soon as rooted and grown on in 4-inch pots up to the time they are wanted to bed out, they will make fine plants and commence at once to flower.

J. C. C.

Select Clematises.—The Tunbridge Wells Nursery contains as fine a collection of Clematises as any we know, and for many years Messrs. Cripps have aimed at improving all the sections by hybridising, particularly the hardier Jackmanni and patens race, which are the hardiest in constitution and freest to bloom of all, and most suitable for outdoor culture. The Clematis quarter in this nursery is now the most attractive part, it being just the height of the flowering season. The specimen plants forming the permanent collection are for the most part planted at the foot of trunks of trees some 10 feet or 12 feet in height which they cover with a dense canopy of foliage and flowers. Out of about a hundred varieties in this Clematis ground we singled out the following dozen or so of the very finest, those which by the vigorous growth and copious bloom indicated that they are among the best for general culture. Of the Jackmanni, patens, and Viticella races were Alexandra, flowers of pale reddish violet, very profuse; Jackmanni superba, a superior plant in every way to the ordinary form, the flowers being larger and of greater substance and the colour a deep maroon-crimson, one of the finest of all; Othello, rather later than the rest and remarkably free, the flowers being of medium size and of a deep velvety purple, one of the best of all; hybrida fulgens, a velvety plum colour, with the petals barred with a deeper hue,

very fine; Star of India, one of the finest, the colour, a reddish plum-purple, being so distinct—it is free in bloom and a vigorous grower, and the six-petalled flowers are of good shape and full; Viticella rubra grandiflora is the most distinct of all as regards colour, which is a bright claret-red; the flowers are rather small, but produced in great numbers. A fine specimen of this variety was a splendid sight, showing to perfection what a very fine sort it is. Of the larger flowered or Viticella type, the most conspicuous were ascotensis, with large flowers of a violet-blue, and very free flowering; Lady Bovill, flowers of a soft greyish blue, profusely produced; Mrs. G. M. Innes, a large semi-double pale mauve; Morikata Oki, flowers satiny white, large and very fine; Mad. Van Houtte, flowers white and very large and finely shaped; and Lady Caroline Nevill, a beautiful pale mauve, with the petals barred with a deeper colour. The above comprise the cream of the fine collection of sorts in flower here, but we must not omit to mention the new hybrid variety obtained by intercrossing *C. Flammula* and *Viticella rubra marginata*, which produces flowers in great abundance thrice as large as those of *C. Flammula*, with creamy white petals broadly edged with purple. A desirable character of this novelty is its delicious perfume, which is strong enough to pervade the atmosphere around the plants. It is named *C. Flammula rubra marginata*.—W. G.

Viola Bluebell.—Taking this variety altogether, it will be a long time before it is beaten. It has been termed a perpetual flowerer, and, indeed, it does bloom nine or ten months in the year. Then it has an excellent free-branching habit, and it flowers with wonderful profusion. What a mass it makes! and it appears to be in bloom all the year round. Mr. Speed once told me that the Duke of Devonshire took as much interest in the fine patches of this Viola at Chatsworth as he did in anything else about the place. It can be found in almost every garden about the country, large and small, and it is rarely attacked by mildew.—R. D.

Single Dahlias as bedding and border plants.—Some do not like the single Dahlias as they grow too tall. This is the case with not a few of them, and while there is a rivalry to produce the best flowers, the habit of growth has not received a great deal of attention. But it is a very easy matter to considerably dwarf the growth of these Dahlias, and that by a very simple process. In planting out, place the plants in a slanting position, and as soon as it can be done bring them down to the ground by means of a wooden peg. The plants then branch out freely and the shoots take an upward direction, forming dense bushes with the bases of the shoots close to the ground. It is a simple experiment to try, and anyone carrying it out will find that it answers the end desired in a very satisfactory manner.—R. D.

—W. G.

SHORT NOTES.—FLOWER.

Solomon's Seal.—It is pleasant to see the way in which this retains its verdure and grace, even in London, in that wretchedly done flower border in Kensington Gardens.—V., September 10.

Single Dahlias are being "overdone." They are wrongly placed in huge masses, to the exclusion of all other Dahlias, in Hyde Park. Use them more sparingly, and to add variety to the other fine races of Dahlias.—V.

No Stocks!—We have not seen any of these good and sweet in our big parks at the West End. The common bedding plants are repeated until the heart is sick. The presence of a few tattered Musas does not compensate me for the absence of Stocks or Carnations.—V.

Tree Carnations.—They do well out-of-doors, especially if they can be planted against a wall. The plants may be allowed to grow and flower all the winter and spring indoors. If planted out in May or June they will flower well into the autumn against a wall.—J. DOUGLAS.

The wild Teasel.—I saw at Sydenham not long since a few plants of the wild Teasel (*Dipsacus sylvestris*), some 6 feet high, growing in a cottage garden. I cannot say whether they were chance seedlings or not, but, judging by the irregular manner in which they were growing, I should think they were. As "W. M." observes, it is a strikingly effective plant. I have also seen it growing in hedges very high, drawn up, perhaps, by the hedge; but a few plants well grown are highly effective.—W. ROBBINS.

Humea elegans.—This fine, fragrant, and most graceful plant is not so much used in gardens as it deserves to be. We meet with it at places like Heckfield, Gunnersbury Park, &c., but generally speaking gardeners look upon it as a greenhouse plant, but where grown in this way it is much oftener spoiled than not. It really does well in a good and rather light soil in summer, and it would succeed well in many a border that at present knows it not. We have seen a narrow-leaved variety somewhat undulated on the edges that appears to be a distinct and useful plant. Both can be raised from seed sown in heat in early spring, and the plants grown on in pots, and hardened off by such time as the season would admit of their being planted out in the open ground.—R. D.

Tobacco plants in the garden.—Imposing looking plants, like the Tobacco and Castor-oils, have been looked upon as suitable only for the sub-tropical garden, but this is surely a mistake. There is no difficulty in cultivating Tobacco plants, provided they be planted out in soil rich enough to assist them in a vigorous development. The Virginian Tobacco is the best; this is a stately plant, growing to a height of 7 feet, and when well grown bearing very fine heads of bloom and magnificent leaves 20 inches long by 15 inches broad. We recently saw a batch of plants of such a character as that above described in Messrs. Sutton & Sons' nursery at Reading, and was informed they were raised from seeds sown in March and planted out in May. They are noble objects associated with Hollyhocks, Dahlias, Sunflowers, and such like in the back row of a broad border of mixed plants.—R. D.

Bocconia cordata.—For planting in semi-wild places this is an excellent plant, as it is not only highly ornamental, but it is of so robust a nature, as to enable it to take care of itself. It is strictly herbaceous, as it dies down during the autumn and sends up fresh stems in the spring, which attain a height of 6 feet or more. It bears panicles of creamy white flowers from the top of the stems, and when in flower the plant has a fine appearance. The foliage is large, deeply cut and of a pleasing pale green on the upper surface and silvery white beneath. It is well worthy of room in any large shrubby border, a situation where it is very telling, and also looks well as an isolated specimen on a lawn, where it soon becomes a grand object. Like all fine-foliaged plants, it likes good soil, although it will grow almost anywhere. It is easily increased by division or offsets. Young shoots spring up freely, and may be taken up and removed when a few inches high.—S. D.

Picking seed-pods off Sweet Peas.—Although fully admitting the utility of picking off seed-pods from perennials, few, I think, will take the trouble to free Sweet Peas and other annuals from them, as we all know that young plants of the latter are much more vigorous and flower with far greater freedom than old ones. As to a single sowing of Sweet Peas flowering for six months, as Mr. Wildsmith states, the thing is just possible, but I doubt if many blooms would be found on them either at the early part or towards the end of that time. Moreover, I do not quite see any necessity for sowing 15-yard rows all at once for cutting from, and then picking the pods off to induce the plants to continue flowering. I shall therefore divide a 15-yard row, if I have one so long, make three sowings, and let the pods, if any, hang, which will meet the difficulty of cost of seed and scarcity of ground. I shall thus take up no more space than Mr. Wildsmith does, and I shall have an abundance of bloom.—S. D.

Castor-oil plants.—There are several varieties of these, but three of them appear to stand out from all the rest for distinctness of character, and for useful service as ornamental plants in the garden. They are *Ricinus communis* major, with glaucous silvery stems and fine, bold, pale green leaves—a noble plant; and sanguineus, with pale red stems and large bold leaves much marked with red. These two are of the same habit of growth, and are imposing plants in the garden. The third is *Gibsoni*; this is of dwarfer growth

with deep red stems and leaves, quite distinct, and highly ornamental. There is a hint about the culture of these plants worth knowing. Most people sow the seeds in heat, and grow on in pots until large enough to plant out in the open ground. At Messrs. Sutton's nursery at Reading a few days ago I saw some admirable plants, and enquiring how it was they had reached such a gigantic size, I was told that a warm border was excavated to the depth of 10 inches, and 6 inches or so of manure laid in at the bottom. This was covered with some 3 inches or so of good soil, and the seeds dibbled into it in lines and at regular distances apart. Here they laid snug and secure until warm weather came; then they germinated, and quickly made a prodigious growth. This is a practice worth following, and it saves some trouble in potting and shifting.—R. D.

FRUIT GARDEN.

EXHIBITION AND GARDEN GOOSEBERRIES.

It will probably surprise many to learn that there are nearly, if not quite, 250 varieties of Gooseberries cultivated in this country. A large number of these are what is termed Lancashire show Gooseberries, varieties bearing berries of great size, that during the summer are exhibited for prizes, and judged by their weight and refined appearance. But few of these large-berried sorts are grown in the south of England; in the midland and north-midland districts they are largely cultivated, but especially in Lancashire, Yorkshire, and Cheshire. Perhaps of all fruits the Gooseberry is that most cultivated in this country, and seedlings are being raised annually, though new additions are made but slowly, seeing what a large number of fine varieties there are in cultivation; but it is a fact that both in regard to size and prolificacy in bearing great improvements have been effected during the past thirty or forty years. In the year 1630 it appears, on the authority of Gerard, that there were then only the following varieties in cultivation: Long Green, Great Yellowish, the Blue, the Great Round Red, and the Prickly. It may prove of interest to set forth the mode in which these prize Gooseberries are cultivated for exhibition purposes, and the first important matter is the

FORMATION OF THE TREES. These are raised from cuttings, and in doing this it is customary to cut them off close to the branch, and then to shorten them to about one-half their length. In inserting the cutting into the ground the grower is careful not to put the bottom more than 2 inches deep, and the soil is pressed as firmly round it as possible. If these two points be well attended to, it is found that not more than one cutting in fifty will fail. It is a mistake to insert them too deeply and in loose soil. When the cuttings push into growth in the spring, all the shoots are rubbed off but the uppermost, and this is encouraged to grow upright during the season. At the autumn pruning the top is cut off, leaving the young erect plant about 15 inches or 18 inches high. At the spring pushing of the shoots, the three uppermost are kept if well placed, and all others are rubbed off. As the shoots push forth they are trained horizontally to sticks placed so that they form a triangle. If in growing a branch should be inclined to rise upwards, a hooked peg is employed to keep it in its proper place. If, on the contrary, a branch should be inclined to grow too depressed, a forked stick is placed to support it in its proper position. By the end of the season these branches will have produced a number of side shoots. At the time of the

AUTUMN PRUNING, a certain proportion of the best placed side shoots are left, cutting them back to about one-half their length. The side shoots thus left are about 6 inches apart. Those shoots not wanted to form the tree are shortened down to one bud. The ends of the three branches are cut back a few inches. It often happens that a number of shoots push in the centre of the bush. All such are rubbed or cut away during summer, for if allowed to remain they weaken and choke

the necessary shoots. This attention being paid, the buds for bearing get strong and plump, and thus no autumn pruning is required. The following summer the tree will be productive of fruit. A severe thinning of this fruit is usual with growers of Gooseberries for exhibition; in some cases (according to the sort) they do not allow more than two or three of the fruit to remain. Where a crop of fruit is required this severe thinning is not practised. At the next autumn, all the new shoots produced upon the lateral ones of the last year are cut clean out, with the exception of two, leaving those best placed, so as to keep the tree in a regular and handsome shape; these are cut to about half their length. Some adopt an autumn pruning of the trees, because they find that the buds for bearing next year are rendered more fertile; also when pruning is deferred till the spring of the year the buds are brittle and very easily rubbed off in the operation.

The above system of pruning and regulation of the trees is the usual method practised in every succeeding season. It is customary with the growers of prize Gooseberries to raise new plants every year, and to remove the older ones when the fruit does not attain the desirable size; this is usually the fourth or fifth season from propagation. This particular, as in the case already mentioned, will not be required by any other growers, as a tree will continue to bear fine fruit and abundantly for ten or twelve years at least if proper care be taken in pruning, &c. But it may be stated that in the case of all cultivators of Gooseberries such a system of pruning as that recommended above will be found highly advantageous, the object being, in every stage of the tree, to retain a regular and constant supply of young vigorous shoots. It is from such only that superior fruit can be produced and a necessary crop be realised. To shorten the young shoots about the middle of August is beneficial both to the fruit and wood for bearing next year. Upon the old wood small fruit-bearing spurs will be produced; when such are allowed to remain for the production of fruit, injury is thereby done to the fruit upon the young wood by causing it to be small, and the fruit upon the spurs upon the old wood is always of an inferior size. Such spurs should be cut clean off, keeping in view that fine fruit and an abundant crop can alone be produced from young wood; and in retaining even this it should be left thinly, so as never to have the tree crowded. When a tree has extended so far that it is necessary to curtail it, it may be cut in very successfully to benefit that part left, taking care to cut up close to a shoot. There are a few kinds of Gooseberries the trees of which have an erect habit of growth; these, of course, must be encouraged to grow in that manner, but be kept very thin of wood. Such are generally some of the old small sorts which are grown for market and ordinary garden purposes.

ROOT PRUNING.—It is the practice with some Gooseberry growers to lay bare the roots of the trees, and cut them back considerably, doing this once in three or four years; this is done with a view of causing the development of additional fibrous roots, and thus giving additional vigour to the tree. A portion only of the roots is treated in this way at one time, and after the soil is removed the roots are carefully lifted, the long ones cut back, and what are left relaid in some very rich soil. Those who grow fine Gooseberries generally manure annually at each autumn pruning of the trees. The usual method is to remove the surface soil from off the roots as far as they extend themselves, but not to disturb them, doing this to the depth of 2 inches or 3 inches, filling the space with well-rotted cow manure. After laying the manure, the soil is spread over it again. During the rains of autumn and winter some of the benefits of the manure are filtered down amongst the roots, and the enriching of the soil will exhibit its benefits during the summer. It is a practice with the growers of prize Gooseberries to

ENRICH THE SOIL during summer by watering frequently with a prepared liquid manure. This

contributes much to increase the size of the fruit and vigour of the trees. The Gooseberry will flourish in almost any fresh soil, provided attention be paid to the treatment of the plants as above set forth. But the trees do best in a moderately strong fresh loam upon a gravelly subsoil. The loam should be at least a foot deep.

THE PRACTICE OF TRAINING Gooseberry trees against an upright trellis is one often adopted with great success, and we have seen very heavy crops of fruit hanging on these. They are trained over arched trellises with equal success. The advantages derived are a regular supply of fruit-bearing wood; the fruit is fine, and, being high from the ground, is kept free from being splashed with dirt from heavy rains. The appearance of the trees, too, is decidedly ornamental. Trellises are rather expensive, but when made of galvanised iron they are very durable.

SELECT SORTS.—The following are a few of the best varieties of Lancashire prize Gooseberries:—

Red.—Clayton, Conquering Hero, Dan's Mistake, Duke of Sutherland, London, and Wonderful.

Yellow.—Catherina, Criterion, Drill, Leveller Mount Pleasant, and Peru.

Green.—General, Green London, Shiner, Stockwell, Telegraph, and Thumper.

White.—Antagonist, Careless, Freedom, Hero of the Nile, King of Trumps, and Snowdrift.

The following are very useful garden sorts:—

Red.—Ironmonger, Red Champagne, Red Warrington, Rough Red, Turkey Red, and Wilmot's Early Red.

Yellow.—Early Sulphur, Moreton Hero, Perfection, Rockwood, Yellow Ball, and Yellow Champagne.

Green.—Green Gascoigne, Green Overall, Green Walnut, Heart of Oak, Model, and Pitmaston Green Gage.

White.—Bright Venus, Crystal, Early White, Mayor of Oldham, Snowdrop, and Whitesmith.

R. D.

WATERING FRUIT TREE BORDERS.

THE remarks on this subject by "S. D." (p. 204) are well timed, and young fruit growers especially should not fail to profit by them. Gardeners with their multifarious duties are apt to neglect fruit trees under glass directly the crops are secured, forgetting that much really depends upon laying a good foundation for the following season. It is during autumn that root action is most brisk, but if owing to scarcity of water or other causes—many of which are also the result of scarcity of moisture—the foliage is lost prematurely; not only will root action be greatly checked, but the buds may also be only partially formed. I am thinking more especially of Peach and Nectarine trees and Grape Vines, when the latter are rooted in inside borders, than of other subjects; but the same remarks apply to Figs, Plums, Cherries, Pears, and other fruits, sometimes cultivated under glass. Having once partially failed with Peaches and Nectarines under glass owing to the majority of the buds falling off in spring, this being the result of neglect in watering during autumn and early winter, I have ever since been very attentive in regard to this matter. Directly our crops are gathered the borders are very lightly loosened, and then receive a thorough soaking with diluted farmyard liquid manure. In the case of any trees not long planted or which may be too vigorous we give water only. Later on the borders are frequently examined and watered when at all dry, and even during the winter months they are kept moist. The consequence is we have healthy root action, and this in its turn greatly contributes to the proper ripening of the wood and the plumping of the buds. Our Peach and Nectarine trees especially are invariably covered every spring with bloom, and this season, in spite of the late severe frosts, we secured good crops even in unheated houses. Others, whose trees did not flower so abundantly, lost their principal blooms, and, their being none to succeed them, partial failures were the result—I say partial failures, but I could

point to at least two complete failures, and in both cases those in charge admit that their trees were blooming badly when the frosts were experienced. Look, therefore, well to the borders, and keep them in a moist state. **FRUIT GROWER.**

GATHERING AND STORING APPLES.

THE simple operation of gathering Apples appears at first sight to be a subject about which no great amount of judgment is required, or upon which any detailed instruction is necessary; neither would there be if the fruit is for immediate use, but if required to keep any length of time there are few operations in fruit gardening requiring more care, as it is useless to expect bruised Apples to keep any length of time. The bruises of windfalls in Grass orchards are trifling compared with those which a careless gatherer will cause on the fruits by roughly dropping them into the gathering basket, and from this into sieves or hampers, until when they finally reach the fruit room shelves they are nearly all more or less bruised, and in such a state their value is more than half destroyed, for no sooner are they stored away than it is necessary to begin picking out the decaying fruits, and unless the consumption is rapid it is probable that more fruit will decay than will be used. Although the crop of Apples is exceptionally good this season, it is necessary that owners of gardens and orchards should pay particular attention to the gathering and storing of their crop. Early kinds can be gathered as required, and therefore not needing to be kept long, the risk of injury by bruising is not nearly so great as in the case of those that are required for use through the winter and spring.

In the majority of cases late-keeping Apples are fit for gathering during October, but many of the early kinds will keep sound a considerable time if carefully gathered and stored in a cool place. The proper time for gathering Apples is important. It is generally considered that when the Apples begin to drop from the tree they are fit for storing, yet this will in many cases lead to premature gathering, as worm or maggot-eaten Apples drop from the trees long before the sound fruits are fit for gathering. It is safer to try some of the soundest looking Apples, and if they part readily from the tree when gently turned on one side, they may safely be gathered.

STORING PLACES.—The most suitable are such as dry cellars or buildings that are not liable to sudden fluctuations of heat and cold. See that they are thoroughly cleansed and well ventilated before fruit is put in them, and some clean oat straw spread thinly on the shelves; then take a stout gathering bag and proceed to take the fruit singly in the hand, if large, and give a sharp turn so that the stalk parts from the tree, but on no account pull it out of the fruit, as this leads to decay very rapidly. In dropping the fruit into the bag be careful not to drop one on the other, but place them as carefully in the bag as if they were eggs. If baskets are used they should be padded or lined with some soft material. Apples vary considerably in their power of resisting the effects of rough handling. As a rule the best and most juicy Apples bruise far more readily than such as are of a dry and tough nature. The very latest keeping Apples we have will dry up like a sponge rather than decay, owing to paucity of juice. My own experience leads me to the conclusion that

APPLE ROOMS are as a rule too dry, and the juice of the fruits is, as it were, dried out of them far too rapidly; it is not necessary to ensure good keeping that the atmosphere should be dried by any artificial means. The ground floor of a building is always far preferable to an elevated structure, owing to the moisture that is continually rising from the soil, and in severe weather the ground floor or even below the ground line is a far safer place to ensure an equable temperature than an elevated room. If it were possible to keep Apple rooms below 40°, or only just above freezing, there would be little loss by shrivelling, and the kind of structure that will keep ice from being

acted on by the outer air will also keep Apples for the longest possible time.

SINGLE LAYERS OF APPLES I do not think necessary or desirable except in cases of very fine specimens of special kinds, for I find that if Apples are sound and put together dry they keep quite as well several layers thick and with less loss by shrivelling. The room must be kept well ventilated for some time after the Apples are gathered, as they undergo a kind of sweating, and should not be covered over until this is over, but after this the closer the structure is kept the better. And I find that the less Apples are moved the better, for the sweating process provides a kind of covering for the skin of the Apple that excludes the air better than anything artificial. On no account should Apples intended to keep long be wiped, as the varnished substance would be rubbed off. It is not necessary to turn Apples over like Potatoes, for no disease affects the sound fruit, and, as a rule, if not prematurely gathered all the fruit will be quite sound, as the worm-eaten ones will be blown off before gathering time comes round.

PROTECTION FROM FROSTS.—During severe frost the Apple store should be kept as closely shut as possible, for if properly constructed with a thatched or double roof with good space for air to circulate between, it is very rare that we get frost severe enough to penetrate sufficient to do any injury; but if it does, a covering of straw is the best antidote; in fact on the floor of Hop kilns in Kent Apples are kept quite buried up in straw with far less loss than in some of the most costly fitted up fruit stores, the reason being that they are ventilated at the highest point, and the interior is dark and still, and only such sorts are stored for keeping as are proved to be the best for that purpose. French Crabs, Northern Greenings, Norfolk Beefing, and Graham's Russet, carefully gathered and stored, are always worth any amount of attention bestowed on them, even when soft early kinds are a drug in the market, for as regards quality they defy foreign competition.

Gosport.

JAMES GROOM.

Stirling Castle Apple.—I have seen this Apple growing in several orchards and gardens this season, and in every case it has been heavily cropped. By far the finest fruits, however, are to be seen on a bush branch tree in the gardens at Rood Ashton, near Trowbridge. In this case the fruits are above medium size, and are very handsome. It seldom fails to bear well, and is fit for use from August till early in November. In many respects it resembles the good old Hawthornden, but is less liable to canker, and therefore may well replace it.—**FRUIT GROWER.**

Peach Stump the World.—This Peach, I believe, originated in America, but, from whatever source it came from, it is not of much value. We have grown it here for these past four years, and, although it grows to a very large size and is fairly well coloured, it is very inferior in flavour. This is to be regretted, as the tree grows freely and bears good crops every year. With us it ripens in an unheated house, generally about the end of August. Probably in an earlier house, where it could be ripened about the middle of July, it might be better in flavour.—**J. C. C.**

Colouring of Grapes.—Why should Grapes have more air at the colouring period than before it? That is the question for your correspondents to settle first. At present they only take it for granted and speculate accordingly. I cannot see the force of it. Vines require more fresh air before colouring than after it, because, as we all know, the lungs of the plant are then both growing and breathing most actively. Physiologists tell us, and common observation shows, that in ripe, or fully grown and ripening, leaves a gradual choking up of the respiratory organs begins till it ends in the fall of the leaf. It would appear, therefore, that Vines, after the ripening period, really need less air than at any other time, and it is only what they use that is of any benefit to them. If the foundation of good colour is not laid before

colouring begins, no after treatment will alter matters greatly. Grapes that are healthy and dark green in the skin before the stoning period rarely fail to colour, and are always found in conjunction with good foliage; while, on the contrary, pale-looking berries at the same stage generally finish red in the case of black Grapes.

J. S. W.

Peaches on open walls.—Threatened men live long, and the same may be said of Peach

observed to be so marked before. It is also a singular and rather rare sight to see the walls so richly furnished with a full crop of Peaches and Nectarines and Plums of all sorts within touch almost, and Apricots bare of fruit. Pears here are also thin, and, what is more singular, Apples, though our diamond cordon is once more crowded. It is of course impossible that there can be aught in these squares to ensure a crop, but the fact is that every year a crop has been on the diamond cordon whether anywhere else or not.—D. T. F.

season like the present, when Plums are a failure even in the best Plum-growing districts we hear of the Victoria bearing heavy crops both upon walls and standards. It is the only Plum here that has borne a crop. The trees of Victoria growing upon the walls of cottages in this neighbourhood are producing abundant crops, while all other sorts have failed. This sort requires less pruning than most others, and I find that it dislikes too hard pruning. Young shoots should be laid in during the summer pruning, and some of the old branches cut out during winter.—W. CHRISTISON, *Woking*.

FERNS.

GOLD AND SILVER FERNS.

THESE constitute a beautiful and interesting class of Ferns. The appellation of "gold and silver" is generally and specially intended for the *Gymnogrammas*, but it certainly is not restricted to that genus only; it likewise includes several species belong to other genera, as, for instance, the charming *Nothochlæna nivea*, the small roundish pinnae of which have their undersides completely covered with white powder. *Nothochlæna chrysophylla* or *flavens*, as it is also sometimes called, is another excellent plant, the prettily cut fronds of which are wholly covered beneath with a thick coating of bright yellow powder, which, in the fertile and mature fronds, is interspersed with the sori, as black as jet. These two plants are often spoken of by amateurs not particularly well acquainted with them as golden and silver Maiden-hairs, their black and shining stems and their minute and roundish pinnae reminding one forcibly of plants belonging to the genus *Adiantum*. They are also much more manageable, and accordingly oftener found in cultivation than the true silver Maiden-hair (*Adiantum scabrum*), or the true golden Maiden-hair (*Adiantum sulphureum*), both of which appear to be almost extinct in collections. Both species are natives of Chili, where they are found growing on bare rocks in elevated places, and both are dwarf in habit, rarely exceeding 8 inches in height. The pinnae of *A. scabrum* are rather large compared with the size of the plant. They are almost reniform and copiously dusted on both sides with a white farinose powder; whereas those of *A. sulphureum*, of a similar shape, are much smaller in size, and only become golden underneath when the fronds are fertile; they are then sparingly powdered on their upper surface, while the underside, thickly covered with yellow meal, is ornamented by their sori, continuous and well marked all round the edge.

WANT OF SUCCESS in their culture is chiefly due to the warm treatment to which they are invariably subjected; they are best grown in a cool house, on a dry shelf close to the light, and they require but very little shading in summer, although during that time they benefit greatly by being kept well watered at the roots, especially if potted in an open compost in which old mortar or brick-dust predominates. Then there is another *Adiantum* also ornamented with golden powder, viz., *A. Williamsi*. This species is a most satisfactory grower and a highly decorative plant, which in a remarkably short space of time makes a magnificent specimen, especially if grown in a basket. In the latter it develops and shows itself off to perfection; its long pendulous fronds, laden with numerous large rounded pinnae, having ample space in which to extend themselves, fall around or arch over the basket in a most graceful manner. Contrary to the golden *Adiantum* just mentioned, *A. sulphureum* shows its beautiful colour in quite a young state, principally along the stalk and on the outside parts of the partially developed fronds. In fact, when these are fully grown, the distinctive golden character is only just discernible at the base and along the lower half of the stalks. It is, nevertheless, a plant which deserves to be grown extensively, if only on account of the peculiarly pale yellowish hue (one might almost say golden hue) of its large, nearly reniform pinnae.



Gymnogramma decomposita.

trees in the open, and they have lived to good purpose this year. It is impossible to conceive or wish for a finer crop. If it has a fault it is too heavy, and yet we thinned off several pecks of Peaches and Nectarines in a small state. The fruit is now ripening fast and of good quality and colour. The size is not quite up to the average, but then there are so many, and possibly the embryo fruit got a hint from Jack Frost last March not to grow too fine. Be that as it may, the trees are healthy and clean and have made nice wood for next year, thus confirming my oft-repeated truism that as nothing succeeds like success, so the best recipe for future fertility is a good crop in the present. Nectarines here seem a full ten days or more later than Peaches, a feature that I have not

Best flavoured Gooseberries.—After a long and wide experience, I have found the following sorts decidedly the best flavoured. If "W. H. H." (see p. 159) will cultivate those named here on ground not over dry, he will have all that can be desired in quality, and extending over a long season: Champagne, red; Glenton Green, fine; Pitmaston Green Gage hangs long; Iron-monger, red, musky flavour; Early Sulphur (Golden Ball); Green Gascoigne, sweet; Pilot, large, yellow, good; Moll-row, red, rough. The last named is a fine late sort, and is in every way superior to the Warrington.—CHAS. McDONALD, *Stokesley*.

Denyer's Victoria Plum seems the only sort to be relied upon for a crop, for in a

THE GENUS *GYMNOGRAMMA*, however, contains the largest amount of gold and silver Ferns, though they are about the most variable of all cultivated exotic kinds. Out of a quantity of seedlings varieties may be obtained with almost any shade of white, lemon, or yellow powder. Another peculiarity is the tendency which *Gymnogrammas* have of producing crested and forked fronds, thus presenting a particularly pleasing contrast with varieties having plain fronds, as in their case the powder is much more showy, they being mostly of erect habit. As regards size, they vary very much. Take the golden section, for example; the lovely dwarf-growing *Gymnogramma sulphurea*, whose delicate fronds are covered on both surfaces with an exceedingly pretty pale yellow powder, and which very seldom grows more than 10 inches high, and the more massive growing and much more heavily golden *G. Laucheana* and its variety *gigantea*; then we have the commonest of all, *G. chrysophylla* and its gigantic forms, *Massoni*, *Stelzneriana*, &c., often attaining a height of 3 feet. Such are the variations in sizes of the kinds forming the golden section. Those belonging to the silver group, although as a rule not so strong growers, are nevertheless very showy. Numerous intermediate forms as regards size are found between the dwarf-habited, although long-fronded, *G. tartarea* and the very handsome, compact, and excellent grower *G. peruviana argyrophylla*, with its beautifully massive fronds covered on both sides with a thick layer of powder as white as snow. Then we have the very long-fronded *G. spectabilis*, of a much more erect habit of growth, and often reaching 4 feet in height. The differences in size are less marked among the plants forming the crested section, which also come in for a share of usefulness, but amongst these we have the dwarf-growing, thickly-crested *G. Parsonsi*, all covered with a bright yellow powder, and the handsome *G. Wettenthaliana*, sometimes pure white, sometimes pale lemon or sulphur coloured, but in any case forming under good cultivation thick and handsomely shaped specimens of from 2 feet to 2½ feet high. The same remarks also apply to the comparatively new *G. Laucheana grandiceps*. This averages about the same height as the last mentioned kind, but its colour is of a very fine dark yellow, its huge and massive crests, borne on erect stalks, showing themselves admirably above and among all other kinds. Besides including plants of handsome growth and undoubted decorative merits, the genus *Gymnogramma* comprises also some very curious kinds, such as, for instance, the most distinct *G. trifoliata*, a plant of semi-candent habit, the fronds of which are totally different from those of any other member of the genus, inasmuch as they are linear and trifoliate; they also grow to an indefinite length and their under surface is covered in some cases with white and sometimes with pale yellow powder, made all the more apparent by the upper surface of the fronds being of a dark green colour. Another form of garden origin, viz., *Alstoni*, is a really handsome and attractive plant, and at the same time possesses strikingly the character of a "curiosity." It is an excellent grower of the *Laucheana* type, with broad triangular fronds supported on stalks of medium length, thus making a capital specimen. The character of "curiosity" is, however, imparted to it by the fact that as the plant becomes adult, all or nearly all the pinnae slightly turn back, their extremity being completely incurved; these, being of a bright gold colour, give a most peculiar and certainly a very attractive appearance to the plant, which looks as if dotted all over with yellow beads, in some cases as large as Peas. This variety also possesses the merit of freely reproducing itself true from spores. Lastly, *G. decomposita*, which forms the subject of our illustration, is another very distinct type of the genus, for, in its case, the handsome triangular fronds, which often reach 3 feet in height, are furnished, when the plant is young, with a farinose powder, white, or nearly so; whereas the covering of the stalks and fronds alike is of a yellow hue, deepening gradually as the plant gets older. It also is of a more erect and more decorative habit than most other kinds

belonging to the same genus, and possesses a particularly finely dissected appearance, which is produced by the numerous lobes of the pinnae being deeply cut into minute segments. This highly ornamental species or variety was distributed some ten years ago through Kew Gardens, where it had been sent previously by Mr. Gair, of Falkirk, an amateur well known for his love of Ferns and Orchids.

CULTURE.—With the exception of *Gymnogramma triangularis*, all the other species and varieties belonging to the genus require stove treatment, and in order to keep their foliage in perfect condition, syringing overhead should be particularly avoided. One often hears of complaints concerning their fastidiousness which I am confident is only imaginary, as nearly all of them are most sturdy growers, provided they are kept in a place where they can get an abundance of light and no wet over the foliage. They are, however, benefitted by a liberal supply of water at the roots during the growing season, especially if potted in a compost light and permeable which suits them best. A few of

THE *CHEILANTHES* also come in to swell the list of gold and silver Ferns, foremost among them being the very interesting and deservedly popular *C. farinosa*, also known under the name of *Aleuritopteris mexicana*. This compact and comparatively dwarf-habited species, with its angular fronds produced in abundance and borne on slender black stems, is an essentially valuable member of its genus, as, contrary to most of the other kinds, it makes a sturdy, close-grown specimen, whose fronds have their underside beautifully and regularly covered with white meal. Then there are also the *C. pulveracea* and *Borsigiana*, two species very seldom seen in cultivation now-a-days, although both well deserve attention. The former is closely related to *C. farinosa*, but differs from it in having the upper surface as well as the underside of its fronds covered with white powder. In habit *C. Borsigiana* somewhat resembles the more common *Gymnogramma triangularis*, but the golden powder which covers the underside of its small triangular fronds is of a much darker hue, and, as in all other *Cheilanthès*, the sori are black and placed around the edge of the pinnae. The treatment above recommended for *Gymnogrammas* will also suit the *Cheilanthès*, but the soil in which they are potted should contain at least one-fifth of old mortar and crushed brick, of which they are exceedingly fond. This about completes the list of Ferns which are called "gold and silver" on account of the farinose powder with which their fronds are adorned, but there still remains a few other kinds, which, although totally unprovided with any kind of powder whatever, can with every appearance of right claim admission among the "silver" section. Those are

ALSOPHILA PRUINATA AND *CYATHEA DEALBATA*.—Both generally known as Silver Tree Ferns. Both are arborescent, and their noble fronds have their underneath parts beautifully silvered, but the white colour is not the result of any deposit of powder. The *Alsophila* is a native of Tropical America, and although well deserving of cultivation is but little known. It is sometimes mistaken for the more popular and justly appreciated *Cyathea dealbata* from New Zealand, as both partake of the same silvery character in about an equal degree of intensity. They both require same treatment, which is not in any way different from that of any other Tree Fern. In the same manner, again, and owing to a peculiar colouring of its foliage, the beautiful *Onychium auratum* deserves a prominent place among golden kinds. When the fertile fronds are fully developed and become mature, nothing can be more handsomely golden, not even among *Gymnogrammas*, than the robust triangular fronds of this *Pteris*-habited Fern. They consist of linear segments, the upper surface of which is bright green, and contrasts singularly with the rich colour of their underside, adorned as it is by a massive indusium of a very bright yellow, which gives the whole of the plant a lovely and interesting appearance. This extraordinary species requires stove heat and abundance of mois-

ture at the roots and very little shading. Finally, there are among the

DWARF-GROWING FERNS some charming and interesting species which are rendered silvery simply by the superposition either of the scales or the short hairs covering their surfaces, and which cannot in any way be regarded as intruders when found in the company of other silver Ferns, more especially as, independent of similarity of character, they delight in the same situation and succeed under similar treatment. These are the lovely *Cheilanthes tomentosa* and *viscosa*, not cultivated to such an extent as they deserve, and *Nothochlæna ferruginea*, *sinuata*, and *trichomanoides*, also very rare in cultivation, and yet very easily managed, provided a place be found for them where they can get plenty of light; care should also be taken to prevent their getting overpotted. One of the great advantages to be derived from the cultivation of gold and silver Ferns is that, with the exception of the two Tree Ferns and a few of the most gigantic forms of *Gymnogramma*, an amateur with only a small amount of space at disposal can, as is the case with the Filmy Fern fancier, enjoying the natural beauties belonging to many interesting and valuable specimens. For the benefit of those willing to give a fair trial to the gold and silver Ferns, I append a list of thirty-six of the most distinct and decorative among them divided into two sections. *G*, attached to them, stands for greenhouse, and *S* for stove.

Dwarf habited kinds whose growth seldom exceeds 12 inches:—	Large forms growing from 2 feet upwards:—
<i>Adiantum scabrum g</i>	<i>Adiantum Williamsi g</i>
<i>sulphureum g</i>	<i>Alsophila pruinata g</i>
<i>Cheilanthes Borsigiana s</i>	<i>Cyathea dealbata g</i>
<i>farinosa s</i>	<i>Gymnogramma ochracea s</i>
<i>pulveracea s</i>	<i>chrysophylla s</i>
<i>tomentosa g</i>	<i>Alstoni s</i>
<i>viscosa s</i>	<i>Laucheana s</i>
<i>Gymnogramma chrysophylla</i>	<i>gigantea s</i>
<i>Parsonsi s</i>	<i>grandiceps s</i>
<i>sulphurea s</i>	<i>Massoni s</i>
<i>tartarea s</i>	<i>decomposita s</i>
<i>triangularis g</i>	<i>calomelanos s</i>
<i>Wettenthaliana s</i>	<i>peruviana argyrophylla s</i>
<i>Nothochlæna chrysophylla g</i>	<i>pulchella s</i>
<i>Eckloniana g</i>	<i>spectabilis s</i>
<i>levis g</i>	<i>trifoliata s</i>
<i>ferruginea g</i>	<i>Nothochlæna sinuata s</i>
<i>nivea g</i>	<i>Onychium auratum s</i>
<i>trichomanoides g</i>	

S.

THE ROCK GARDEN AT HEWELL.

ALL types of gardening are represented at Hewell. The French, with its fountain and statuary and endless array of formal flower beds; the Dutch, with its quaint outline and tessellated pavements; and the English lawn with its green turf, slopes down to a picturesque lake. In the American garden are rich collections of choice *Rhododendrons* and other kindred shrubs, whilst the wild garden or wilderness covers many acres, and annually increases in interest and beauty. New features have been added to it, and the growth of choice trees and shrubs which have been planted here during the last forty years or so has been rapid. But it is of the

ROCK GARDEN I would now speak, as it is one of the best examples of the kind with which I have met, utilising, as it does, a site naturally well adapted for the purpose, viz., an old quarry. From the summit of the cliff one gets a good view of the whole—its winding paths and irregular shaped masses of rock well furnished with the usual kinds of alpine plants and Ferns. Here may be found positions to suit all kinds of plants, both sun and shade-loving kinds. A fountain occupies the centre associated with tanks for aquatics. Ivy climbs up the cliff, and from its top hang other creeping plants, while here and there projecting stones are half hid amongst Mosses and Lichens, gray and green. On all sides are Hollies, *Rhododendrons*, and other shrubs and trees. Through these, on the western side, an opening has been cut through which the lake and the woods beyond can be seen. One of the chief charms of this garden is its naturalness. Moss, Ferns, and other suitable plants clothe every rock and stone; in

stead of frittering away space with single specimens, bold groups of the most striking things are introduced with singularly good effect. For instance,

THE OSTRICH FERN (*Struthiopteris germanica*), as a single specimen, has a fine appearance, but a dozen plants or so of it in a thin group intermixed with alpine vegetation on some hillside is proportionately more effective. Heath and Saxifrage are employed in the same way, *S. cordifolia* being particularly noticeable, covering prominent positions with its ample foliage in a very pleasing manner, and in early spring, when in blossom, it must be very striking. I noticed in prominent positions also some large specimens of *Gaultheria Shallon*, forming grand masses. On the top of one of the mounds is one of the largest specimens of *Abies clauseniana* I have ever met with, and on another pinnacle is a good plant, though of less proportions, of *A. Hudsoni*. To this garden there are two entrances—one by steps down the face of the cliff, the other by a winding path reached through a stone door, swung on pivots at top and bottom—a stone of great weight and substance. H.

ROSE GARDEN.

CHARACTERISTIC ROSES.

LA FRANCE.—The high esteem in which this Rose is held is sufficient proof of its worth, but it is not always satisfactory. I have grown it both under glass, permanently planted out, and in the open air, on its own roots, and also budded on the Brier, and, having carefully watched its behaviour under all these conditions, I am able to say something concerning it that may be interesting, if not instructive. In the first place I may say that with us it does well on the Brier stock, both under glass and in the open air, but it does not succeed on the Manetti; it even does better on its own roots than on that, but so grown it is by no means vigorous. I therefore think that the Brier is the best stock for it. I ought not, however, to complain of its behaviour on its own roots, *i.e.*, as compared with the condition of some other varieties, for when on its own roots and planted in good soil it is a perpetual flowerer in the strictest sense of the word. In the open air we get two full crops of flowers from it every year, and under glass, with the aid of plenty of moisture at the roots, it will give us three crops. Have any of the readers of *THE GARDEN* found that this Rose requires more moisture at the roots in order to induce it to expand its flowers properly than many other varieties? Such is my experience of it. It appears to me that some varieties of Roses are so delicately constituted that they become quickly exhausted. There are two causes sufficient to account for this—a deficiency of roots and a feebleness of action in such roots as they possess. I find that if Roses of this class are carefully watched and something stimulating is applied to the roots as soon as any symptoms of weakness show themselves, that they soon outgrow these drawbacks. For instance, the variety under notice is such a free flowerer that it is not unusual to find from eight to twelve buds struggling to expand at one time, but from the inherent weakness of the roots the buds simply die away in a half expanded state. In practice I find that a generous soil and an application of a liquid stimulant to the roots are sufficient to induce the flowers to open properly. As a stimulant for such a purpose I find an ounce of the best guano put into a gallon of water to be the quickest to act and the most enduring.

SOUVENIR DE LA MALMAISON.—That every Rose has its season of flowering is strictly true as regards this variety, for it is without doubt the most conspicuous of all autumn Roses. In my opinion it is this alone that has brought it into favour, for it cannot be said that it possesses any other merits. Even in autumn it would not be tolerated were other Roses more plentiful, for, compared with Hybrid Perpetuals of known repute, its undecided colour and the plate-like flatness of its flowers are

features which would be shunned in the rosy month of June. As an autumn-flowering Rose it is, however, welcomed by everybody. When other varieties are revelling in the warmth of early summer and delighting us with their fragrance, this variety refuses, as a rule, to show a respectable flower. It stands, as it were, calmly by, awaiting the cool nights and balmy days of early autumn with their increased rainfall, and then it shows what it can do. As autumn approaches, it puts on its best dress, and is then without a rival. It will have its own way, and will, as I have said, only flower in a satisfactory manner in the autumn. When we grew standards, this Rose flowered fairly well, and on its own roots we have no reason to find fault with the way in which it grows, or the number of flowers which it produces.

CAPTAIN CHRISTY.—This is another characteristic Rose. I find it to be a rather miffy subject to deal with in the moist climate of Somerset; but it is only fair to say that some others share the same character, notably Hippolyte Jamain, in some respects the counterpart of Captain Christy. These two varieties are, in my opinion, fine-weather Roses. To obtain good flowers from them they require bright, sunny weather, plenty of moisture at the roots, and shelter from wind; the outside petals are so delicate that if once they get bruised they are easily disfigured; moreover, the flowers are composed of so many petals, that they appear to want at times an extra force of either heat or moisture to get them to open.

ANNA ALEXIEFF.—It is much to be regretted that this old Rose is not more refined in character than it is, for there is no more valuable variety in cultivation. It grows vigorously and flowers freely under all sorts of conditions. Budded on the Brier as a standard, or on the Manetti as a dwarf, or on its own roots, it invariably does well, but unfortunately the flowers are flat, and when fully expanded there is a degree of looseness which renders them inadmissible in a choice assortment. With the exception of this drawback, I know of no other light-coloured Rose that can equal it for general purposes. In a hedge of Roses we have it here on its own roots reaching a height of 7 feet, and not long since I had to destroy a plant of it trained against a south wall that had reached a height of 9 feet. Not being a climbing variety, this must be saying a good deal in its favour as a useful all-round Rose. J. C. C.

The Cabbage Rose.—Nowhere else have I seen this once favourite Rose so admirably cultivated as it was at the late Capt. Paget's, West Hays. That is now some years since, but I have never forgotten the magnificent display that it made every year in his garden. To go once a year and admire its blooms was a treat to which I always looked forward with pleasure. Capt. Paget was an admirable cultivator of Roses in any form, and of this one in particular, and yet a few words only are necessary to explain the treatment which it received. It was simply this: Plant in good soil, give the roots an annual dressing of animal manure every winter, and, as regards the branches, leave them alone—at least to a great extent. Briefly stated, that was his system of management, but it would be somewhat misleading if I did not state that the staple soil of his garden was in all respects suitable to the growth of Roses. His Cabbage Roses occupied the back of a border that divided the pleasure grounds from the kitchen garden, a row of Evergreens forming the division. The Roses were therefore somewhat shaded, but not seriously so; what effect the shade and shelter may have had on them I do not know, further than that his management was a success. To say that he did not prune them at all would be wrong, but when he did so it was only once a year—early in February. He went over them then and cut off 3 inches or 4 inches from the tops of the strongest branches. All the lower shoots and weak growths were left untouched. Though the plants had stood for several years in the same border, they made vigorous growth every year, and this necessitated an old stem or two being cut away to prevent them from getting crowded.—J. C. C.

GARDEN DESTROYERS.

THE PHYLLOXERA.

As information is asked for in *THE GARDEN* of the 25th August respecting the Phylloxera, which is now becoming a pest in our vineries, I think many readers of *THE GARDEN* will feel interested in the following remarks on this insect, which I have extracted, and somewhat abridged, from Mr. Buckton's recently published work on the British aphides. This species, though not indigenous to this country, is included in his monograph:—

"**PHYLLOXERA VASTATRIX** offers an example of the rapid spread of an animal through man's unwilling agency. Thirty years ago this insect was unknown, although its existence in N. America must date many thousand years back; now it has crossed the Atlantic, spread over the greater part of Southern Europe, touched at Cape Colony, in South Africa, and brought its baneful influence to bear in the vineyards of Australia. The earliest notice of this insect was in 1856 by Dr. Asa Fitch in his report of the noxious insects in New York. It was known in England in 1871, shortly after which it invaded France. Notwithstanding that we possess the complete life history of this insect, no sure, certain, and unexceptional remedy has yet been advanced. Doubtless the ravages have in some districts been checked, and in others the Phylloxera has even been stamped out. Flooding the Vines has been found very efficacious, but this cannot be effected in high levels. Ammoniate of copper, carbon disulphide, phenic acid, and other chemical agents have been applied with greater or less success, but such compounds, apart from their cost, are highly dangerous to human life. As an insecticide the substance known as sulpho-carbonate of potassium has been the most efficacious. M. Dumas happily suggested that the poisonous effects of carbon disulphide might be modified by combining the liquid with potassium sulphide; the resulting solid compound is far less volatile than the liquid, and seems also to have the advantage of acting on the Vine stocks as a manure." The life history of this insect is as follows: "Eggs are laid in the autumn by the true female after pairing with the male; from these in May or June females only are hatched, which are each known as foundatrix or foundress, whose after life is probably somewhat different, according to the climate and perhaps the kind of Vine on which they occur. The aerial (or winged) forms are rare in colder countries, but are more frequent in warmer ones; where they occur they puncture the leaves in such a manner that the swelling masses close over and entomb them. The leaves becoming studded, particularly around their edges, with small galls about one-eighth of an inch in diameter, each foundress forms a gall, in which she lays during the summer some thousands of eggs, after which she dies; sometimes there are a hundred or more galls on one leaf. The

"**YOUNG PHYLLOXERAS**, after their development on the leaf and escape from the gall, descend in July into the ground, and commence feeding on the roots of the Vines, and are at times so numerous that the roots when turned up appear dusted with yellow grains. In this condition they produce the greatest destruction to the Vines in Europe, but in America the aerial form appears to produce the greatest evil. Where the aerial form of foundress does not appear, the foundress goes at once to the roots; this is generally the case in Europe, for the leaves of the European Vines do not seem adapted to produce galls. When the larger roots are attacked, the cortex is loosened, and rots and scales off. Where the small fibres are affected, swellings and nodules mark the injury done. This nob feeding modification or form of Phylloxera is said to pass through five or six generations, which will account for various forms and sizes being found together. In July many of these underground forms assume the pupa state, and, coming to the surface, develop wings and fly away to other Vines, where each deposits a very few egg-like bodies under the leaves or in

fiures of the bark. From these are hatched, or emerge, the true males and females, which are very small. They have no mouths, and only live for reproduction."

THE TRANSFORMATIONS OF THE PHYLLOXERA are very complex. Instead of, as is the case with most insects, being very simple, an egg producing a larva, which becomes a pupa, and then appears as a perfect insect, with Phylloxera the egg produces a foundress, which lays eggs, from which are produced the subterranean form, which continues through several generations, when some become pupæ, and eventually winged insects, which deposit certain egg-shaped bodies, from which emerge the true perfect insects of both sexes; the females lay eggs, and thus the cycle of their life is completed. It is very unfortunate that up to the present time no effectual agent for destroying this insect has been discovered. If the galls on the leaves should be found in any vineyard, the leaves should be at once gathered and burnt. Phylloxera is by no means the only aphid which lives under ground on the roots of plants. If anyone should find any subterranean aphides, and be uncertain whether they are Phylloxera or not, if they will send specimens to the editor of THE GARDEN, I shall be very pleased to decide the question.

G. S. S.

RECENT PLANT PORTRAITS.

CRINUM HILDEBRANDTI (*Botanical Magazine*, plate 6709).—A double plate of this fine new Crinum, which is a native of the Comoro Islands, in Tropical Africa, whence it was sent to Kew by Sir John Kirk in 1878 and bloomed for the first time in 1882. Its flowers are pure white with extremely long tubular throats, and seem to stand quite upright on the bunch, which bears about a dozen flowers. The brownish red stamens and pistil form a most conspicuous contrast to the pure white petals of the flower.

TULIPA KOLPAKOWSKIANA (*Botanical Magazine*, plate 6710).—This brilliant Tulip is a native of Turkestan, and as it is quite hardy is likely to become a popular favourite. It is a near ally of *T. Gesneriana*, but somewhat smaller in size of bloom, and blooms earlier in the year than that variety; like it also, it varies much in colour, the plant here figured being a bright cherry-red with a green eye, while others are found of a pure yellow with a blackish eye.

LEUCOJUM HYEMALE (*Botanical Magazine*, plate 6711).—This pretty little white-flowered bulbous plant, resembling much in general appearance one of the smaller varieties of *Narcissus*, is indigenous to a small strip of rocky shore on the Riviera, reaching from Nice to two miles east of Mentone, and as the name *hyemale* conveys a wrong idea, as the plant does not bloom till April, M. Jordan has proposed to change its name to *Nicæensis*, which would be more appropriate. It has also been described under the various names of *Galanthus autumnalis*, *Acis hyemalis*, *Ruminia hyemalis*, and *Ruminia Nicæensis*. It was first sent to Kew in 1870, by the late Mr. J. T. Moggridge, and flowered there in the herbaceous border in the spring of 1871. It is also figured in Mr. Moggridge's beautifully illustrated work on the "Flora of Mentone," on plate 21.

PRIMULA FLORIBUNDA (*Botanical Magazine*, plate 6712).—A charming and most continuous blooming little yellow-flowered Primrose, which is a native of the Western Himalayas, and is therefore not quite hardy, requiring the protection of a frame or greenhouse in the winter. It is also known under the names of *Primula obovata* and *Androsace obovata*.

SENECIO CONCOLOR (*Botanical Magazine*, plate 6713).—A somewhat dull rose coloured variety of the Groundsel family with flowers borne in loose branching bunches on the top of very tall flower-stems, which have to be bent several times to bring them within the limited area of the plate. It is a native of South Africa.

STENOMESSON HARTWEGI (*Revue Horticole*, 1st part for September).—A pretty little *Amaryllid*, which is a native of the higher parts of the Cordilleras and Andes Mountains, and bears bunches of

bright orange-coloured tubular flowers. It is unfortunately somewhat difficult to get to bloom.

VERONICA TRAVERSI (*Revue de l'Horticulture Belge* for September).—This pretty New Zealand shrub is well figured here, and as it is the hardest of all *Veronica* known to us, with the exception, perhaps, of the much dwarfer-growing and somewhat insignificant *V. carnosula* or *pinguifolia*, it would be a great acquisition to our shrubberies if only it could be relied on always to bloom with the freedom and abundance represented in this plate; but, alas! this is not the case, as during the six or seven years, during which I have been acquainted with this plant, it has never bloomed, save with exceeding shyness, even on large and healthy bushes, till this season, when some specimens bloomed most abundantly and beautifully. I may add that this *Veronica*, which seems quite indifferent to frost, will not stand salt-laden storms from the sea, which other varieties do not seem to mind, but rather enjoy.

W. E. G.

NOTES FROM BADEN-BADEN.

AMONG Michaelmas Daisies *Aster ibericus* is one of the best; it is of close compact growth, only 1½ feet to 2 feet high; the flowers are large, open nearly all at once, are of good shape and a pleasing purplish blue colour. *Prunella Webbiana* is a much better plant than *P. grandiflora*; the heads are much larger and deeper in that reddish violet colour which makes this plant so very showy. Deep green foliage brightens the large lemon-yellow coloured flowers of *Gazania scaphophylla*, which, I presume, will become a standard plant in every good herbaceous border. Its ally, *G. pavonina*, though not hardy, is also a very striking plant; its unusually large flowers are of a brilliant orange, each floret having a black and white spot at its base. *Salvia Greggii* is a good autumnal bloomer; the plant is shrubby, and the rather small-sized, but large-lipped, flowers of a soft magenta-red last long in succession. *Crocus aurea robusta* is in advance of the typical form; it is in every respect a stronger plant, and it is also more floriferous. *Aster diplostephioides* and *Scabiosa Hookeri* are two fine novelties from the Thibetan Himalayas; seeds distributed by Mr. Elwes. The former has very large flowers on sometimes branching stems about 2 feet high, with a black and orange disc. *Scabiosa Hookeri* is not so showy, but still very interesting; the nodding flowers are dull white, with black anthers. Besides *Kniphofia comosa* and *K. Leichtlini*, which, owing to the dry weather, are in festive attire, there is now another species out, quite new to cultivation. It is a very distinct plant, intermediate between the two above named species, which are Abyssinian. The leaves cluster into a low bush, and the spike rises to 5 feet, producing on a divided stem two flowers of an orange-yellow colour, the stamina, clothed in pale red, protruding largely.

MAX LEICHTLIN.

Baden-Baden.

Market fruits and vegetables.—All must agree, I think, with Mr. Baines that Peaches, Nectarines, Strawberries, and other soft fruits cannot be up to the mark unless ripened and finished off on the plants, and the sooner they are used after that the better. Why there is so much inferior fruit in London and other large towns is because it lies about so long; packing, handling, and shaking about, too, deteriorates the flavour. Under the Parcels Post and quick delivery system consumers and growers may now be brought closer together than they have been, and instead of stale fruit that has lost much of its goodness, they may easily now have it fresh, as it can be sent direct, instead of passing through the hands of salesmen and shopkeepers, thus quite doubling its price. The wonder is that communication between producers and customers has not been opened up before now, as most railway companies carry and deliver parcels by passenger trains quickly and cheaply. As to vegetables, I hold with Mr. Baines that it is a great mistake awarding prizes, and otherwise encouraging at shows

big, soft, soapy Potatoes simply because they are good looking, and placing them before sterling sorts that are known to be good cookers and first-class as to quality and flavour. What is wanted is a regular weeding out of rubbish, but so long as the public crave after "white elephants" and other prodigies of that kind, it becomes a difficult matter to draw the line and to know where to stop. In Peas, although we have gain in size of pod, I question if there are yet any to equal Veitch's Prolific, British Queen, and Ne Plus Ultra.—S. D.

GARDEN FLORA.

PLATE 405.

THE TRUMPET DAFFODILS.*

"THERE hath been great confusion among manie of our moderne writers of plants, in not distinguishing the manifold varieties of Daffodils; for every one, almost without consideration of kinde or forme, or other speciall note, giueth names so diuersely one from another, that if anyone shall receive from seuerall places the catalogue of their names (as I haue had many) as they set them down, and compare the one catalogue with the other, he shall scarce haue three names in a dozen to agree together; one calling that by one name which another calleth by another, that very few can tell what they meane." Thus writes that celebrated old historian and first systematic chronicler of Daffodils, John Parkinson, in the year 1629, and the old author then goes on to complain that but few will take the trouble to distinguish the small-cupped or true *Narcissus* from the large-trunked *Pseudo-Narcissus*, or Daffodils proper. The Daffodils have long been and yet are a most interesting study. There is a tradition that Sweet, the botanist, went mad whilst trying to straighten out or unravel the knotted string which holds the whole bunch of these golden Daffodils together, and that modern students of these plants are also suspected of "having a bee in their bonnets" goes without the saying. Quite recently I have had a great treat, a gentleman having placed in my hands a large bundle of Haworth's letters and MSS. written about the year 1830. These letters are to a Daffodil lover most interesting. Haworth it was who, in separating the *Narcissi* into sub-genera, proposed the name of *Ajax* for all the larger kinds of Daffodils, and for the smaller ones, such as *N. abscessus*, the name of *Oileus*, or, as it is put in the "Iliad,"

Ajax the great, the son of Telamon;
Ajax the less, Oileus' valiant son.

In writing to the Rev. Mr. Ellacombe, then of Bitton Vicarage, in the year 1831, under date April 16, Haworth is in great spirits, having just succeeded in rediscovering *Narcissus cernuus*, which it seems probable he only previously knew from books or figures. Here is what he says: "And your *Ajax tortuosus* is verily *Ajax cernuus*! Thus have you the merit of discovering both the double first, and then the single of this matchless, modest, drooping, and long-neglected beauty. The flower of your specimen was withered, collapsed, and colourless, but it was the beautiful *cernuus* in ruin, and, what is singular, the day, I think, your last letter from me was written, I also found the single of this favourite of yours and mine in the Fulham nursery!" There are many other remarks and notes of interest on *Narcissi*, their wild habitats, and nomenclature in these Haworthian MSS., that I cannot now find time

* Drawn from plants in Messrs. Barr & Son's nursery, Tooting, in April last.



to transcribe, but some day I hope to study them more thoroughly. Our present object is to direct attention to the best of these Daffodils, old and new, and to indicate the best way in which they may be made to add beauty and variety to the outdoor spring garden. For practical convenience we shall class the numerous varieties into three sections, viz., 1, Golden Daffodils; 2, Bicolour Daffodils; and 3, White Daffodils. Of the first, or

GOLDEN DAFFODILS, the finest, as I think, is *N. maximus*, which in good, rich, light soils attains a height of 2 feet to 3 feet, bearing its great golden flowers aloft in defiance alike of wind and rain. Some growers prefer *N. larifolius* var. *Emperor*, which is also a stately variety, but paler in colour, with more broadly imbricated perianth segments. The mention of these two varieties side by side brings us to another view of this golden-flowered group of Daffodils, since it is composed of two sets of varieties, which vary from the dwarfest to the tallest of varieties in two parallel sets or sub-sections. Not unfrequently the two commonest of dwarf kinds, *N. minor* and *N. nanus*, are confounded with each other in gardens, but *N. nanus* is easily known by its broadly imbricated perianth segments, while in *N. minor* the segments are narrower and barely overlap each other. Thus, starting from *N. minor*, we have a range of ascending varieties, until the culminating point of perfection, so far as size and stature are concerned, is reached in *N. maximus*. On the other hand, starting with the broad-petalled *N. nanus*, we find a set of varieties ascending in like manner until *N. Emperor* is reached, as the largest of the group. Of course as in all natural arrangements, we find exceptions, or what appear to be such, to the untrained eye; but, practically speaking, these two parallel groups exist, and it is quite easy to refer any single variety to either one or the other of them. The most robust and effective of the golden Daffodils for ordinary garden culture are *N. maximus*, *N. major*, *N. larifolius*, *N. Emperor*, *N. princeps*, *N. obvallaris*, *N. abscessus*, *N. nobilis*, *N. minor*, *N. nanus*, and *N. minimus*, the last the veriest pigmy of all the Daffodils, flowering at 1 inch or 2 inches above the soil. It is more curious than effective as a garden flower, but being rare it is of course very highly valued by all connoisseurs of Daffodils. When we come to the broad-leaved

BICOLOR DAFFODIL group, we find it comprises some of the most effective of varieties. They are mostly distinguished by having a white perianth around a golden crown—"Apples of gold in baskets of silver," as an old author says of them. In this group are *N. bicolor*, *N. b. breviflorus*, *N. b. Horsfieldi*, *N. b. Empress*, *N. b. maximus*, *N. b. J. B. M. Camm*, and *N. b. Mrs. J. B. M. Camm*. *N. bicolor primulinus*, *N. b. sulphureus*, and *N. b. princeps* belong to this group, although their perianth segments are sulphur or primrose tinted. Perhaps *N. Horsfieldi* is the best of all this section for general culture and effect in gardens, although *N. bicolor maximus* and *N. bicolor primulinus* are very bold and beautiful, and when more readily obtainable in quantity, they will become favourite garden flowers. Grown in pots for spring flowering in the greenhouse, *N. Horsfieldi* is one of the most showy of all hardy bulbs, and roots of it potted up now will bloom next March quite readily.

THE WHITE DAFFODILS have a peculiar charm of their own, and are likewise very beautiful when grown in pots in the greenhouse. It should be

borne in mind, however, that artificial heat is not necessary in their culture, all they require being shelter from wind and rain. In warm, light, rich soils they are perfectly hardy. The three old varieties are *N. cernuus*, *N. moschatus*, and *N. albicans*, but of late years several seedlings have been added to this group, such as *N. cernuus pulcher*, *N. Milneri*, *N. William Goldring*, *N. Cowani*, *N. Exquisite*, *N. F. W. Burbidge*, and one or two others not at present fully determined. Mr. Ware offers *N. cernuus longipetalus* in his catalogue—a variety which I have not seen. Parkinson tells us that originally these lovely white Daffodils came from Spain, and Haworth described four varieties, three of which are now well known in gardens. The largest of these is *N. albicans*, in which the trumpet is the corona, is longer than the perianth segments, and has an elegantly expanded trumpet-like mouth. *N. tortuosus* is smaller, having a straight trumpet scalloped at the mouth, while the perianth divisions are all more or less twisted, and have a high-shouldered appearance quite unmistakable when once seen. *N. cernuus* is the smallest of the group—an elegant plant—the perianth divisions being nearly as long as the pale sulphur crown. Of this plant we have two very rare double-flowered varieties—*N. cernuus fl.-pl.* and *N. cernuus bicinctus*. All these varieties are very beautiful, and are well deserving of careful pot culture in all gardens where it has been found impossible to grow them in the open air. All agree in having white perianth segments, and the crowns of all are of a sulphur colour on first expansion, gradually changing to white.

THE CULTURE of Daffodils generally is of the most simple kind, and one of the most pleasing of all the spring effects in our gardens is absent where they are not. Even a clump or two of the common old double yellow kind in a cottage garden brightens up all around it, and planting bold beds or masses of these bulbs along the margins of woods, or even in the grass of lawns and in home meadows where they do not naturally exist, is a means of adding beauty to natural vegetation of such localities, for, as some one well said, a group of golden Daffodils on the young grass is as "sunshine in a shady place." When planted in quantity one of the results gained is a plentiful supply of flowers for cutting, and of all spring blossoms these are the best for the indoor decoration of vase or pitcher. A handful of common yellow Daffodils with a good length of fluted stalk placed daintily in an old brown jug with a few green leaves, or with slender Willow shoots when silvery buds or "pussies" grace them, is a picture that all may enjoy. There is no garden so small, no home so humble, in which these golden Daffodowndillies may not be grown and enjoyed. In large country places they should be planted along the grassy margins of walks, "beside the lake beneath the trees," where they may dance and sway, and nod, and flutter, as well becometh the joyous sisters of "an April Daffodilly."

F. W. B.

Polygonums or Knotweeds.—Among autumn flowers these have now a very striking effect; *P. sachalinense* especially is this year very fine. I have just measured stems growing in the border, and find them to be 14 feet high, and covered the greater part of their length with white flowers in clusters. This species makes a fine plant for a sheltered nook where it can stand alone. *P. Sieboldi* is several feet dwarfer, but more graceful in its habit, and the flowers spread

out on all sides of the stems, not like those of *sachalinense*, in front only; the flower-spikes, too, are longer. *P. japonicum* and *P. alpinum* are dwarf and pretty forms, desirable for banks and rockeries. All have white flowers, and continue in beauty for a long time generally during a good part of September; all produce suckers or offsets, which can be easily taken off and transplanted in spring.—H.

SEASONABLE WORK.

HARDY FLOWERS.

In the herbaceous garden and on the rockeries a successful show in the new year must be planned and prepared for during the next month or two. It will not do to let things alone from year to year, else the weaker plants will succumb, and the stronger become sole possessors of the situation. To so great an extent is this the case in rockeries that it is almost necessary to take them to pieces after four or five years, and to weed out the rank vegetation which has got deep hold of every crevice and covered over every space. If this be not done it will soon be found that favourite plants become altogether lost. But not only is this the case, but it is well to go over both the open garden and rockery at this season to trim off the clumps which are permanent; to weed out and replant in the reserve garden runners, and seedlings, and crowded-out plants; to examine all bulbs, taking out the excess, and seeing the rest properly soiled and manured for their new flowering time; and filling up all gaps which will surely follow after a summer's blooming time.

Seedlings raised during the summer, such as *Aquilegias*, *Primulas*, *Antirrhinums*, *Androsaces*, &c., should now be carefully planted out, and a number of good plants of each should be potted off, and plunged in sand or ashes in cold frames, so that you have double chances of saving your treasures through the winter months. In the same way every plant of value in the open garden and rockery should be duplicated, and cuttings or offshoots placed in pots in cold frames as reserve stock for spring time. All *Sedums*, *Sempervivums*, and *Saxifragas* should be gone over. It is well to grow these plants both in clumps and single crowns, for they have both beauty in masses and beauty in individual forms, the one being as well worth attention as the other. If the best crowns of these be picked out and planted apart they grow into grand rosettes, and in due time flower, whilst in a mass they bloom but sparingly, and do not display their full beauty of form. Especially such lovely *Saxifragas* as *pyramidalis*, *nepalensis*, *Macabiana*, *altissima*, and *Wallacei* should be treated thus, and as many as practicable planted in pots and kept safely through the winter, so that they may be available in the spring either for the cool greenhouse or the garden. In the same way the *Sedums* and *Sempervivums* will come in useful if carefully cultivated. Christmas Roses should also be carefully examined by removing the soil to see that the roots are active and in good health, and manure should be placed on the soil above the rootlets to give vigour to the blooming buds. This plant exhausts the soil by its profuse blooming every year, and merits an annual mulching at this season, which it repays with interest at the very season when its white flowers are most welcome. In ordinary bulbs for the new year it is worth remembering that many of the cheap Lilies are as good for greenhouse work as the more gaudy *Hyacinths* and *Tulips* imported from Holland. All the *Narcissi* make lovely objects when grown in pots, and especially the best of the Daffodils—*Emperor*, *Empress*, and *Horsfieldi*. The *Scillas* are also very beautiful when bloomed inside, and small groups of half-a-dozen in a 4-inch pot raised in cold frames bloom much earlier when planted out as they are coming into bloom, and furnish bright spots of blue.

Perhaps now, more than at any other season, the lover of alpine should take a careful survey of his subjects in order to determine which need removal or division. He will probably find some,

now that rain has fallen plentifully, that will be showing signs of increase either in the shape of seeds or underground stems, whilst others may be making no headway at all—scarcely holding their own. Alpine plants in their native habitats grow upon rocks and in soils of different kinds; therefore the rock garden should be formed according to the requirements of the different plants that are to be placed on it. The stone most at command is that which is generally used, whether it be sandstone, limestone, or granite, or some of its varieties of schistose character. As a rule, one has not the means of obtaining the proper rock or soil for the different plants, and hence the sickly appearance of some of them, and when that is observed an attempt should be made to place them under more favourable circumstances.

INDOOR PLANTS.

HOUSING GREENHOUSE PLANTS.—The time to which it is safe to allow greenhouse plants to remain out of doors varies with the different parts of the kingdom; but it is not advisable to run any risks in this direction, for even a few degrees of frost, although it might not do more harm than affect the points of the young shoots and bronze the leaves, still it is much better to avoid this, as any injury in this way not only causes an unsightly appearance, but its effect is usually long apparent. The kinds least able to withstand a low temperature should be first taken in, such as *Pimeleas*, *Boronias*, *Leschenaultias*, *Chorozemas*, *Hedaromas*, *Pleromas*, *Swainsonas*, *Aphelexis*, and others of a like nature, leaving *Acacias*, *Neriums*, *Camellias*, *Heaths*, *Eriostemons*, and the more hardy section generally to the last. Avoid overcrowding, and elevate each plant sufficiently up to the glass. This last is not alone necessary to give them the most light possible, but it has the additional advantage of allowing a better circulation of air to the under branches, which, even in the winter months, when there is little growth going on, is nevertheless necessary. See that each plant is quite free from insects and mildew, either of which, if present, will spread and increase, and become a source of injury to all they affect.

HYDRANGEAS.—There are different seasons for propagating these—spring and autumn. Such plants as are forced in spring usually make a considerable number of side shoots at the bottom. Plants struck from these and now in 3-in. or 4-in. pots, and that have been fully exposed to the sun and air, will now have a strong flower bud at the extremity; they will be better out in the open air for some time yet until the leaves are about ready to fall, when they should be put under glass where frost can be excluded either by fire heat or covering with mats. Where spring propagation has not been followed or where there is any deficiency of stock, the points of the shoots, consisting of three joints if now taken off plants, turned out in the open air will strike in a little bottom heat, keeping the tops quite cool by the admission of air; this latter precaution is necessary to prevent their making top growth, which would destroy their blooming capabilities. When propagated in this way the cuttings should be put singly in 3-inch pots, which will be big enough for them to remain in until they are about being started to force in the winter or spring, just keeping the soil sufficiently moist to prevent the roots suffering. For greenhouse decoration these single stemmed *Hydrangeas*, with their large heads, are amongst the most useful hardy plants that are used for forcing.

CINERARIAS will now be making more progress than earlier in the season, as they like a moderately cool temperature; they are better kept in cold pits or frames for the next two months than stood, as often seen, on dry shelves in larger structures. A moist bottom for them to stand on is desirable, such as that afforded by a bed of ashes. They should be examined frequently to see that they are free from aphides, on the detection of which means ought to be at once taken for their destruction, otherwise the plants will lose their bottom leaves, the presence of which in a fully developed and

healthy condition is requisite to their well-being, as also to their appearance. If the earliest lot are not yet in their blooming pots they should be immediately put into them; 6 inches or 7 inches in diameter are large enough for all purposes if they are well supplied with manure water as soon as the roots have got fairly hold of the soil. If the smaller succession stock are large enough to move to the pots in which they are to flower, it is better to shift them than to allow the roots to get much matted, for if *Cinerarias* ever become at all stunted, in whatever stage of growth they may happen to be, they never move so freely afterwards.

NERINES.—Although but comparatively little grown, these fine bulbous plants rank amongst the handsomest in cultivation. Half-a-dozen good specimens, containing eight or ten strong bulbs each, give an effect at this comparatively flowerless time of the year such as not many things are capable of. Let them now be well supplied with water, so as to keep the roots fairly moist, and give them all the light possible, which will intensify the colour of the flowers.

ORCHIDS.

EAST INDIA HOUSE.—With the shortening days the influence of the sun is not so much felt as it hitherto has been, and therefore it is not necessary to shade so much. In order to save trouble we put permanent shades on the sides and ends of the houses, and we still retain the shading on ends or sides exposed to the direct rays of the sun about mid-day, but it has been removed from the east and west sides. The roof shading is let down as often as it is necessary to protect the plants from hot sun, but we do not allow it to be down longer than is absolutely necessary for that purpose. The attention which the plants require must now vary according to the genus to which they belong. We grow a miscellaneous collection in our house; in the warmest end, or rather corner, for one corner even in the warmest end is a few degrees warmer than the other, the different species of *Phalænopsis* and heat-loving *Cypripediums*, such as *C. Stonei*, *C. niveum*, &c., are placed; next to them come *Odontoglossum Roezli* and the different species and varieties of *Cattleya* that love heat. *Lælia elegans* and *L. purpurata*, we fancy, prefer a few degrees warmer temperature than that of the *Cattleya* house. If these are grown in the coolest end of the East India house, it will soon be found that *L. purpurata* has started to grow from the base of the last bulbs that flowered, and very soon young roots will start from them. We find this to be a good time to repot any plants that require it. *L. purpurata* forms thick fleshy roots freely when in good health, and requires plenty of space. If the plants are rather pot-bound the roots will be attached to the sides of the pots, and it will not be possible to remove them without breaking the pots, and even that must be done with gentle taps, removing the potsherds carefully. If the pots are of large size they ought to be filled to two-thirds of their depth with clean potsherds; over these place a layer of clean Sphagnum Moss, and then repot in a compost of good fibrous peat and Sphagnum, the peat predominating; mix crocks and bits of charcoal with the compost. A word about *Vanda teres*. This plant ought yet to be in the hottest and sunniest part of the house, and it ought to be syringed over-head daily with tepid water. What a long time it lasts in flower! We had two spikes this year, one succeeding the other, and the two have been in bloom for nearly four months; one of the spikes even now is as good as ever it was. We grow our plants in clean crocks with just a little live Sphagnum on the surface, but the largest proportion of roots is formed above the Sphagnum; they cling to Teak rods, and seem to draw sustenance from the moist atmosphere of the house. The temperature should not be less than 65° at night.

COOL HOUSE.—*Odontoglossums* and *Masdevallias* are the principal occupants of this house, and it is necessary to give the treatment best

adapted to their wants. As a rule, most of them are making their growth, and require a moist atmosphere and plenty of water at their roots. *Odontoglossums*, such as *O. Pescatorei*, *triumphans*, *crispum*, *citrosimum*, *Halli*, and *Oncidium macranthum* are making their growth just now, and the pseudo-bulbs are in various stages of development. No rule can be laid down for potting them; in our own case we do it when we can, but the best time is after they have done flowering, and when the next growth has started. They may be shifted, if they have previously been in small pots, without disturbing the roots much, but if they are large specimens and have been grown in good-sized pots, the compost is apt to get sour; in that case it is best to remove it. Sometimes we have washed off all the compost; this is easiest and most safely done by dipping the ball of roots and compost in a pail of water and working amongst the roots with the fingers until all the sour material is separated. Then lay the plants out for an hour or two, so that the roots may be comparatively dry before re-potting. It is best to under-pot rather than over-pot. As a rule all *Odontoglossums* and *Masdevallias* require a compost of equal parts of good turfy peat, Sphagnum, and broken pots, with some charcoal added to it. Insect pests must be destroyed by dipping the plants as previously recommended, and not by fumigating. Tobacco smoke may probably do more injury to the plants than to the thrips. Still, some good growers fumigate their Orchids, but it is usual to drop a little flowers of sulphur into the axils of the leaves where the thrips are; this turns them out, and they fall an easy prey to the smoke.

FRUIT.

HARDY FRUITS.—Notwithstanding the unfavourableness of the season, early kinds of fruit are becoming fit for gathering quite as early as usual, and where this is neglected, such varieties as Williams' Bon Chrétien Pear and Irish Peach Apple, probably owing to the low temperature of the soil and atmosphere, fall from the trees before they have attained their normal size or state of ripeness. As this state of the crop does not speak well for the quality of the fruit, timely attention should be devoted to lifting, root pruning, and replanting in fresh compost best calculated to induce the formation of an abundance of healthy feeders before the leaves fall. In all cases where a bearing tree is lifted or a young one planted, ample drainage is very important, as it favours the free passage of water in cold, wet summers, and the compost being rough and free from manure it can always be kept moist and healthy by means of mulching in dry, warm seasons. Where our advice as to the thinning of the shoots of Peaches and Nectarines on walls has been neglected, it will be well to look them over after the fruit is gathered, and to remove every shoot that is not wanted for another year. Those left can then be nailed or tied in close to the wall and well syringed to cleanse the foliage from insects, as perfect buds cannot be secured where the leaves are injured or destroyed before the wood is ripe. The gathering of Apples and Pears will now claim daily attention. The latter are not too abundant, and, therefore, what we have should be secured as they become ready, and before they get injured by falling from the trees. It does not often happen that every fruit on a tree will part freely at the first picking, but by taking all that are ready, and by leaving the most backward, a valuable succession of all kinds may be secured. If late Plums, which it is thought advisable to keep as long as possible, are not well coped, the temporary coping boards used in the spring may be placed over the trees for the two-fold purpose of throwing off wet and carrying the netting which it will be necessary to suspend where wasps and birds are troublesome. Wasps in this locality are unusually troublesome, and, Plums being scarce, they make short work of a tree of the first quality when they commence upon it. Next to glass lights reared up in front of the trees, Haythorn's hexagon netting is the best material we have yet met with for preserving the

fruit, as it lets in a large amount of light and warmth, and being deep enough to cover an ordinary wall, it can be put up and taken down in a short time with very little trouble. If not already done, the newly grafted trees should be examined, as the young scions swell rapidly about this time, and unless the ligatures are loosened and the strongest growths are secured to stakes, they are very liable to get blown out by the wind. As the planting season is at hand, soil and drainage should be got ready for use, and to secure healthy trees from the nursery they should be selected before the leaves fall.

FIGS.—Although many growers of pot trees have a few trees at the warmest end of the house, the mixed orchard house is not the best place for them, as they are so subject to scale and spider, which spreads with fearful rapidity during the time the Peaches are ripening, and as a rule does more harm to the latter than all the Figs they produce can ever repay. It will therefore be well for the amateur to look about for a snug corner where he can erect a case against a south or west wall, and there plant a Brown Turkey or any other moderate growing prolific variety for giving a supply of this delicious fruit through the autumn months. If variety be his object, he may place along the front such kinds as Osborn's Prolific, Negro Largo, White Marseilles, and a delicious variety named Dr. Hogg, all in pots with saucers under them for the reception of liquid manure during the time they are growing and producing fruit. To make the arrangement complete, the roof should be composed of portable or running lights for letting in warm summer rain, and a flow and return pipe should run along the front for giving off any warmth in cold, wet weather, and to ripen up the wood when the crop is over.

KITCHEN GARDEN.

TAKING up late Potatoes is now the order of the day. *Magnum Bonum* is not only thoroughly good, but this year with us the best of croppers, without a speck of disease. Victorias, although a capital crop and the best of table kinds, are not proof against disease. Champions are again a fine crop of really useful tubers. They are best grown entirely without manure. This variety we grow the most of, and find it better and more profitable than any of the older kinds. Onions, Shallots, and Garlic, now being harvested, should be moved daily, an operation done quickly with an ordinary wooden rake. When quite dry do not delay an hour in getting them under cover and safely stored; they are for all culinary purposes, perhaps, the most useful inmates of the kitchen garden. A week of sunny weather would indeed be a treat, enabling us not only to kill weeds, but to get our Celery earthed up. It is a good plan to give it a good watering before earthing, but, of course, the foliage must be dry before earthing takes place. Keep a sharp outlook for slugs and the Cabbage grub. We always endeavour to have the first row of young plantations of Cabbages nearest the edging as good as the middle ones, and every plant of the same size. Market growers sow the seed by the half acre, and hoe the young plants out like Turnips; the result is plants stiff and hard at the bottom instead of being tender and drawn up. The most perfect Lettuce plants are, however, got by sowing thinly on the winter Onion beds. Thus treated, they are as broad as they are long. The mode of raising plants may appear to many to be a very simple matter; but to raise them properly requires a little experience.

Are Pines expensive to grow? is a question often asked, and very often answered in the affirmative. But, as grown at Hewell, I do not think they are. This place has always been famed for Pines, though the space devoted to them is comparatively limited; they are, however, close to the glass, have plenty of light, and consequently make sturdy growth, which quickly fruits. There were from sixty to seventy fruits in various stages of growth in the fruiting pit, and many had been

recently cut. As Mr. Ward grows Pines, and as the late Mr. Markham used to grow them, certainly they are a paying crop.—H.

KITCHEN GARDEN.

CUCUMBER GROWING.

CUCUMBERS are generally eaten raw, but a skilful cook can make them relishable in various other ways. My experience is, that to the private grower who has to maintain a supply, it is a great advantage when the Cucumber is used as a cooked vegetable, provided of course that facilities exist for producing them. A hard winter generally leaves us with a limited choice of vegetables; then Cucumbers are welcome; with these and Mushrooms we can satisfy the demands of the cook. I should like to offer a few remarks respecting the production of a regular and moderate supply of fruit for home use, chiefly for cooking. The house we have here for Cucumber growing is a three-quarter span-roofed pit, 32 feet by 13 feet, in two divisions. It runs east and west, the pathway along the middle sunk 4 feet below the ground level, and the height from the floor to the ridge of the roof is 8 feet, thus giving a width of roof trellis on the south side of 7½ feet, and on the north side of 5½ feet. Top and bottom heating is efficiently provided for by means of 4-inch hot-water piping, a flow and return along each side of the pathway, and the same underneath the soil beds on each side. The number of fruits that a healthy, well-fed plant will produce, provided it has ample space for its top growth to extend, is very large, and the length of time it will continue to yield a profitable supply is regulated by its freedom from insects, but in small houses we find the best plan is to fruit each set of plants to their full capacity, that is, a fruit at every joint till the limit of space is reached. Of course we keep up a succession of young plants, but sometimes, when the old plants are clean and healthy and space not at the moment available for a young batch, the old leaves are gradually removed from the bottom of the old plants, and thus a young growth is obtained, from which a very good second crop may be taken.

SEED SOWING.—We allow four or five weeks to elapse from the time of sowing till the plants are planted out in the house. It is far better to wait a week or two for the plants than to have them pot-bound and stunted, for generally such plants soon become a prey to red spider. The seeds are sown in the pots from whence they are transplanted to the beds. We never repot our plants, but sow the seeds (three) in a 4-inch pot to be thinned out to the strongest one for planting out. We prefer seedlings to cuttings, as they possess more vigour. Greater productiveness is claimed for plants from cuttings than from seeds, but we are always content with one fruit, or at most two, at a joint. One sort only is grown here, the true *Rollisson's Telegraph*, which, for general use, is hard to beat, though it is probably equalled by *Dickson's All the Year Round*, also a short-fruited variety, with a hardy constitution.

SOIL.—We use here a compost consisting of roughly-chopped fibrous loam, with a small admixture from an old Mushroom bed, the manure being mixed a little more freely in the winter months. Four plants fill the side of one house, and a day or two previous to planting, four hillocks (each the contents of a 3-peck basket) are laid along the middle of the bed on a foundation of inverted turves. These are supported over the bottom-heat pipes on one side by means of rough boarding, and on the other by a heated water tank. When the soil is thoroughly warmed the seedling plants are planted on the top of these mounds; a stout stick is pushed into the soil, and the top, secured to the wires above, serves to tie the growing plants to till they reach the trellis. A top-dressing, about an inch at a time, of the same sort of material is applied every ten days or so, taking care to place it in the house to warm for a day or two before it is spread over the surface of the hills. The earth is heaped well up round the stems. If manure seems

needful, after heavy bearing, we give a good sprinkling of Standen's manure and well water it in; this is found to be the best invigorator. Stopping and training receive almost daily attention; much growth is never removed at one time; shoots not wanted are nipped out when small. The bearing growth is trained thinly, and as it extends it is pinched above the second leaf. Under this treatment nearly every joint is fruitful and not a foot of space is wasted.

Sometimes in spring, when our small house is occupied with other things, and we are confined for two or three months to one side of a division, a rotation plan is adopted, say, with four plants. When the first at one end is in full bearing, the second and third are following in close succession, while the fourth is newly planted. In this case a little foresight only is necessary in sowing. Each plant being confined to one hillock, the soil can be removed and renewed without its neighbour being in the least checked. Few plants are more sensitive to checks or chills than the Cucumber, most of its ills and enemies being traceable to this cause. Abundance of water applied at a proper temperature is of great importance, as are also a regular system of thorough syringing with tepid water, the maintenance of plenty of moisture in the atmosphere, and the avoidance of a high night temperature. Advantage should be taken of every ray of sunlight, especially in autumn, winter, and spring.

A. MOORE.

NE PLUS ULTRA AND CRITERION PEAS.

Two rows of *Ne Plus Ultra* Pea sown on the 7th of June, and the final sowing on the 20th, each 35 yards long, will give me Peas in abundance until the frost cuts them off. At least this Pea has never failed to do so if sown on the above date for a number of years, and present appearances are all in its favour. I generally stop the haulm with a "Dunse" switch hook when it reaches the top of the stakes, which are from 5 feet 6 inches to 6 feet high. This stopping gives better filled and larger pods, and they are not so troublesome to gather, or the plants so liable to be blown over. I agree with all that has been said in *THE GARDEN* in favour of this Pea, but cannot allow anything that has been said against it to alter my judgment as to its real merit as a late season variety. No Pea that I have tried bears so well at the end of the season, or can surpass it in colour and flavour during the months of September and October.

Some few years ago, after a bad season for seed-saving, I could not procure a sufficient quantity of *Veitch's Perfection*. I was recommended to try *Criterion* as a substitute. If I regretted the scarcity of *Veitch's Perfection* at the time, I am pleased that the circumstance made me acquainted with this sterling variety, which I have not failed to grow from that time to this for gathering in July and August. It has all the good qualities of *Ne Plus Ultra* (which it resembles very much when cooked) without its drawback, viz., height, growing at no time more than 5 feet high, and bearing within 18 inches of the ground (near enough for tall people to gather) a prodigious crop of well-filled pods of the best quality and colour. When served at table it is first-rate, and always gives great satisfaction.

Late Peas are generally attacked with mildew, which is the case now after the three weeks' dry weather that we have just passed through. I find the following an excellent remedy: 1 pound of sulphur and 1 pound of lime boiled, then strained into 20 gallons of water, and applied with the garden engine. One application is generally sufficient, and will effectually cleanse them from this destroying fungus.

W. ALLAN.

Sowing Lettuces under glass.—We experience great difficulty in wintering Lettuces and rearing Cauliflowers in the open ground at this time of year, owing principally to the ravages of innumerable small black slugs. As a consequence our plan is to sow thinly and winter in cold

frames, taking care to thin out the seedlings freely and to give all the air possible whenever the weather is favourable. In this manner we secure abundance of plants for our own wants, and oftentimes for those of our neighbours, who rely on the plants they vainly endeavour to winter in the open.—W. I.

American Wonder Pea seems to be one of the most prolific of dwarf Peas. Its average height hereabouts is from 12 inches to 14 inches. Its habit is branching and the branches are loaded with pods, each containing from seven to ten Peas of a deep green colour. With regard to its qualities when cooked, I am unacquainted; but I have heard that they were all that could be desired both as respects colour and flavour. Should it prove to be as good for table use as some of our other sorts, it will deserve a place in every collection of dwarf Peas. I should think it would be a suitable sort to grow in pots for culture under glass.—W. C.

Golden Stone Turnip.—I find no sort to equal this for spring use. It retains its excellent flavour longer than any other. The roots are handsome in shape, the flesh solid and crisp, which enables it to withstand the frost better than many others. By making a late sowing, the last week in August or first in September small useful roots will be produced. It is considered by many to be the best one for growing for the leaves only, which are generally in great demand during the spring months for cooking, as the tops have a better flavour when cooked than the coarser leaved sorts. By pinching out the flower-stems as soon as they appear, a continuous supply of tops may be had; besides, the roots will be kept more solid, and then they can be used for flavouring until the spring-sown ones are fit for use.—WM. CHRISTISON.

Vegetable Marrow, Muir's Prolific.—After thoroughly testing the productiveness of this variety by growing it two seasons, I find it one of the best sorts to grow either for the earliest or latest crops. I find it to be hardier than many of the others I grow, producing strong shoots with generally plenty of Marrows. Like all other sorts, it is subject to be attacked by black fly, which must be carefully watched and kept under. This may be effectively done by dusting Pooley's Tobacco powder upon the undersides of the leaves, which is certain to destroy the fly, and will not injure the tenderest leaf, even when the plants are in the youngest stages of growth. It will be found equally effective in keeping plants clean after coming into bearing. In shape the fruit of this sort is distinct from most others, being nearly the same in girth as length, and about an equal thickness at both ends. The colour is a dark cream, the flesh firm and of delicious flavour, and when fully grown the Marrows measure from 12 inches to 15 inches in length.—WM. CHRISTISON, *Woodham Hall, Woking*.

SHORT NOTES.—KITCHEN.

Venn's Early Cabbage.—Mr. Oliver, gardener at Eslington Park, Alnwick, speaks of this as being the earliest, hardiest, dwarfest, and most distinct of all spring Cabbages. It was raised by Mr. Venn, a gardener near Alnwick, and is as yet unknown to the public.—CAMBRIAN.

Late Peas.—Among a number of rows of Peas in excellent condition I saw Telephone, Laxton's Supreme, and Ne Plus Ultra. They had been planted thinly in well manured trenches and did not show a trace of mildew. As to the last named Pea, I find that it is still a great favourite. It is never wise to cast off any old friend if reliable.—H.

Hill's Incomparable Dwarf Cabbage.—If it were necessary to select one variety of Cabbage for autumn planting, I should choose Hill's Incomparable Dwarf. It has the merit of being fairly early, is quick in forming a compact head after commencing to turn in, and, in addition, is harder than many varieties. It stood up firm, crisp, and strong all through the bitter winds of last spring.—E. B.

Sowing Cauliflower now unnecessary.—It may be well to again remind owners of small gardens that the necessity for sowing Cauliflower at this season has passed away, and with it the trouble of hand-glasses, frames, &c., for the reception of the plants during winter. The small early Cauliflower recently introduced by several firms will, if sown in a frame on a leaf bed during February, come in nearly a fortnight before autumn-sown Early London.—E. B.

Early Potatoes are very abundant here this season and excellent in quality. I am sorry to say, however, that even as early as the 20th of July we found a number of diseased tubers in the case of Myatt's Ashleaf, while the haulm showed but very little signs of disease. The ground on which the crop of Myatt's grew is naturally very damp and peaty and close to a canal. On higher and drier land there is no sign of disease. Covent Garden Perfection has proved itself to be one of the very best second early varieties we have. It is an abundant cropper, and a first-rate exhibition variety, and unsurpassed for table use. Alpha is one of the finest second early varieties, suitable either for light or heavy soils. I saw a fine crop of it the other day growing in a cottager's garden in this locality on poor peaty ground; its tubers are large and the numbers attached to each root very great.—W. CHRISTISON.

Myatt's Ashleaf Potato.—Planted side by side with Covent Garden Perfection, Bedford Prolific, Woodstock Kidney, and Cosmopolitan, this has held its own both as a cropper and for

ceed the crop sown in July, and will continue in good bearing until the broad-leaved or spring Spinach comes into use, or may be retained for use until the perpetual Spinach sown in April is fit to gather from. By making three sowings a year, one in April, one in July, and another in September, a constant supply of perpetual Spinach may be had all the year round, devoting ground according to the demand. When in full growth it will be benefited by using liquid manure once or twice a week.—WM. CHRISTISON.

Earthing up Celery.—We all seem to have different ways of doing things. My way of earthing up Celery, or rather preparing for that operation, is to tie up the plants some long time before any soil is put to them. This support to the leaves causes a more upright growth and keeps them together, when the earthing up can be done easily and quickly without any of the soil getting into the hearts of the plants. Instead of cutting away the ties and removing them, we leave them on; they rot off quite soon enough, and if they do not decay it matters little, as Celery cannot well



Ostrya virginica (young tree).

freedom from disease. Perhaps Covent Garden and Bedford were a trifle heavier as regards crop, but the difference was slight, and the former had more diseased tubers than the Ashleaf. Cosmopolitan is grand on the table; in fact, all that one could wish for in a Potato. It might indeed be called a ball of snow, and so good is it that it is certain to take a very high place if it resists disease fairly well. I regret that I cannot give it a good character in this respect so far as personal observation goes.—E. B.

Butter Beans, or Mont d'Or.—These are, as a rule, trained to poles or Pea stakes in the same manner as Scarlet Runners. This spring, however, I made a good-sized sowing, drawing the drills 18 inches apart, and planting the Beans the usual distance apart. When they had produced their third leaf I pinched the top out of each plant to induce it to throw side shoots. The plants were left to grow at will, and have produced a fine crop of their pale yellow pods equal to the rows which were staked; besides, I was able to grow three rows in place of one where stakes are used. The ground being covered with the haulm keeps it cool and moist during dry weather, which the roots of Beans delight in. In future I intend to grow the whole crop of this Bean without stakes. Scarlet Runners may be grown upon the same principle where stakes are expensive or difficult to obtain.—WILLIAM CHRISTISON.

Perpetual Spinach.—If not already done, the latest sowing of this crop should be made without delay. This sowing will come in to suc-

be held too closely together to bleach and keep out the wet. The soiling up piecemeal, as is practised by many, is, I think, a mistake, as the plants require much water all the time they are growing, and it is impossible to give them this after they are earthed without washing some of it in amongst the leaves, and that either causes them to rot or cripples the hearts.—J. SHEPPARD.

White Cape Broccoli.—Is this good old sort entirely discarded for supposed superior novelties? A few years ago it was relied upon to produce a good supply of heads for use early in winter. Here it was at one time much appreciated, and was especially serviceable for storing in pits and frames before being injured by frosts. Not being satisfied with our success with Veitch's Autumn Protecting Broccoli, I have for two seasons in addition planted a good breadth of White Cape, and on both occasions have been disappointed, owing to the seedsmen substituting for it the Walcheren Broccoli. So instead of having a supply of Broccoli during October and November, we have a glut at the present time, as with us Walcheren invariably hearts early. The true White Cape requires a long season of growth, and therefore it is necessary to sow early under glass and to plant out early. It is true a very little frost will destroy or greatly injure it, but as we have plenty of pit room and sheds in which to store it in anticipation of frosts, it would yet prove of great service. After having failed to procure the true White Cape Broccoli from two usually reliable seedsmen, I suppose I must do without it.—I. M.

TREES AND SHRUBS.

THE HOP HORNBEAMS.

(OSTRYA.)

THE genus *Ostrya* contains but two species, closely resembling each other, one of which is a native of Europe and the other of North America. Only one other instance of an United States genus comprising but a couple of species, one of which is peculiar to the Eastern and the other to the Western Hemisphere, is known to me, and that is the

being raised from seeds collected from the large tree at Kew, which, according to Loudon, is probably the finest in Britain. In Philip Miller's "Gardener's Dictionary" planters are warned against purchasing grafted trees, as, owing to the more rapid growth of the scion, it is liable to die off after a short time or to be broken off by the wind. The old Kew tree, however, does not bear out this supposition, for it is a graft, and has no doubt been in its present position a century or more. It occupies a place on the lawn near the T range at Kew, not far from the famous old

durable. A small tree rarely exceeding 40 feet in height, or with a trunk more than 12 inches to 15 inches in diameter." GEORGE NICHOLSON.

Royal Gardens, Kew.

THUJA GIGANTEA.

THIS ornamental Conifer is indigenous to the north-west coast of America and California, and is



Ostrya carpinifolia (Hop Hornbeam); catkins of female flowers.

Liquidambar, or Sweet Gum. The two *Ostryas*, both on this and on the other side of the Atlantic, by reason of the singular resemblance between their female catkins and those of the Hop, and between their foliage and that of the Hornbeam (*Carpinus*), have acquired the thoroughly descriptive name of Hop Hornbeam. The United States one, according to Dr. Gray's "Manual," is also called Ironwood and Leverwood. Both trees, as will be seen from the accompanying illustrations, are decidedly ornamental ones, and equally worthy of cultivation. Both have a very handsome appearance when in fruit, and under favourable conditions will attain as large a size as our common native Hornbeam. They will grow anywhere and in any soil where the common Hornbeam succeeds, but thrive best on a good rich soil.

*OSTRYA CARPINIFOLIA** is a native of South and South-eastern Europe, and has long been in cultivation in this country. It must have been introduced prior to 1724, as it is mentioned in Furber's nursery catalogue, published in that year. It is usually propagated by grafting on the common Hornbeam, although probably plants raised from seeds would be preferable. There ought to be no difficulty in obtaining good seeds from the Continent; in England they do not seem to ripen properly, as I can obtain no evidence of plants

Sophora japonica, mentioned in last week's GARDEN, and another historical and not less famous tree, an *Araucaria imbricata*, one of the five which were raised in a pot in his cabin by Menzies, the surgeon and naturalist who accompanied Vancouver in his voyage round the world. The specimen in question bears on its label, "Introduced by A. Menzies, Esq., in 1796." The present measurements of the Kew *Ostrya* are: Height, 55 feet; diameter of head, 60 feet; and circumference of stem at 1 foot from the ground, 9 feet 6 inches.

OSTRYA VIRGINICA (the American Hop Hornbeam).*—This was introduced into England by Bishop Compton in 1692, and, according to Loudon, seems to be somewhat more tender than its European relative, an opinion, however, which is not confirmed by observation of the specimens of this species at Kew, which seem to be quite as hardy as any of our native trees. The distribution, &c., in a wild state is given as follows in Professor C. S. Sargent's excellent "Catalogue of the Forest Trees of North America": "Nova Scotia, New Brunswick, through the valleys of the St. Lawrence and the Lower Ottawa Rivers, along the northern shores of Lake Huron to Northern Wisconsin, south to Florida, and west to Fremont County, Iowa, Missouri, and Arkansas. Wood white, compact, fine grained, very heavy, and



Male and female flowers of *Ostrya carpinifolia*.

found at elevations ranging sometimes as high as 5000 feet; it attains a height of 100 feet to 200



Ostrya virginica (catkins of female flowers).

feet, with a circumference of trunk above the swell of the roots of from 20 feet to 40 feet. It



Male and female flowers of *Ostrya virginica*.

is known in some collections by the name of *T. Menziesi* and in others by that of *T. Lobbi*. Under

* IDENTIFICATION.—*Ostrya carpinifolia*, Scop. fl. carm., 2 ed., ii., 244; Koch, "Dendrologie," zweit. theil. zweit. abtheil., p. 6; *O. vulgaris*, Willd. Sp. Plant., iv., 1, 469; Loudon, "Arboretum et Fruticetum Britannicum," vol. iii., p. 2015; *Carpinus Ostrya*, Nouv. Duhamel, ii., t. 59.

* IDENTIFICATION.—*Ostrya virginica*, Willd. Sp. Plant., iv., 469; Loudon, Arbor. et Frut. Brit., vol. iii., p. 2015; Koch, "Dendrologie," zw. theil. zw. abtheil., p. 6; Gray, "Manual of Botany," 456; *Ostrya vulgaris*, Watson, Dend. Brit., t. 143; *Carpinus americana*, Michx., "North American Sylva," ii., t. 109.

the name of T. Lobbi I received this tree upwards of twenty years ago, but from my observation of its growth, combined with the description given by Nuttall in his "Plants of the Rocky Mountains," I have reason to believe that a great many plants sent out as T. Lobbi are really none other than the true *T. gigantea*. There has been a great deal said and written of late by practical men on a substitute for the Larch, as that valuable tree in many parts of the country refuses to grow, or at least makes so little progress, that in many cases it is all but worthless as a timber tree. I have paid some little attention to this subject for a period of some thirty years, and although I have planted and watched the progress of all the new *Coniferae* suitable for the climate of our islands, yet I have found none to equal the Larch. In my opinion, *Thuja gigantea* is the

BEST SUBSTITUTE for Larch of any *Conifer* I know. It will, however, be for the next generation, who cut down the trees planted by us when they are properly matured, to decide this question. I have found it to be perfectly hardy, of free and rapid growth, sometimes adding to its height as much as from 18 inches to 30 inches in one season, but the rate of growth depends in a great measure on the quality of the soil and also on the situation. Its habit of growth is strictly conical, and if allowed plenty of room, the stem carries its thickness up along with its height in as fine a proportion as that of the best Larch. It bears with impunity the ordinary amount of stem and branch pruning, but as it seldom produces a double leader at the top, it is not often necessary to prune it. It is not in the least particular as to soil, provided it is thoroughly well drained. In places where the subsoil consists of hard till or pan, such will require to be broken up with a pick in order to allow the roots to have free scope to ramble. I have planted it with great success on all classes of soils, on deep boggy ground as well as on clay loam and soils of a gravelly nature. In cutting the wood of the trunk of young trees I have found it to be of a firm texture, with the concentric rings firmly packed. All this points to the conclusion that it is a first-class timber tree. The only point I am doubtful of is whether the wood contains sufficient resinous matter to make it so lasting as that of the Larch.

PROPAGATION of this tree is effected by cuttings and seeds; the latter should be collected as they ripen, and stored in a cool, airy place till spring, when they should be sown broadcast on well pulverised light soil on beds about 4 feet wide. As the seeds are small and light, a thin covering of fine soil will be sufficient. When the seedlings are from 4 inches to 6 inches high they should be transplanted in nursery lines from 6 inches to 8 inches apart, and at a distance of from 12 inches to 14 inches between the lines; this space will afford plenty of room for stirring the soil and keeping down weeds—a matter of importance in the welfare of nursery stock in its early stage. J. B. WEBSTER.

SHORT NOTES.—TREES AND SHRUBS.

Hydrangea paniculata grandiflora is one of the most beautiful of hardy shrubs. It is now producing great massive panicles of pure white blossoms. It is dwarf in habit and flowers most freely.—J. DOUGLAS.

Dead trees.—The many prostrate trunks now to be seen in Kensington Gardens should be a caution against putting a deep layer of soil over the roots of trees. It is death to many. The destruction above mentioned must be seen to be believed. It is as if the trees, as foolish as men, had gone to war and had a "general engagement," with the usual result.—V., Sept. 10.

Hibiscus syriacus.—This is one of the most valuable shrubs one can have in a garden, flowering as it does when there is scarcely another shrub in bloom. It is just now in full flower, and we are reminded of its beauty by some branches brought to us by Mr. Stevens from his garden at Eyfleet, which contains a good collection of this shrub.

Seaside shrubs.—The best shrubs for the seashore are undoubtedly the French Tamarisk and the common Spindle tree. Wherever new gardens are being planted within reach of the salt spray these are the shrubs used for the outer belt. All round the south coast they do well even in the most exposed situations. Where there is a little shelter the shrubby New Zealand Speedwells also grow and flower profusely.—H.

INDOOR GARDEN.

GRIFFINIAS AND THEIR CULTURE.

GRIFFINIAS consist of some half-dozen species, all evergreen South American *Amaryllids*, compact in habit, and of a free blooming character; the flower-stems spring from the centre of the bulbs and rise well above the foliage, terminating in a large umbel of delicate blue and white or purple and white flowers, in shape not unlike those of the blue *Agapanthus*. Few bulbous plants better deserve a place in even the most select collections of stove subjects than these. They are at all times handsome, and when strong specimens are in flower they continue to open their blooms in succession for three months at a time, and are equally suitable for conservatory decoration or for cutting; for the latter purpose they have few equals, the colour (always scarce except in flowers of diminutive size) particularly adapting them for arranging with others of paler or more vivid hues; their substance also enables them to retain their freshness for days in water, or in any moisture-holding material. The plants likewise have the merit of being easily grown, and can be cultivated successfully by those who have not the means of growing a number of things requiring a very high temperature. An intermediate heat, such as that of a vinery where a little fire is used, will answer for them quite as well as a warmer situation, but they should never, except in warm weather, be subjected for a long time to greenhouse temperature, even when they have completed their growth and are at rest, or they are liable to suffer. The only drawback to their more general cultivation is their scarcity, consequent upon their slow habit of growth, a circumstance still further aggravated by keeping them quite dry when at rest. Nothing can be more injurious to any evergreen bulb than this kind of treatment when carried too far, and especially in the case of *Griffinias*. Unlike *Eucharis amazonica*, *Griffinias* cannot be grown and periodically rested, so as to induce them to flower several times in the year; on the contrary, they prefer a long season to become fully developed, and want a long rest afterwards before flowering, during which the soil should be kept much drier than when they are in active growth, but should never be so dry as to cause the leaves to flag.

PROPAGATION.—Another reason why these plants are scarce is that so few succeed in raising them from seeds, the failure often attributed to the seeds being covered with soil; whereas they should be allowed to remain on the surface of the soil in the pots, otherwise they will decay. *Griffinias* can also be increased by separation of those bulbs that are produced as offsets in the same manner as with *Amaryllis*, but their progress is very slow, and the roots are so closely interwoven as to render their separation almost impossible without considerable mutilation. When they are to be divided, the ball should be turned out of the pot and the whole of the soil washed very carefully from amongst the roots, by which means they may be more readily disentangled without so much breakage. They should then be placed singly in from 4-inch to 6-inch pots, according to the size of the bulbs, and treated as hereafter described for plants raised from seed. After blooming in summer and autumn the seeds make their appearance, growing to the size of Potato Apples, but in appearance more like small, green unripe Tomatoes, being corrugated and irregular in shape. They must be allowed to remain on the plants until they either fall off of their own accord or can be removed by very slight pressure, and should then be sown immediately. For this purpose use an ordinary seed-pan proportionate in size to the number of seeds, put an inch of drainage in the bottom, and on this a little Sphagnum or turfy material.

THE SOIL should consist of yellow loam, with about one-sixth of sand added; the loam should not be sifted even for the seeds, but pulled into small pieces and pressed moderately close, sprinkling a little sand on the top, and giving the whole

a good watering; on this lay the seeds, pressing them gently into the surface, so that they may imbibe the moisture from the soil, which must be kept continually damp; put them in a temperature of 55° at night, with a few degrees higher during the day; so treated, they will in the course of two or three months vegetate. They should not be disturbed until the protruding roots have descended into and got a firm hold of the soil, during which time a leaf will be formed to each seed. This will usually occupy the whole of the winter and spring after they are sown. Through this time the soil must be kept moderately moist, after which they should be transferred singly into well-drained pots, using soil similar to that in which they were sown. Through the spring the temperature should be gradually raised, and during the summer it may range in the night from 60° to 70°, and 10° or 15° higher in the daytime with sun-heat. Keep the plants well up to the light, giving a slight shade in the middle of the day in bright weather, admitting a moderate quantity of air, closing the house early and slightly damping them overhead at the same time. Reduce the temperature in the autumn to 55°, at which point they may be kept during the winter, at the same time giving as much water as will preserve the soil slightly moist. Give the young plants as long a season of growth as possible by placing them about the middle of February in a temperature of 60°, giving a little more moisture to the soil as soon as they show signs of growing. Increase the temperature both by day and night as the weather gets warmer, shading slightly as before and syringing a little when the house is closed in the afternoons. By midsummer they will most likely have so far filled their pots with roots as to require moving into others of a larger size, now having the soil a little more lumpy and not omitting to use enough sand to keep it quite sweet; after this treat the plants through the

AUTUMN AND WINTER as recommended for the preceding season, again starting them early, or if there is the convenience of a house that is kept 5° warmer during the winter from the first than the temperature prescribed, they may with advantage remain in it, by which means they will make more progress. If the growth is satisfactory, the strongest plants will most probably flower in the autumn three years from the time the seeds were sown, although the bloom-spikes will not be nearly so strong as when the bulbs get fully grown, which will very likely occupy another two years, when they will increase by making offsets. After flowering each autumn they will make their growth, during which time they should be kept at about the same temperature as that already recommended, supplying them liberally with water until the growth is finished, which will be apparent by the leaves attaining their full size and solidity. When the plants have begun to bloom it will to some extent alter the time of their growth, retarding it considerably, so that it may not be completed before May, after which the soil ought to be maintained as before described in a slightly moist state. During the summer the increase of solar heat and higher temperature necessary for the other occupants of the house will cause them to push up their bloom-stems, the flowers opening through the autumn. Each year

AFTER BLOOMING they require larger pots, and until they begin to increase freely by offsets, an inch shift at a time will generally be enough, as they must never be overpotted, although as the specimens get large they will make an abundance of roots and fine leaves, requiring proportionate pot room, whilst the flowers also will be proportionately strong. When the plants attain specimen size it will not be necessary to pot them every year. A very imperfect estimate can be formed of the beauty of *Griffinias* whilst they are in a comparatively small state with one or two flower-spikes as compared with large examples that will produce from a dozen to thirty, each proportionately larger than those borne by smaller plants. They may be grown on until they fill 18-inch or 20-inch pots, or be divided as already described.

Those who are fortunate enough to possess a good stock of these valuable plants will do well to grow both small and large specimens. When in flower they may be placed for several weeks in a conservatory somewhat warmer than an ordinary greenhouse, but they should not remain too long, especially if the autumn is far advanced and the weather getting cold, as they will be commencing growth, which would get checked, and thus materially interfere with their progress during the ensuing season. The undermentioned, if treated in accordance with the above directions, will be found an acceptable addition to any collection of plants:—

G. HYACINTHINA MAXIMA.—A large and fine species, with bluish violet flowers, each petal having a white stripe from the base down the centre for a considerable portion of its length. A large specimen will bloom through the whole of the latter part of the year. A native of South America.

G. BLUMENAVIA.—A smaller growing species from Brazil; flowers a little earlier in the season than the preceding.

G. ORNATA.—A new introduction from Rio de Janeiro, with large heads of purplish lilac flowers fading off to white. A very free bloomer, sometimes producing two scapes from a single bulb; it flowers in the autumn or winter.

INSECTS.—When aphides affect the young leaves and flower-stems, they may be destroyed by fumigation and sponging. Thrips also attack the undersides of the leaves, and should be either cleaned off with a sponge dipped in Tobacco water or fumigated. Brown scale and mealy bug will also affect them; these can be best removed by sponging. T. BAINES.

CHRYSANTHEMUMS FOR EXHIBITION.

THOSE who are growing specimen plants of Chrysanthemums will now need to give them close attention. If they have been carefully attended to they will have made by this time strong growth, and have branched out into leaders and lateral shoots. Some varieties, especially the Japanese, give a terminal bud, which will generally expand itself and give an early bloom, the same plants blooming again from the leader buds. These blooms will be mostly too early for exhibition, so the cultivator must use his judgment as to retaining or destroying them. In the case of many of the late blooming varieties, however, these blooms come later and at exhibition time, whereas the leader buds will perhaps not open until December. Grandiflorum, Ethel, and Golden Dragon are late sorts. This tendency to flower late, as well as other peculiarities in the Chrysanthemum, a knowledge of which can only be gained in time, gives the experienced grower so many chances in his favour when growing for exhibition. Having now reached the time when the plants may be said to have finished their growth, the buds must be looked for, and preparations should be made for feeding the plants with liquid manure. As soon as the buds appear and can be conveniently handled on plants required to produce exhibition flowers, nip out all the buds except the centre, and this must be carefully done, for it is a delicate task, else the centre bud may get damaged or perhaps broken off entirely; all buds appearing on the stems must be taken out, and also all laterals that are not required for bloom; this done, the application of manure water can commence. There is some difference of opinion as to the best liquid manure; some recommend the usual mixture from the stable, which is undoubtedly a good thing in the hands of an experienced grower, but anyone without the necessary knowledge or experience will have some difficulty in arriving at an estimate of the proper strength required. By applying liquid manure of too high a strength buds have become blind, which is a great disappointment. Some growers recommend artificial manures, and of these one of the very best is undoubtedly Clay's Fertiliser. A little of this should be sprinkled over the surface once or twice a week, and watered in when moisture is applied to the plants. One authority on the culture of the

Chrysanthemum states that all that is required at this stage is an ammoniacal stimulant to take immediate effect on the plant, in order to swell the buds to the largest possible size, and in no manner can we get this in such quantity as in sulphate of ammonia, a small quantity of which only is needed, commencing at a quarter of an ounce, and gradually increasing to half an ounce, to a gallon of water. This is at any rate a clean and inoffensive process, and it has the merit of being cheap, as the cost is not more than a halfpenny to a penny per gallon.

It need scarcely be stated that thorough cleanliness of foliage is indispensable. Any thrips that may find a lodgment in the points of the shoots must be at once dislodged. No quarter must be given to any injurious insect, nor must the plants be drawn in any way. They should be encouraged to grow as hardy and vigorous as possible, and at this season of the year need plenty of exposure. R. D.

RONDELETIA SPECIOSA MAJOR.

THIS plant and the smaller flowered type possess much to commend them to the general cultivator. They are frequently seen on the exhibition table, but are scarcely showy enough to find favour with growers for show purposes; yet this does not in any way detract from their merits as regards decoration or the production of cut flowers. For the comparatively small quantity of high-coloured flowers that a tasteful bouquet should contain, I know of no plant more suitable than the Rondeletia; it possesses the very essential property of endurance when the growth and flowers have been made under the conditions requisite to impart this character to them. To this in the selection of flowers for such purposes, sufficient attention is not always given. The flowers are equally durable on the plant, and will keep fresh for many weeks in a conservatory or greenhouse, that is if the plant has been grown in a way calculated to avoid the soft, tender state consequent upon submitting it to too much heat and an over-moist atmosphere, with the absence of sufficient light, for the Rondeletia is more of an intermediate house subject than of an ordinary stove, which is an advantage to the generality of growers with a moderate amount of glass accommodation. It is a native of Havana, and will winter without injury in a night temperature of 50°, with a corresponding rise during the day. So those who have the means for keeping up as much heat as this need not hesitate attempting its growth. It is a slow growing plant, very much finer rooted than the generality of stove subjects, and a very much slower grower. On this account, and coupled with the fact that it will bear cutting in freely every year, it can be kept to a medium size for a number of years.

CUTTINGS made from the young half-ripened shoots will strike freely in a temperature of 70° at any time of the year when they can be had in this state, but spring will best suit the generality of growers, for at this season it is usual to propagate a number of different plants, which can be accommodated to a similar routine of treatment. Insert four or six together in a 4-inch pot, drained and half filled with a mixture of sand and peat, the upper portion all sand. Keep moist and moderately close under a propagating glass. They will root in a month, and must be moved singly into small pots before the roots exist in such quantity as to become matted, using good fibrous peat with enough sand to keep it open. Although, as I have said, the Rondeletia will thrive well in an intermediate temperature, yet, as it is a slow grower, no harm will be done by keeping it for the first twelve months subjected to more warmth, which will be rather an advantage, as in this case it will attain a larger size in the time. Plenty of light is an essential; consequently, it will be well to place the young plants on a side stage immediately under the glass. Very little shade, and that only during the hottest part of the day, will be needed, for its somewhat hard-textured leaves are not susceptible of injury from the sun, unless where absolute scorching takes place. A moderate

admission of air in the middle of the day, proportionate to the state of the weather, will be required, closing early enough to secure the benefit of a close sun-heated atmosphere for some hours in the latter part of the afternoon, which is very much to be preferred to the heat originating from the use of fire alone. A slight damping overhead with the syringe at this time should also be given. As soon as the young plants have fairly commenced to grow it will be necessary to stop the leading shoot. Attention to this matter is of more importance in the case of the plant under notice than in that of the majority of stove subjects, for if left to itself it is of a somewhat erect habit, and the wood is of so hard a nature that when it acquires age and strength the stopping must be repeated until a sufficiently bushy head is secured. By the middle of July the plants will require another shift, giving pots 2 inches or 3 inches larger, according to the quantity of roots they have got, using the soil a little more lumpy; it should also be of the best fibrous description that will last long, for though the plant will bear its ball reducing with a view to partially renewing the soil when it has become exhausted or adhesive, still its roots are produced in such a mass that the soil cannot be shaken away without disrooting to an extent that does not take place with the generality of the occupants of the stove, which usually have roots of quite a different description. It thus becomes necessary to provide soil that will be of an enduring nature, so as to keep in a suitable condition for several years. Tie the shoots out in a horizontal position to lay the groundwork for the future specimen.

AS AUTUMN approaches, give more air, less moisture in the atmosphere, and discontinue the use of the syringe and shading, reducing the heat as winter comes on, during which time the night temperature may be kept at an intermediate warmth of 50° or 55°, with 5° or 10° higher in the day. Give more heat about the beginning of March, shortly after which they will require moving into other pots, which should be 3 inches or 4 inches larger, using soil of a similar description to that advised at the last removal; again pinch out the points of all shoots which have got so long as to have a straggling appearance. As the summer advances treat as recommended during the preceding. It is naturally so free in flowering, that it will bloom in a small state; if blooming subjects are required, a portion of the plants may be allowed to flower, and in that case no further stopping must be resorted to until after the blooming is over. Those intended to be grown on so as to get them up to a considerable size with as little delay as possible must be stopped as they require it, and all will bear another shift about July. Be guided by the condition of the roots and the size of the plants individually in determining the size of the pots they are moved into. Continue to treat as in the previous autumn and during the following winter as before. From this time forward the treatment required will be of a routine character as regards spring potting, which will be all the shift the plants will need during the year. They may be expected to flower in June each season, and if, on the decay of the blooms, they are cut out and not much length of the shoots removed, they will again flower by the middle of September. When in bloom the plants will bear removing to a conservatory or other house where required for decorative purposes. After

THE SECOND FLOWERING they must have the whole of the shoots shortened so far back as to keep the specimens in a sufficiently compact form without too much formality; by this means they can be kept in a healthy blooming state for years, and when they get as large as required, they must not be potted oftener than every second year, but may be had in a vigorous condition by the use of manure water. When so treated it is well to cut the plants back after they have completed their first bloom, and as soon as they have broken turn them out of the pots, reduce the ball one-third or so and return them to the same pots. By carrying out the operation at

this season there will be time enough for the roots to get possession of the new soil, and to make stout growth before winter, which will bloom satisfactorily the ensuing summer. So managed, the plants will last for many years. They will also bear heading down within a few inches of the pot, but in this case the operation should be performed early in the spring, just as growth is about to commence, first letting the soil get moderately dry, at once placing the plants in a brisk heat, and giving no water, except by syringing overhead, until the cut-back stools have pushed shoots. When these have advanced 2 inches or 3 inches, the balls may be freely reduced and placed in smaller pots, after which stopping of the shoots and subsequent treatment may be in accordance with the manner in which the young plants have been advised to be grown.

INSECTS.—Mealy bug and scale will live on the *Rondeletia* but do not thrive as on foliage of a more succulent description. When affected with these the best remedy is washing with strong applications of insecticide in the autumn when growth is complete. Thrips, if present in the house or pit in which it is grown, will also attack it. These can be best destroyed by fumigation or washing with Tobacco water. T. BAINES.

A GIANT ARUM.

(*AMORPHOPHALLUS CAMPANULATUS*.)

WITH the exception of the Sumatran giant Arum *Conophallus Titanum*, this is the largest flowered member of that section of the Arad family, characterised by a fleshy tuber, on which an annual leaf and inflorescence are borne, and also by a most repulsive odour arising from the flowers. Although an old garden plant, the true *A. campanulatus* has hitherto been comparatively rare, the many plants grown under this name being in almost every case *A. Rivieri* or *A. bulbifer*, species of similar habit, but of much smaller stature. Mr. Bull flowered a good specimen in 1872, and since then the plant has now and then been seen at Kew, but never at its best until this year, when in the porch attached to the Water Lily house, a large bed of tubers was planted, several of which bore full-sized inflorescences this year. This plant is one of the most curious of all forms of vegetable life. The enormous tuber, in some specimens as large as a huge red Cabbage and weighing 20 pounds, pushes up in the early summer a large bell-shaped spathe, quite large enough to cover a man's head, with wavy margins and curved outwards. On the outer side the colour is a deep purplish brown, whilst inside it is paler and spotted all over with whitish spots, the lower portion of the tube being deep blood red. In the centre of this spathe the thick club-shaped spadix is borne, the club end of which is dark purple, and the lower end or handle where the anthers and styles are arranged in separate whorls is pale yellow. This altogether singular inflorescence lasts about a week, and it is during the earlier portion of this period that a most repulsive odour is given off by the flowers, an odour stronger than that of any *Stapelia*, stronger even than any fetid odour given off by any known plant, and permeating the surrounding air for a considerable distance. In the case of the *Stapelia* or Carrion Plant we know that the odour of putrid meat that it possesses has its special purpose, viz., that of deceiving blue-bottle flies, which, under the impression that they have found a safe hatching place for their ova, deposit them among the hairs and round the disk of the flowers where they hatch, and the maggots in wriggling about in search of food bring the pollen in contact with the stigma, and so play an important part in the economy of the flower. In this case, therefore, a disagreeable odour has a purpose of its own, but in the case of the *Amorphophallus* one is at a loss for the reason of Nature's having created a flower with such an overpoweringly bad smell, unless it be to prevent browsing animals from devouring the otherwise tempting flowers, which, being borne just above the ground level, are within easy reach.

After the decay of the spathe the leaf is pushed up, and this is as striking in form as the rest of the plant. The stalk is quite 5 feet in height on several of the Kew plants, and nearly 6 inches in diameter at the base, very succulent, round, and narrowing gradually towards the apex, where it terminates in a blade with a number of divisions which strike off in a horizontal direction, so as to form an umbrella-like head with a spread of 5 feet or 6 feet. The stem is pale green, thickly mottled with a whitish colour, and the surface is quite smooth, as in *A. Rivieri* and others. The

The handsome character of many of the Arad family, and particularly those of a habit similar to the above, has attracted a little attention of late years, and we have now *Godwinia gigas*, a most beautiful stove plant of large dimensions, and not unlike *A. campanulatus* in its general appearance; several tall-growing and stately *Dracontiums*, and the plant of which a life-size picture is to be seen in one of the museums at Kew, and also of which we are glad to learn there is a strong young plant among the cultivated collection in these gardens, viz., *Conophallus Titanum*. To those within reach



Large specimen of the Hop Hornbeam (*Ostrya carpinifolia*) at Kew; height 55 feet.

leaf lasts during the whole summer, and is highly ornamental, a particularly fine specimen in a pot in the Palm house at Kew being quite stately in appearance, and standing out quite distinct from the surrounding plants. In the autumn the leaf decays, after which water should be withheld and the tuber wintered along with *Gloxinias* and other tuberous-rooted plants. *A. campanulatus* is a common plant in the Indian Archipelago, and is particularly plentiful in the damp woods about Calcutta. It loves to grow in a loose, rich soil, and requires abundance of water at the roots during its growing season. Roxburgh says that in the northern Circars it is cultivated for its tubers, "which are highly esteemed for their wholesome and nourishing qualities. It deserves to be called the 'Telinga Potato.'"

of Kew it may be interesting to know that an excellent representation of the flower of *Amorphophallus campanulatus* is to be seen among Miss North's paintings of Indian plants. B.

5051.—**Scalded plants.**—Surely there must have been some gas in "M.'s" house to cause the wholesale destruction recorded at p. 171. No doubt, too, the plants were predisposed to injury, if, as seems to have been the case, *Pelargoniums*, *Ferns*, *Grapes*, *Cucumbers*, &c., were all grown in one house. It was only natural that the *Hoya carnosa* escaped; its leathery leaves will bear almost anything except actual baking in an oven. "M." also exaggerates the temperature of a house facing south at seven o'clock in the morning when he

assumes that it might be 130° or 140°. It might be were the pipes or flues very hot indeed, not otherwise. If the house, however, is heated by flues and sulphur fumes were mixed with morning sunshine, the wreck of the plants would be easily accounted for. A deluge of cold water and a sudden rush of cold air would forward the work of destruction. In fact, plants seldom suffer much from being overheated, though when we get to measure heat by three figures it does become rather dangerous if they are incautiously cooled. Could "M.'s" house been shaded and gradually cooled down to its normal temperature, probably he would hardly have lost a leaf. But sweltering in heat one moment, a cold bath and a rush of cold air the next, vegetation succumbed between the two extremes at once as a matter of course and of necessity.—D. T. F.

—Something unusual seems to have befallen your correspondent's plants. Fumigation with sulphur or a dose of sulphuric acid could not have done the work of destruction as described quicker than it has been effected. The house being unopened until seven o'clock or even later would have done no harm; the temperature would not have been anything like 130° or 140°, as "M." supposes. Even in a lean-to house facing south it would not be likely to reach more than 80° by eight o'clock. Watering copiously with cold water was an unnecessary proceeding, but would not have done the mischief described. The cause, whatever it may be, lies beyond anything named by your correspondent, and is not likely to be detected except on the spot.—T. B.

PLANTS IN FLOWER.

Lilies in pots.—A neighbour has just shown me a *Lilium auratum* in a 12 inch pot with a single stem, 6 feet high, with sixty-one blooms on it. They are good in colour, but not large, and the stem being quite flat, it is evident two or more stems have grown together.—J. K. D., *Stamford Hill*.

Snappedragons.—A fine gathering of these has been sent to us by Mr. Caudwell, who evidently possesses a fine strain representing a great variety of colours. Some sorts have their flowers streaked and striped in a curious way, but the finest are the richly coloured selfs which generally have a white throat to set off, as it were, the rich hues of the corollas.

Spiræa callosa atrosanguinea is an extremely pretty variety, the finest we have seen of this *Spiræa*. As its name implies, the flowers are deep in colour, being of a beautiful carmine and produced in wide-spreading flat clusters. Mr. Joseph Stevens brings us some flowers of it from his garden at Byfleet.

Trachelium cœruleum is generally grown as a greenhouse plant, but it is quite hardy enough for the open border in some localities. For instance, Mr. Stevens, of Byfleet, brings us a remarkably fine flowering specimen of it grown in the open air. It no doubt requires a warm spot and a light and well-drained soil.

Striped French Marigolds.—Some blooms of an uncommonly fine strain of these flowers have been sent to us by Messrs. Stuart & Mein, Kelso. They are large, symmetrically shaped, and perfect as regards colour and marking. These flowers have long been favourites in Scotland and the north of England, not only for flower garden decoration, but also for exhibition.

Bessera elegans.—This rare Mexican bulbous plant is now flowering in the open air in Mr. Stevens' garden at Grasmere, Byfleet, where in the light warm soil there it evidently flourishes admirably, though it is much more satisfactory to grow it under glass, as the flowers do not expand well so late in the season. It is a pretty and elegant plant, and one well worth growing.

Nerine Fothergilli major.—We have received from Mr. Hubert, of Guernsey, a glorious flower-spike of this brilliantly coloured bulbous plant, which he says flowers admirably in the open air in Guernsey. Nothing in the way of colour can surpass the splendour of this flower, and its texture seems too delicate even for that of a flower. By artificial light the crystalline cells of the petals sparkle like jewels.

Lindenia rivalis.—This plant, lately brought into notice by Messrs. Veitch, seems to improve greatly under good cultivation, judging by plants of it now in flower in the Royal Exotic Nursery, Chelsea. Good sized specimens of it well grown are really handsome, bearing, as they do, several snow-white blossoms set off to advantage by the ever-

green foliage. The flowers have long narrow tubes upwards of 6 inches in length terminated by a wheel-shaped corolla some 2 inches across and of thick texture. This *Lindenia* cannot be recommended as a decorative plant in the common meaning of the phrase, but all who like plants for their own sake would, we think, admire it.

Linaria bipartita speciosa is one of the prettiest of all the annual Toadflaxes, and one that lasts a considerable time in bloom. It grows about a foot high, and bears dense terminal spikes of pretty mauve coloured flowers, which are not unlike some of the Orchises. We saw a patch of it the other day in Mr. Bull's nursery at Chelsea, and were much struck with its beauty and elegant growth.

Vaccinium erythrinum.—I enclose a spray of this Ericaceous shrub, which seems to be undeservedly neglected. Although from the Tropics, it flourishes well in a cool greenhouse, where it is nicely in flower here at the present time. I suppose the dark crimson bells contain much nectar, as they are, I see, constantly visited by the admiral butterflies.—J. M., *Charmouth, Dorset*.

Eustoma exaltatum.—This plant somewhat resembles *Lisianthus Russellianus*, though smaller. The flowers are cup-shaped and of a purplish blue. It is of slender growth, about 1½ feet high, and furnished with glaucous foliage. It is seemingly only of biennial duration, and, being a native of South California, requires greenhouse treatment. Some flowers of it have been sent to us by Mr. Kirsten, Bridlington, who evidently grows it successfully.

Rosa rugosa.—Mr. Harvey, Aigburth, Liverpool, sends us some uncommonly fine fruiting and flowering specimens of this valuable Japanese Rose cut from a bush 2 yards across. The fruits are an inch across and of a bright orange-red. On the same branch with the hips are some flowers and buds, and these will be continually produced till late in the autumn. All who do not know this Rose should make its acquaintance next season.

Kniphofia grandis is the finest object imaginable at the present time in the rock garden at Kew. Its huge spikes, 5 feet or 6 feet high, tower above all the rest, and are terminated by large dense clusters of bright scarlet and yellow blossoms, which are extremely showy. This truly grand hardy plant ought to be propagated in nurseries by the thousand, so that it could be bought at a more reasonable price than it can be now. It is a fine variety of *K. Uvaria*.

Venidium calendulaceum.—Some flowers of this lovely composite, sent to us by Mr. Kirsten, remind us of its value in the garden at this season of the year. It possesses quite a distinct beauty of its own, being sufficiently different from the multitudes of composites now in bloom to enable anyone to easily recognise it. The flowers are about the size of a crown-piece, and have close or overlapping florets of a bright orange colour, with a distinct whitish ring and spots at their interior base. It is of low spreading growth, and produces an abundant and continuous crop of bloom.

Sibthorpia europæa variegata.—This pretty little creeper (the subject of one of the earliest coloured plates in THE GARDEN) is seldom seen in such a flourishing condition as it is at the present time in a cool compartment of the T range at Kew. A pan about 18 inches in diameter is covered with a dense mass of its slender shoots and pretty silver-edged leaves, altogether forming a very beautiful and interesting object. It is often seen in an unsatisfactory condition, but the specimen in question has evidently met with treatment suited to its requirements.

Anagallis tenella.—This little humble creeper is a common denizen of bog and marshy pastures where its exquisite pale pink bells, from its lowly position, usually fail to obtain the attention they deserve. It is, however, rather to its use as a semi-cultivated plant that I wish to draw attention. Twining through the Sphagnum

in an Orchid pot or basket and allowed to hang down, it forms most delicate festoons, and if well exposed to light, flowers freely from every axil. When growing in comparatively dry peaty soil, such as would suit a *Cattleya*, for instance, the flowers assume a much deeper tint than when very moist. To the microscopist it is of interest on account of the remarkable hairs which clothe the stamens. It is but little subject to insects or other parasites, even if grown in moderate heat, but when once established requires to be kept within due bounds.—G. PIM.

Pelargoniums Duke and Duchess of Albany.—These two new varieties belong to the regal class, distinguished by the crisped appearance of the petals, at first sight giving the flower the appearance of being semi-double, though in reality it is not so. The two kinds above named are now in bloom in Mr. W. Bull's nursery at Chelsea. *Duke of Albany* has large flowers of a deep crimson-maroon colour, with a narrow margin of rosy lake and a lighter coloured centre. *Duchess of Albany* has purplish violet coloured blooms, with the upper petals marked with maroon. Both are very fine sorts, and will no doubt become popular as they become better known.

Hybrid Passiflora.—I send you a flower of a hybrid *Passiflora* raised here between *P. mutabilis* and a scarlet species incorrectly sent me for *P. amabilis*, perhaps *P. Michauxi*. It is of slender habit, but exceedingly floriferous. The plant is in an 8-inch pot, yet it runs freely, and flowers at almost every joint. I notice that on the parent plants the flowers close the second day after opening, but in the case of the progeny they remain expanded until the third day. The foliage underneath is deeply stained with dark red. It is also sweet scented.—J. M., *Charmouth, Dorset*.

* * A very pretty plant, having trilobed leaves and flowers over 4 inches across, of a pleasing deep lilac colour, with a fringe of violet and white.

Pink Mrs. Sinkins and Clove Ernest Albert.—I send you blooms of Mrs. Sinkins Pink, gathered from plants not allowed to bloom in May and June. I also send for your opinion blooms of a new seedling Clove which I purpose calling Ernest Albert.—W. BAYLOR HARTLAND, *Temple Hill, Cork*.

* * The Pink is certainly the finest of all the white-flowered sorts, and the fringed petals make it very distinct. The new Clove above referred to is indeed a fine one. It resembles the old crimson Clove, but the flowers are larger and fuller and the petals broader. The scent, too, is delicious.

Anthurium ferriense.—This new hybrid, raised by M. Bergman, proves to be a far finer plant than was at first anticipated. In character it is somewhat different from its parents, viz., *A. Andreanum* and the ivory white flowered *A. ornatum*. In foliage it rather resembles the latter, the leaves being large and heart-shaped. The flower-stems, which are raised well above the foliage, bear large heart-shaped spathe of a much softer shade of scarlet than that of *Andreanum*, being more inclined to rose. The spadix, too, instead of being deflexed, is almost erect, as in *A. ornatum*. Some fine flowering specimens of it may now be seen in Messrs. Veitch's nursery, King's Road, Chelsea.

Lilium speciosum and its varieties.—A fine display of these Lilies may now be seen in Mr. Bull's nursery, where, arranged in a spacious house, are some hundreds of plants, and rising, as they do, from an undergrowth of Ferns and Palms, their beauty and grace are seen to advantage. All these Lilies are grown in 5-inch or 6-inch pots in the open air and removed under glass just as the blooms are on the point of expanding, so that they are then preserved from heavy rains which so damage the bloom at this season, especially in London where the rain is so much surcharged with soot. All the varieties of *L. speciosum* are represented in this display, among which we noted the ordinary form of roseum, together with a greatly improved kind known as *Schrymakersi*. The deeper coloured *rubrum* is likewise largely grown. In the beautiful *cruentum* variety the

colour extends over a much greater part of the flower than in the ordinary *rubrum*, which is also the case with *purpuratum*, another beautiful dark sort; of white flowers we noted *album* and *album corymbiflorum* together with the distinct *Kretzeri*, to which allusion was recently made in THE GARDEN. With these numbers of *Lilium speciosum* are interspersed, some of the double and single Tiger Lily, and of *L. auratum*, the whole forming a most pleasing spectacle, scarcely less beautiful than the exhibition of Orchids which for so long has been the chief feature of Mr. Bull's nursery.

Pelargonium Archduke Rudolph.—This is a new variety of Continental origin belonging to quite a distinct race, the members of which are few in number, perhaps not more than three or four. A few weeks ago we alluded to another of the race named *Princess Stephanie*, which is somewhat similar to that now under notice, but the flowers, borne in dense trusses in the same way, are of a different shade of pink, being more inclined to magenta. All the varieties of this section are dwarf and sturdy in growth, and all appear to be very floriferous; hence their value as decorative plants. It may be obtained from most of the large nurseries. We lately saw a fine group of it at Messrs. Veitch's.

Costus afer.—A specimen of this plant is now in flower in the Victoria house at Kew, which is remarkable in that it combines in its mode of producing its flowers two characters on which botanists have founded sections of the *Scitamineæ*, and on one of which Roscoe created a new species of *Costus*, viz. *C. maculatus*. The species of *Costus* generally bear their flowers in heads on the ends of the leafy growths, but *C. maculatus* is distinguished by its bearing a radical inflorescence apart from the leaf-bearing shoots, as in the *Curcumas*, &c. The Kew plant, however, proves that such a character can no longer be considered as belonging to a separate species, much less as a sectional one, as both terminal and radical flower-scapes are borne by the same specimen. The flowers of *C. afer* are white, with a yellow blotch on the lower segment, and resemble both in size and form those of *Thunia alba*.—B.

Tydeas.—By care in cultivation these pretty quaintly marked flowers may be had at almost any season of the year, but with very simple treatment they are now at their best, and as we saw them the other day in a London garden, they presented a beautiful sight. The roots were started in the spring and potted in light vegetable soil; in it the plants made rapid progress; the house was kept at an intermediate temperature at first, but afterwards plenty of air was given. When the pots became filled with roots weak manure water was supplied at intervals, and the result was a fine display of showy flowers. Named kinds constituted the bulk, but a batch of seedlings possessed great variety, all the different types being represented. The seed was sown very early in the spring and the plants grown on rapidly since.

Lasiantha macrantha floribunda.—A showier plant than this for the greenhouse in September could not be named. The typical *L. macrantha* is a tolerably well-known plant, but not so this particular variety, which far surpasses the old form as regards floriferousness. The flowers are perhaps not quite so large as those borne by a well-grown, vigorous young plant of *L. macrantha*, but they are produced twice as freely, being borne in clusters of half a dozen or more together. Each flower is some 3 inches or 4 inches across, shallow saucer shaped, and of the richest purple imaginable. Plants of this *floribunda* variety may now be seen in perfection in the Royal Exotic Nursery, Chelsea, in which there is a grand pair of specimens in tubs placed on either side of the entrance corridor. These are some 8 feet or 9 feet in height, and their spreading heads, which measure 4 feet or 5 feet through, are upheld by clean stems some 4 feet in height. These plants are now covered with bloom, and, as may be imagined, are very effective. As regards culture, the main point is getting the young wood thoroughly well ripened early in the summer.

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 11.

THERE were few exhibits besides Dahlias at this meeting; indeed, it was quite a Dahlia show, each section of that flower being furnished in large numbers by various exhibitors. The following plants were awarded first-class certificates:—

VANDA INSIGNIS SCHROEDERIANA.—One of the most delicate tinted Orchids we have ever seen, and quite distinct from any other. The flowers, produced in axillary spikes, are about 1½ inches across, of wax-like texture, and have wavy edged sepals and petals. The colour is a pleasing lemon-yellow, prettily mottled with buff, while the broad labellum is snow-white, as is also the central column. The lip is beautifully formed, being shell-like with an incurved rim. Shown by Mr. Ballantine, Baron Schroeder's gardener at The Dell, Egham.

MILTONIA SPECTABILIS BICOLOR.—The finest form of this Orchid that has been yet seen. The habit of growth is the same as that of the well-known *M. spectabilis*, and the spikes are one-flowered. The sepals and petals measure over 3 inches across and are pure white. The lip, which is 2 inches across, is also pure white, but with a beautiful wedge-shaped blotch of rich amethyst-purple on its upper half. This superb Orchid was shown by Mr. Southgate's gardener, Mr. Salter, Selborne, Streatham.

BEGONIA NOVELTY.—A hybrid recently raised in Messrs. Veitch's nursery between *B. lineata* and *B. Davisii*, the latter being the seed parent. It seems to be the forerunner of quite a new and distinct race of hybrid Begonias, as its characters are peculiar to itself. It is of small and dwarf growth. The leaves are from 2 inches to 4 inches across, at present peltate in shape, of a deep ground colour, copiously spotted and freckled with silvery grey. The flowers are small, of a bright cherry-rose, produced on stems some 6 inches high. It is a pretty plant even now, and will no doubt become more so under good cultivation.

ANGULOEA EBURNEA.—A handsome and at the same time a very rare Orchid. In habit of growth and size and shape of flower it somewhat resembles the yellow *A. Clowesi*, but the blooms are of ivory whiteness, with not a trace of colour. The perfume, too, being powerfully aromatic, adds to its attractions. It is quite a different plant from the white *Anguloea uniflora*. Exhibited by Mr. Dorman's gardener (Mr. White), The Firs, Sydenham.

SELAGINELLA CANALICULATA.—One of the caulescent or stemmed species. The stems in the plants shown ranged from 1 foot to 2 feet high. The fronds, given off at right angles to the stems, are finely divided and very graceful. It is likely to prove a highly valuable plant for the stove. Shown by the introducers, Messrs. Veitch.

PENTSTEMON PURPLE QUEEN.—Flower-spike massive, bearing unusually large blossoms of fine shape. The colour is a bright violet-purple with a white throat. *P. CERISE QUEEN*, similar in spike and flower to the preceding, but a brilliant carmine-cerise in colour with a white throat. Both exhibited by the raiser, M. Lemoine, Nancy.

DAHLIA MRS. W. E. GLADSTONE.—A show variety of large size, perfect form, and of a delicate blush pink, different from any other. *D. DUCHESS OF WESTMINSTER.*—The finest single white variety yet raised, finer even than *White Queen*. The flowers are of perfect shape, with broad, thick recurved florets, which overlap each other so as to form a perfectly circular flower. It is said to be of compact growth and very free in flower. Both shown by Mr. Turner, Royal Nurseries, Slough.

RHODODENDRON BRILLIANT.—A superb seedling variety belonging to the *javanicum* race, and the finest of its colour yet raised. It is in the way of one called *Duchess of Edinburgh*, but the truss is larger as well as the blooms, which are 2½ inches across, of fine shape, and of a bright scarlet inclined to orange-red. Shown by the raisers, Messrs. Veitch.

DAHLIA (single) DR. MOFFATT.—In the way of *Paragon*, but larger, with more defined colours, and altogether an improvement on that well-known favourite variety. The florets are broad and less rounded than in *Paragon*, but quite as thick in texture. *D. CETEWAYO.*—An extremely dark-coloured sort, almost a black-crimson, and of a velvety lustre. The flower is perfect in form and substance. *D. B. BARKAWAY.*—A most distinct sort, having flowers of medium size and thick textured florets. The colour of the florets is a deep scarlet, broadly and distinctly edged with orange-red, which renders it distinct from any other. These were all shown by Mr. Ware, Hale Farm Nursery, Tottenham.

BEGONIA THE QUEEN.—A double tuberous variety, having the largest flowers of any yet exhibited, being more like small *Pæonies* than *Begonia* blooms. The latter are rosette-like, white, shaded with yellow at the base. The habit is good and floriferous. Exhibited by Mr. E. Edwards, Holmside, Leighton Buzzard.

An interesting collection of Pitcher Plants was shown by Mr. B. S. Williams from his nursery at Upper Holloway. Besides such well known kinds as *N. Rafflesiana*, *Hookeriana*, and others, there was a numerous collection of new varieties, chiefly seedlings. The most noteworthy of these were *N. excelsior*, an extremely handsome variety in the way of *Rafflesiana*, but with larger and more highly coloured pitchers more freely produced. This is quite a new seedling variety, only exhibited once before. Among others were *N. Mastersiana*, the fine new hybrid from *N. sanguinea* and *distillatoria*; *N. khayensis*, a newly introduced species; *N. Outramiana*, robusta, *Henryana*, *Dormaniana splendida*, *superba*, and *compacta*, all new hybrid varieties remarkable for their robust growth and highly coloured and elegantly-shaped pitchers, which in all are produced abundantly; indeed the extreme productiveness of pitchers in this new race renders the varieties most valuable for decorative purposes. Besides this collection of *Nepenthes*, Mr. Williams showed flowering plants of his new autumn flowering *Amaryllis* Mrs. Garfield, *Galeandra Baueri*, similar to *G. Devoniana*, but smaller in all its parts, and a really pretty Orchid; and *Uraria picta*, a singular Leguminous plant of elegant growth, bearing leaves with long narrow leaflets, having a broad silvery mid-rib. A silver-gilt medal was awarded to Mr. Williams for his group.

Some rare Orchids were shown from Mr. Southgate's choice collection by Mr. Salter. Among these were *Batemannia Burti*, a singularly handsome Orchid, with flowers some 4 inches across, of a peculiar reddish brown colour; *Cattleya Wallacei*, a white form of the pretty *C. Eldorado*; *Oncidium plagianthum*, one of the *O. crispum* section and handsome in its way; *Miltonia spectabilis lilacina*, a variety with the flowers of a rich deep lilac, with scarcely any white in the labellum; and *M. Clowesi grandiflora*, a really superb variety, with flowers much larger than ordinary and of a richer colour. A cultural commendation was accorded to Mr. Smee's gardener (Mr. Cummins), The Grange, Wallington, for a finely grown specimen of *Miltonia Regnelli superba*, a variety having larger flowers than those of the type and brighter coloured. The plant shown bore two tall spikes, each carrying six blossoms. Mr. Smee also exhibited a plant of *Warszewiczella Wendlandi*, a rare species, but not particularly beautiful, the sepals and petals being greenish and the large lip of a bluish purple, edged with white.

Mr. G. F. Wilson exhibited a very fine spike, over a yard long, of *Odontoglossum Halli xanthoglossum*. It bore twenty-one flowers on the spike, and was really a very fine example of this choice variety. Mr. Wilson also showed from his wood garden at Wisley some uncommonly fine specimens of *Gentiana asclepiadea*, both the blue and white varieties. These stems were upwards of a yard in height and wreathed with blossoms—a sufficient proof that the plant does well in the rich soil of a shady wood. A cultural commendation was awarded. Flowers of the *platyphyllum* variety of *Lilium auratum*, the largest flowered of all, were likewise shown by Mr. Wilson.

A few interesting plants were shown by Mr. Ware, Hale Farm Nursery, Tottenham. Among these were *Gladiolus sulphureus*, a species with a dense spike of rather small flowers of a pale lemon-yellow; *Milla biflora*, some fine specimens of this beautiful Mexican bulb; *Cyclobothra flava*, another Mexican bulb of considerable beauty; *Lilium longiflorum variegatum*, with variegated foliage; *L. speciosum rubrum*, and an extremely fine and highly coloured variety named *Melpomene*, probably the deepest and richest tinted variety of all. Mr. Ware also exhibited an uncommonly pretty Rose named *Persian White*. It was of medium size, semi-double, white when expanded, but in the bud state a delicate pink, and in that stage very pretty.

DAHLIAS, as we before remarked, were extensively shown, and made a most attractive display. The largest exhibitor was Mr. Turner, Royal Nurseries, Slough, to whom a gold medal was deservedly awarded. His collection numbered several hundred blooms of show varieties, comprising, we should say, the pick of his extensive collection. He also had a fine collection of *Pompones* and singles, all set up in that tasteful and effective manner which always characterises Mr. Turner's exhibits. The sorts shown were much the same as those the week previous at the Crystal Palace, and of which we gave a full list.

Silver-gilt medals were awarded to Messrs. Cannell, Swanley; Messrs. Paul, Cheshunt; and Mr. Ware, Tottenham, for large collections of Dahlias. In Messrs. Cannell's stands were some striking new seedlings of the single class, notably two seedlings of the species *D. glabrata*, one called *White Lily*, the other *Little Maud*. Both these had small flowers, and the deep mauve tint of the latter was very pleasing. Another new sort was named *White Juarezi*, an improved form of one called *Constance*, the flowers being larger and the florets fringed. It is a handsome and valuable variety for cutting, as is also the *white Constance*. Glare of the Garden, a first-rate bedding sort of a vivid scarlet, was shown admirably, as were also the hundred blooms of show kinds. There was a collection, too, of double *Zinnias* from Swanley, the finest formed flowers we have seen, and very varied in colour. Messrs. Paul, of Cheshunt, who seem to have taken to Dahlia cultivation lately on a large scale, had a fine group of show *Pompones* and single varieties, and Mr. Ware, who has shown single Dahlias so numerous and so admirably this year, had again a grand collection representing nearly a hundred sorts, including the finest yet raised. Some of the new seedlings are a great advance upon older kinds. Show Dahlias were likewise exhibited by Messrs. Rawlings, of Romford, Mr. Glasscock, Bishop's Stortford, and Messrs. Keynes, Salisbury, to whom a bronze Banksian medal was awarded.

Fruit and vegetables.—A cultural commendation was accorded to Mr. Miles, gardener to Lord Carington, Wycombe Abbey, for a fine pair of *Queen Pine-apples*, each weighing 6 lbs. Cultural commendations were also awarded to Mr. Holland, Stanmore Hall, for three superb bunches of *Black Alicante Grape*, large in bunch and berry and excellent in finish; and to Mr. Deverill, Banbury, for three dozen specimens of a new Onion called *Rousham Park Hero*, said to be a first-rate and most productive variety. The bulbs are flattish and attain a large size, the three dozen shown weighing 16½ lbs., 18 lbs., and 17½ lbs. respectively. The seeds from which these were produced were sown the first week in February, and the bulbs were pulled the third week in August. A fine new Tomato, named *King's Prolific*, was shown by the raiser, Mr. King, seed grower, Rowsham, Aylesbury. The fruits are large, even-shaped, and are produced in huge clusters; it is evidently a first-rate sort. Mr. Ashby, Boredown, Whitchurch, showed a new *Celery* which the committee considered identical with the variety *Incomparable*. Messrs. Carter showed a new *Capsicum* called *Mango Pepper*; the fruits are large, oblong, of a bright yellow and freely produced on small plants. Among the seedling Melons shown was an enormous fruit named *The Kaiser*,

from Mr. Freeman, Beechwood Park. Mr. Eckford again showed his new *Pae Progress* in excellent condition. Messrs. Vilmoren, Paris, sent bunches of two new Turnips named *Purple Top Yellow Dutch* and *Early Munich*, both excellent early varieties. A seedling Grape raised from the *Black Monukka* was shown by Mr. Ross, Welford Park. The committee desired to see it again. A seedling Apple named *Howlett's Perfection* was shown by Mr. Golding, Romford, and Mr. Laxton again showed the *American Dartmouth Crab*, a small Apple of excellent quality. Messrs. Lane, Berkhamstead, sent a good collection of *Cobs* and *Filberts* and several varieties of early Apples, among which were the following excellent sorts: *Irish Peach*, *Lord Suffield*, *Manks Codlin*, *Cellini*, *Golden Spire*, *Early Julien*, *Quarrenden*, *Worcester Pearmain*, *Oslin*, *Early Strawberry*, *Keswick Codlin*, *Yorkshire Beauty*, *Magnum Bonum*, and *Early Harvey*. A similar collection was shown by Mr. L. Killick, Langley, Maidstone, which included some uncommonly fine fruits of *Duchess of Oldenburgh*, the best that have been seen for years; also enormous fruits of *Lord Derby* and good examples of such fine sorts as *Premier*, *Gascoigne Seedling*, *Beauty of Kent*, *Annie Elizabeth*, *Red Hawthornden* or *Counsellor*, and *Echlinville Seedling*. A collection of some two dozen varieties of Tomatoes was exhibited by Messrs. Veitch, which included several uncommon sorts. The most noteworthy were: *Keyes' Prolific*, *King of Tomatoes*, *Hathaway's Excelsior*, *Trentham Fillbasket*, *Orangefield*, *Vick's Criterion*, *Queen of Tomatoes*, *Grapeshoot*, *Cherry Red*, *Cherry Yellow*, and *Currant Fruited*.

INTERNATIONAL POTATO EXHIBITION.

SEPT. 13 & 14.

THE ninth annual Potato exhibition, instituted for the encouragement of Potato culture and diffusion of improved varieties, was held at the Crystal Palace on Thursday and Friday last. Compared with exhibitions that have preceded it, this was the largest display of Potatoes ever brought together, there being no fewer than 1780 dishes in the competing classes, representing something like 16,000 tubers. These, together with the numerous collections shown by non-competitors, made a total of over 20,000 Potatoes. Throughout the exhibition there was uniformly high quality, both as regards size and evenness of form, thus indicating that in the present season the Potato crop, like that of the Apple, is the best that we have had for years.

The schedule was a comprehensive one, and framed so as to give all classes of growers a chance. Twenty-two classes were provided, and six, five, four, and three prizes were offered in each, the whole amount of the prize-money offered being upwards of £140. As we give a list of awards in our advertising columns, we will confine our remarks to the sorts shown in the best collections.

TWENTY-FOUR VARIETIES.—In this class seventeen collections were shown. The first prize was awarded to Mr. Gribble, Maidenhead, who showed the following varieties: *White Rounds*—Schoolmaster, Early Regent, Porter's Excelsior, King of Potatoes, Reading Hero, Bedford Prolific, Fillbasket, *Coloured Rounds*—Matchless, Vicar of Laleham, Improved Peach Blow, Beauty of Kent, Heather Bell, Reading Russet. *White Kidneys*—Cosmopolitan, Woodstock, Magnum Bonum, Covent Garden Perfection, International. *Coloured Kidneys*—Prizetaker, American Purple, Mr. Bresee, Extra Early Vermont, and Beauty of Hebron. The other five prize-winning collections came from Byfield, Dumfries, Aylesbury, Mildenhall, and Loughborough. The other exhibitors came from Beddington (Surrey), Salisbury, Woodstock, Banbury, Sutton (Surrey), Aylesford (Kent), Wisbeach, and Rainbury (Wilts), so that, as may be seen, the exhibitors were from widely separated localities.

EIGHTEEN VARIETIES.—The prizes in this class were given by Messrs. Sutton. There were twenty

competitors, and their collections, like those in the principal class for two dozen sorts, were uncommonly fine. The best collection came from Mr. Hughes, Byfield, who had of *Red Rounds*—Queen of the Valley, Adirondack, Radstock Beauty, Vicar of Laleham, and Reading Russet; of *White Rounds*—Porter's Excelsior, White Emperor, and Fillbasket; of *White Kidneys*—Jackson's Improved Woodstock, Myatt's Prolific, Snowdrop, Edgecote Seedling, and Lady Truscott; of *Red Kidneys*—Mr. Bresee, Prizetaker, Red Fluke, and Beauty of Hebron. The other prize winners in this class came from Woodstock, Banbury, Aylesbury, and Faversham, and all showed extremely fine dishes.

TWELVE VARIETIES.—This was a large class, there being eighteen exhibitors, all of whom showed admirable collections. The best collection came from Mr. J. Millan, Hamstead Park, Newbury. It included *Magnum Bonum*, Reading Hero, Porter's Excelsior, Myatt's Prolific, Pride of America, Woodstock Kidney, among whites; and Superior, Triumph, Red Fluke, Vicar of Laleham, Reading Russet, and Radstock Beauty among reds.

NINE VARIETIES.—Twenty-five collections of nine were shown, the best being from Mr. Tooley, who had fine samples of Prizetaker, American Purple, International, Reading Russet, Queen of the Valley, Woodstock Kidney, Schoolmaster, Mr. Bresee, and Radstock Beauty. In the second lot, Mr. R. Dean had a fine collection, in which were Mr. Bresee, International, Reading Russet, Schoolmaster, Vicar of Laleham, and *Magnum Bonum*. The third collection came from Dumfries.

EIGHT VARIETIES.—This class was restricted to sorts sent out by Messrs. Sutton, and consisted of five collections. The first was shown by Mr. Ross, Welford Park, Newberry. The varieties to be shown in this class were Sutton's Early Border, *Magnum Bonum*, First and Best, Reading Russet, Reading Hero, Prizetaker, Early Regent, and Fillbasket. The other collections were also very fine.

SIX VARIETIES.—Twenty-seven competitors showed in this class, the first from Mr. Tooley, Banbury, contained Porter's Excelsior, Radstock Beauty, Reading Russet, Schoolmaster, Mr. Bresee, and Woodstock Kidney. In the second, from Mr. Kerr, Dumfries, were Snowflake, White Elephant, Schoolmaster, Adirondack, International, and Vicar of Laleham; and in the third were Schoolmaster, Vicar of Laleham, Lapstone, Queen of the Valley, Reading Russet, and Rector of Woodstock.

FOUR VARIETIES.—This class was for the largest and handsomest tubers. The best four dishes, from Mr. Hughes, Byfield, consisted of International, Mr. Bresee, Queen of the Valley, and Sutton's Favourite, all large and handsome. Amongst the most prominent in other collections were *White Elephant*, *Magnum Bonum*, *Adirondack*, *Queen of the Valley*, *Mammoth Pearl*, *Trophy*, *Red-skinned Flourball*, and *Beauty of Hebron*.

THREE COLOURED ROUNDS (three dishes) were shown by fourteen exhibitors, the best being a very fine set from Mr. R. Dean, Ealing, who had Vicar of Laleham, Radstock Beauty, and Reading Russet. The second consisted of Vicar of Laleham, Reading Russet, and Red Emperor; the third, Adirondack, Vicar of Laleham, and Beauty of Kent; and the fourth, Grampian, Radstock Beauty, and Adirondack.

THREE WHITE KIDNEYS (three dishes) were shown by eighteen exhibitors. The best came from Mr. Peckworth, who had Woodstock, International, and Royal Ashleaf. The second set consisted of Myatt's Kidney, International, and Snowflake. The third, Edgecote Seedling, Woodstock, and Cosmopolitan; and the fourth, *Magnum Bonum*, International, and Woodstock.

THREE COLOURED KIDNEYS (three dishes).—In this class Mr. R. Dean again showed the best set out of nineteen. He had fine dishes of Mr. Bresee, Prizetaker, and Bountiful. The second prize was taken by Sir Garnet Wolseley (new), Defiance, and Wonderful Red; the third by Prizetaker, Mr. Bresee, and Defiance; and the fourth

by American Purple, Mr. Bresee, and Princess of Wales.

SINGLE DISHES.—Among twenty-one dishes the best was a fine sample of Schoolmaster, from Mr. Kerr; the second, White Emperor; third, Schoolmaster; and an extra prize was gained by Sutton's First and Best. Schoolmaster was shown by twelve. Among sixteen coloured round, the best was Reading Russet; and the same variety took the second and third prizes. Seventeen dishes of White Kidneys were shown, the best being a new seedling called Sanday's Seedling from Mr. Pearson, Chilwell; the second, Magnum Bonum; and third, International; Magnum Bonum was shown by seven. Mr. Dean had a new sort called Recorder, evidently first-rate. Among nine coloured Kidneys the best was Defiance, from Mr. Kerr; the second, Prizetaker, which also took the third prize.

NEW VARIETIES.—Among nineteen dishes of white-skinned sorts sent out since 1883, the best was Lady Truscott, from Mr. McKinlay, which variety also took the second prize, while Mr. R. Dean took the third with his new white kidney Alderman. There were only seven dishes of red-skinned sorts; the first prize was awarded to The Belle, a kidney shown by Mr. Hills, Durward, Essex. Mr. Kerr showed his kidney Sir Garnet Wolseley for the second, and Mr. Butt took the third with Lee's Defiance.

NEW SEEDLINGS were rather numerous. Prizes were offered for the best white round and the best red round, the best white kidney and the best coloured kidney. Of red rounds there were four sorts shown. Mr. R. Dean's new seedling named

The Dean was selected as the best. It was obtained by crossing Vicar of Laleham and Woodstock Kidney. It is stated to be a greatly improved form of the first named, possessing excellent table quality, of rich colour, and very fine for exhibition. It is much darker than Vicar of Laleham, and finer in form. Mr. Dean also showed the best white round among ten. It is named

Prime Minister, a cross between Magnum Bonum and Woodstock Kidney. It is said to be a first-rate late variety, a robust grower, an enormous cropper, and first-rate in every respect. The tubers shown were large, and inclined to a flattish form. The best coloured kidney among nine was

Edgcote Purple Seedling, shown by Mr. Wiles, Banbury. It is a long, flattish tuber, of a very deep colour, in the way of American Purple. The best white kidney was

Welford Park Kidney, shown by Mr. Ross, the raiser, Welford Park, Newbury. It is a large, handsome, even-shaped tuber, said to possess all the qualities of a first-rate Potato. Twenty-one other sorts of white kidneys were shown.

CERTIFICATES (first class) were awarded to Mr. J. Hughes, Byfield, for white round named Hughes's Prolific and also for white kidney named Beauty of Eydon; to Mr. R. Dean, for Midsummer Kidney—a cross between Success and Woodstock—also for Cardinal, a fine red kidney, a cross between Early Rose and Bountiful; to Mr. Wiles, for Edgcote Purple, a deep purple kidney; to Mr. R. Dean, for Prime Minister, a large white round, a cross between Magnum Bonum and Woodstock Kidney; also to Mr. Dean, for The Dean, the same that took the first prize in the class for new red rounds.

Besides the competing exhibitors there were some 500 dishes shown by various seedsmen. Messrs. Sutton, Reading, showed some 160 varieties, including 24 American sorts, 56 English, 22 being their own distributing, and no fewer than 60 new seedlings; Messrs. Carter showed a very fine collection numbering some 120 dishes, and similarly large collections were contributed by Messrs. Lee, Hammersmith; Daniels Bros., Norwich; Hooper & Co., Covent Garden; Fidler, Reading, and Harrison & Sons, Leicester.

Old Apple orchards.—I notice an error in my note on this subject in Saturday's GARDEN (p. 204), I am made to say "the old-fashioned standard is not to be relied on. It should read, "most to be relied."—E. B.

NOTES OF THE WEEK.

Forestry exhibition in Edinburgh.—The Queen has, we understand, given her patronage to the International Forestry Exhibition, to be held next year in Edinburgh.

Preston Park, which has just been purchased by the Brighton Corporation for a public park, at a cost of £55,000 was thrown open to the public on Monday last. A formal opening will not take place until it has been properly laid out.

A garden in the Styrian Mountains.—M. Kropatsch sends us from Laxenberg a few photos of gardens in these mountains, showing, however, mainly the mountain vegetation. It is a lovely country, and one which we hope will sooner or later, like many other pleasant mountain sides, be graced with groves and pleasant gardens.

The Veitch Memorial Medal was awarded at the late Dublin show to Mr. Roberts, gardener to Lady Bury, Charleville Forest, for very fine bunches of Muscat Hamburg Grapes. The heavy bunches of Grapes that Mr. Roberts exhibited some time ago in Dublin will doubtless be in the recollection of some of our readers.

Hips of Rosa macrophylla sent to us by Canon Ellacombe from his garden at Bitton show well what a handsome fruited species it is, the hips being over an inch in length and half-an-inch in diameter. They are somewhat pear-shaped and bright red in colour. There is much beauty in the hips of various Roses, and even for that alone some species would be well worth a place in our gardens. It would be interesting to know from Canon Ellacombe, who possesses such a rich collection of Roses, what other species bear such ornamental fruits.

Exhibition of Apples.—We hear that it has been definitely settled to hold an important exhibition of Apples next month in the Royal Horticultural Gardens at Chiswick. It will be held in the large vinery, and will be opened on the 4th of October, and remain open until the 18th. A sub-committee has been formed to carry out the matter. A congress of Apple cultivators is also to be held, at which information will be furnished respecting the soils best suited for particular sorts of Apples, and the stocks on which they succeed best. The complicated subject of synonyms will likewise be considered. Such an exhibition will certainly be a step in the right direction. Information respecting it can be had of Mr. A. F. Barron, Royal Horticultural Gardens, Chiswick, or of Mr. L. Killick, Langley, Maidstone.

OBITUARY.

Rev. Henry Harpur-Crewe.—We have to record, with deep regret, the death of the Rev. H. HARPUR-CREWE, rector of Drayton-Beauchamp, Tring, which took place on the 7th inst., after a long and painful illness. In the gardening world Mr. Harpur-Crewe was best known as an enthusiastic cultivator of hardy plants, particularly bulbs, and horticulture is indebted to him for the introduction of many new plants from the south of Europe and the east belonging to that class. His garden at Drayton-Beauchamp bears evidence of his skill as a cultivator and his industry as a collector, for it contains one of the richest collections of hardy plants in Europe. Mr. Crewe was not only a skilful gardener, but a botanist, and his knowledge of bulbous plants especially was very extensive. His particular favourites were Crocuses, Snowdrops, and Tulips, and he often remarked to us that he would hunt the world over in order to make a complete collection of these plants. He made special excursions to South Europe, the Levant, and Mediterranean region to collect Crocuses and other plants, and many will have pleasant recollections of receiving liberal supplies of bulbs from him, the result of his travels. As a horticulturist he has been intimately connected with the fortunes of the Royal Horticultural Society; for some time he was a member

of its council, and also of its floral committee. The loss of his communications to THE GARDEN will, we are sure, be felt by our readers as much as by ourselves. His writings, founded upon practical experience, were always instructive. "But," says one who knew him well, "his love for flowers was not more marked and striking than his love for what is upright, genuine, straightforward, and true, and his contempt of all that is dishonourable, deceitful, and base. He leaves many friends to bewail an irreparable loss."

Mr. George Berry.—We have also to record with much regret the death of Mr. BERRY, long the manager of the woodland department of Longleat. He died in the prime of life, and we feel sure his loss will be much felt by all those concerned with the noble park and woods of which he had charge. He took a peculiar interest in gardening of the nobler sort, such as indeed we never observed in a forester (who usually has enough on his hands without thinking of flowers) before. He took up the wild garden idea and carried it out admirably at Longleat, and many notes and articles of his in THE GARDEN show the knowledge he had of the subject. However, his especial work was the forestry, and that was admirably done. We have rarely seen a place where the useful and the ornamental in tree life were so well attended to, and never with so happy a result. The trees are stately and noble, and there are many fine specimens, while the many flowering shrubs and evergreens for miles make the place a paradise in spring and early summer. The result is in great part owing to Berry's judgment and taste, for he had a good sense of what was right in landscape, and his taking up the "wild garden" notion and putting all the things from Lily of the Valley to Plume Poppy (*Bocconia*) that could be as easily grown as native plants or weeds beside the wide and picturesque drives shows how strong was his sympathy with true gardening. This plan of naturalisation he carried out with the free shrubs and those that are often omitted in shrub planting, such as the Sweet Brier and the Bog Myrtle.

Seedling Pea (*J. Pottle*).—Evidently a valuable late kind. The pods are large and well filled with Peas of good flavour.

New Strawberry (*Connon & Reid*).—The fruits reached us in no better condition than on the last occasion. From what we could see of them they are of good size, but, as sent, flavourless.

Twin Cucumbers.—Mr. Holmes, Hornsea, Hull, has sent us monstrous fruits of a Cucumber. Two are fused together, while a third is borne from the same point, but detached. Twin Cucumbers united together are by no means uncommon.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of fruit.—*J. A.*—1, Chasselas Musqué; 2, Foster's White Seedling. As regards the shanking and cracking, we presume that the border is at fault; No. 1 is very liable to crack in the berry if planted in a cold, deep border. The large Pear is Glou Morceau, the small one not known.—*R. S.*—1, Warner's King; 2, Beauty of Kent; 3, Cellini; 4, Duchess of Oldenburgh.—*Alnwick.*—Too bruised to name.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—*J. C. K.*—1, *Bartonia aurea*; 2, *Sanvitalia procumbens* fl.-pl.; 3, *Fedum carneum variegatum*.—*J. Denny.*—*Chelone barbata*.—*A. B. R.*—1, *Heuchera Richardsoni*; 2, *Impatiens glandulifera*; 3, *Pyrus salicifolia*.—*J. M.*—*Lavatera unguiculata*.—*E. J. W.*—*Peperomia arifolia*.—*H. M. H.*—*Gongora galeata*, better known as *Acropera Loddigesii*. Please send the *Miltonia* again when in bloom.—*R. Wilson.*—*Anagracum Chailleanum*.—*J. C. C.*—1, *Achillea Ptarmica* fl.-pl.; 2, *Staphylea pinnata* (Bladder Nut).—*Asia.*—*Burlingtonia candida*; the spotting of the flowers is no doubt caused by excessive moisture in the atmosphere of the house.—*G. C. Short.*—*Erica radiata* var. *discolor*.

BOOKS RECEIVED.

Contributions to American Botany, part xi, being (1) a list of plants from South-western Texas and Northern Mexico, collected chiefly by Dr. E. Palmer in 1879-80; (2) Gamopetalae to Acotyledones; also descriptions of some new western species, by Sereno Watson.

This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

AN AUTUMN BORDER AT MUNSTEAD.

ALREADY the open-air flower season is on the wane; still in gardens where the best use is made of showy autumn plants a bright effect may be maintained for some time yet. We were in the garden at Munstead, near Godalming, the other day and noticed what beautiful effects Miss Jekyll had produced by means of hardy plants alone though only about a score of really showy plants contributed to the display. The glory of the garden is the Tritomas, which flourish here with unwonted vigour. They give brightness and warmth everywhere about the place, but they are not dotted about indiscriminately or repeated everywhere; on the contrary, they are collected into bold masses in a few good positions, where their brilliancy lights up the surroundings. The plants are much dwarfer than usual this year, attributable, Miss Jekyll thinks, to the spell of dry weather which occurred while the spikes were developing. As it is, they are some 5 feet high, very bushy and healthy, thus showing that the deep, light soil here exactly suits them. Besides the ordinary *T. Uvaria*, which comprises the bulk of the masses, there is the giant *T. nobilis*, by far the finest of all. It has a tall, stout stem and a spike of flowers nearly a foot long. This is just past. *T. Saundersi* promises to be fine next year. Next to the Tritomas the most prominent plants are the numerous composites, all of which seem to do uncommonly well here, but only a selection of the best is grown. For instance, of the large family of Asters we only saw about half-a-dozen. These were the very fine *A. Amellus*, the dwarf large-flowered species; *A. longifolius formosus*, *A. Novæ-Angliæ pulchellus*, and *A. Novi-Belgii*. The best advantage is taken of these by planting them in bold masses, where they produce a telling effect. Among the multitude of yellow composites, Miss Jekyll is also discriminative. Just now we have *Harpalum rigidum*, *Rudbeckia speciosa* (Newmanni), and two or three species of *Helianthus*, notably *H. giganteus*, a tall, elegant growing plant, producing an abundance of rather small clear yellow flowers. The most remarkable, however, of all the yellow composites is *Venidium calendulaceum*, a plant not half known enough, and whose worth is not appreciated. It is a low spreading and dense growing plant, with a greyish green foliage, and this mass is copiously studded with flowers about the size of a crown-piece, of a bright orange-yellow with dark centre. It is a most continuous bloomer, producing flowers from June till October. It is treated here as a half hardy annual, and is highly esteemed for cutting. It evidently likes a light soil. Other conspicuous plants in the autumn border are the Tiger Lilies, which do uncommonly well, the splendens variety being the best. *L. auratum* flourishes to perfection, some of the stems being 8 feet in height, carrying a huge head of flowers.

Lobelia splendens, the tall, dark-leaved species, with intensely brilliant flowers, is an important plant as regards display. There are some

three square yards of it in one bold mass. It has a grand affect. Beneath the shade of a high wall are groups of the Japanese Anemones, both pink and white, and opposite is a long broad line of *Gladioli* which, in their warm quarters at the foot of a south wall, have flowered freely, and the tips of the spike are still unfolding blossoms. The autumn Aconite (*A. autumnale*) is an indispensable plant when the Larkspurs are over. It is bold in growth, and very free as regards bloom, the colour being a deep purple. Another grand plant is *Chrysanthemum maximum*, a magnified Ox-eye Daisy, growing 4 feet or more high, with large white flower-heads. The fine variety of *Campanula persicifolia* illustrated in THE GARDEN last week is still in bloom, and so is *Senecio pulcher*, which is flowering capitally this year everywhere. Here it is a fine object in a fully exposed border.

Phygelis capensis, an interesting and pretty South African shrub is in flower. It is of low spreading growth, and bears spikes of smallish scarlet-red blossoms, like the *Ourisia coccinea*, which, by the way, is flowering in the rock garden in a cool, moist spot—just such a place as the plant likes. *Sedum spectabile* is of course made much of, and its foliage, too, blends charmingly with that of other plants. Among the dwarf Evening Primroses is *Oenothera missouriensis*, with large pale yellow cups. *Celsia cretica* forms a fine feature, its stems rising some 5 feet high, thickly set with bloom, giving them the appearance of golden rods. It is treated as a tender biennial. The alpine garden is lit up by little gatherings of the bright yellow *Potentilla dubia*, a capital plant that everyone should have for a rockery; *Pyrola rotundifolia*, with Lily-of-the-Valley-like spikes, and *Parnassia palustris* by the square yard. *Vallota purpurea* is finely in flower against the foot of a south wall; the bulbs were planted in April. *Crinum capense*, too, is in fine bloom in a similar position. Miss Jekyll has been successful, also, in flowering the pretty *Sparaxis pulcherrima* this year, and she is sanguine of producing even finer spikes next year. Such a charming plant as this is worth a deal of trouble. Autumn Roses are good this year at Munstead; the bushes are free from mildew and hardy. Hard by the rosery is a mass of the lemon-coloured Sunflower, a truly noble flower with a delicate tone of yellow, and without the coarseness of the common Sunflower.

LILIES IN SHADE.

THERE has been from time to time a good deal of discussion with regard to whether Lilies succeed best in full exposure, partial shade, or entire shade. We have just had an illustration of Lily culture in absolute shade furnished by Mr. G. F. Wilson, who has brought four or five grand examples of *L. speciosum* from his garden at Heatherbank, Weybridge, that have never, he says, seen the sun. These plants have been grown in a sunk pit beneath the shade of a rather thick wood, and this pit has been protected by a sort of movable frame, fitted with lights for ventilation. The growth of Lilies under such conditions is remarkable, all the stems brought us being from 5 feet to 5½ feet high, and each bearing from five to eight finely developed blossoms. The foliage is uncommonly vigorous, a sufficient indication that the plants have had all their requirements satisfied. It is not only large and of a healthy green, but the stems are clothed with it to the base; shade, therefore, seems to be an essential condition as regards

the successful culture of *Lilium speciosum*, notwithstanding the fact that many grow this Lily in full exposure, but usually with the result of undersized stems and sickly green foliage. The varieties brought by Mr. Wilson are the pure white (album), the best form having large, broad petalled flowers, and the new *Melpomene*, raised by Mr. C. M. Hovey, of Boston, Mass. This is a very fine Lily in the way of the rubrum variety, but usually larger, more brightly coloured, and with each petal distinctly margined with white.

DOES POTATO GROWING PAY?

WE lifted, on the 7th inst., a small quantity of Potatoes of a sort we have under the name of Golden Dwarf, for which I have always had a great liking. It produces good crops generally, and the tubers possess a peculiar nutty flavour. It is a second Early White round, streaked and splashed with purple round the eyes, which are mostly at one end, and rather shallow. The tubers were spread out on the ground and left till next day before being stored, so as to get them quite dry, and to have as little soil adhering to them as possible. I have sometimes been told that private gardening does not pay, an assertion which I have always disputed, and I think I shall manage to make good my case. On taking a look at the lifted tubers, I was so much struck with their fine appearance that I determined on having the produce weighed. The piece of ground occupied 60 square yards. The first picking gave us 504 lbs. of tubers fit for kitchen use, a second gave 54 lbs. for seed, and the last gave 34 lbs. of waste, a total of 5 cwt. 1 qr. 4 lbs., which, not to be too particular, gives the enormous produce of over 22 tons per acre. Taking, therefore, the present market rates realised by Potatoes, I leave anyone to calculate whether Potato-growing in private gardens will pay or not. A smaller lot of Beauty of Hebron, growing alongside, gave a few more pounds in proportion to space, but with only about half the waste. Bresee's Climax, on the same quarter, was very nearly as good, but all sorts here are turning out well, and are very little affected by disease as yet. One of your correspondents lately recommended the use of sifted coal ashes in Potato growing. I gave the plan a trial this season, but I do not think it worth repeating. I tried it on a piece of Snowflake alongside the same sort manured with ordinary farmyard manure rotted in a pit. Although the produce was about equal, the latter had the advantage in point of size of tuber. Perhaps on heavy or clayey soils the ashes might have the advantage.

R. STEVENS.

Paston.

Figs and salt spray.—I find that the foliage of Fig trees has withstood the recent gales better than that of almost any kind of tree we have. On the side exposed to the salt-laden breeze the leaves of most trees are shrivelled up as if scalded, but those of the Fig are quite green, and on the south coast a good crop of fine fruit is now being ripened. Figs enjoy all the sun-heat that our climate affords, and the warmest corner that can be found for them should be selected. It is only in the southern counties that they ripen their fruit on open-air standards, but as wall trees they may be successfully grown over a wide area. The Fig is such a handsome tree, that even without fruit it is well worthy of being planted for ornamental effect, and in no way does it show itself off to such good advantage as in the form of a standard on

Grass. Such trees form striking objects in gardens in Hants and Sussex, and are especially luxuriant in the Isle of Wight.—J. G. H.

Summer Golden Pippin Apple.—This beautiful Apple is well adapted for gardens of limited extent, as it is a variety that produces a maximum quantity of bright golden fruit in the smallest possible space, and it seldom fails to fruit well in seasons when Apples are scarce. I find it very suitable for espaliers or dwarf bushes requiring very little pruning to keep it within bounds, and when loaded with clusters of its bright looking fruits it is highly ornamental. It is a great favourite with market growers in Kent, being one of the sorts that always realise a good price; for although a small Apple, its quality is so well known, that its market value is higher than that of larger and more showy fruits.—J. G. H.

PLANTS IN FLOWER.

Mucuna imbricata.—This climbing plant of the Pea family is now flowering in the Palm house at Kew. It presents a singular appearance, as the flowers are almost black, and produced in dense clusters about the size of Black Hamburgh Grapes; indeed, at a distance they appear to be bunches of black Grapes. It is an inhabitant of the hot jungles of India, and requires a hot, moist stove and plenty of space in which to ramble.

Yellow Tree Carnation.—Flowers of a beautiful seedling Tree Carnation have been sent to us by Mr. Knight, gardener at The Oaks, Epsom. They are very double and of good shape, and the colour, a soft primrose-yellow, is very pleasing and distinct from that of other sorts. There is room enough yet for new Tree Carnations of first-rate quality, and particularly yellows and whites, which are not abundant. Mr. Knight proposes calling his seedling Primrose Queen.

Tropæolum tuberosum.—Mr. Kingsmill sends a wreath of this beautiful Nasturtium from his garden at Eastcott, Pinner, where a plant of it festoons an old Holly tree about 12 feet in height. The abundant crop of bright orange-red blossoms which it produces has an extremely pretty effect in contrast with the sombre green of the foliage of the Holly. Mr. Kingsmill also sends a branch of the Flame Nasturtium (*T. speciosum*) laden with fruits of various shades of blue and green.

Pelargonium ardens majus.—Some excellent specimens of this beautiful Cape species have been sent to us by Mr. Field, Stanley Hall, Bridgenorth, who remarks that, though much neglected, he finds it most useful for cutting from, a dozen plants having afforded many handfuls of bloom for a long time. The foliage is good, being of a cheerful shade of green, and the flowers, though small, are of a peculiarly rich crimson-red, quite distinct from that of other species. It is a plant of easy culture.

Torenia rubens.—This is a pretty addition to stove plants, and different from either *T. asiatica* or *T. Pournieri*, though resembling both in size and form of the flowers. It is of trailing, slender growth, and therefore pendulous when grown in a suspended basket, a purpose for which it is admirably suited. The flowers are of a uniform purple colour, and of that peculiar shade which blends so admirably with the foliage. It is now finely in flower in Messrs. Veitch's nursery at Chelsea, where it is grown in hanging baskets.

Calceolaria amplexicaulis.—Surely this plant cannot be much known, or it would be a commoner plant than it is. It is most effective planted in a mass, the growth being bushy and flowers abundant. In the garden at Munstead there is a huge circular bed planted with this *Calceolaria* and *Salvia patens*. The blending of the two colours, a sulphur-yellow and deep indigo-

blue, produces a fine effect, and the two plants go well together in respect to their growth. It is about as hardy as the common bedding *Calceolaria*.

Hypericum oblongifolium is now in great beauty at Glasnevin, where its large golden cup-shaped flowers are produced in abundance. One plant has been in the same position for twenty years, and although it has been occasionally injured by very severe frosts, the old woody stem remains, and becomes a vigorous bush. The stock can easily be kept up by means of cuttings. *H. triflorum* is a worthy companion to it, and as seen in the fine old garden belonging to Mr. Phineas Riall, Old Conna Hill, near Bray, amongst rare and handsome foliaged shrubs, its mass of golden blossoms is a sight not soon to be forgotten. The eye had scarcely ceased to admire the golden glory of this fine shrub, when Mr. Riall pointed to a mass of brilliant scarlet blossoms outlined on the wall, hanging in wild luxuriance from a doorway, and twisting in and out amongst the branches of the wall trees. This was *Tropæolum speciosum* in flower and fruit; the deep bluish fruit or seeds add also to its beauty and interest.—J. DOUGLAS.

Nerine japonica.—This appears to be distinct from the rest of the *Nerines*, judging by specimens sent to us by Messrs. Smith from their Caledonia Nursery, Guernsey. Its flowers somewhat resemble those of *N. Fothergilli*, but the stamens are twice as long, and form quite a feather-like head. The colour is similar to that of *N. Fothergilli* and quite as brilliant. We had not hitherto seen this species in flower, though it appears to have been introduced some eight years ago. Such a pretty plant is worth growing for autumn bloom.

Gloxinias.—A selection of blooms of seedling *Gloxinias* has been sent to us by Messrs. Jones & North, florists, Lewisham, representing some uncommonly fine sorts. All of them are of the erect-flowered type, and have very large-spreading corollas. The majority are richly-coloured self varieties, but a few are copiously spotted and freckled with various tints on a white ground. These spotted varieties we consider the most beautiful, and raisers should endeavour to pay more attention to this class than to the other and commoner sorts.

Bomarea Shuttleworthi.—A flower of this new species has been sent to us by Mrs. Brooks from her garden at Hesse House, Ewell, Surrey, who, we believe, was the first to flower it in this country. It is a pretty plant, somewhat in the way of *B. Caldasiana* (figured in *THE GARDEN*, Vol. XX., p. 138). The growth is slender and twining, the foliage small and glossy, and the flowers are produced in pendulous umbels from the tips of the shoots. They are about 1½ inches long, of an orange-red and clear yellow, and copiously spotted inside with dark crimson. It is a pretty greenhouse climber of easy culture.

Abelia rupestris has been in flower for a long time, and is a pretty little shrub, hardy enough around London except in the case of very severe winters. It forms a somewhat spreading, very twiggy bush, generally not more than 2 feet or 3 feet high, with cheerful looking foliage and white flowers suffused more or less with pink. These flowers are borne in clusters at the end of every shoot, even the smallest contributing its share; they are tubular in shape, about an inch long, and very agreeably scented. It forms a suitable little bush for the rock garden or wherever a small-growing shrub that will not encroach on its weaker growing neighbours is needed. When planted against and trained to a wall it runs up to a height of 6 feet, and is a very pretty object if the wall does not exceed that height. So situated, it of course commences to flower earlier than in the open, and on a south wall the blossoms are now past. This *Abelia* is one of Fortune's introductions from China.—H.

Hypericum oblongifolium and **patulum.**—Too much cannot be said in commendation of these two beautiful shrubby St. Johns Worts, which are now among the most attractive of the

few shrubs in bloom. Healthy full-grown bushes of them are now profusely laden with golden-cupped flowers, borne in clusters of twos and threes at the tips of the slender twigs. These species are a good deal alike, and are apt to be confused; but it is important to know the distinction, for where one thrives perhaps the other will not. Both come under the head of dwarf shrubs, but *patulum* seldom exceeds 2 feet in height, while *oblongifolium* grows 4 feet, and sometimes 5 feet, in height, and has darker foliage and rather larger flowers. The two differ, moreover, in habit; *patulum* is spreading, the slender shoots falling over gracefully on all sides of the plant, while *oblongifolium* is erect in growth. This difference, however, is not so perceptible in a small state such as the plants one usually gets at nurseries. Both of these St. John's Worts are used with admirable effect by Mr. Kay, of Ely Grange, Frant, in his ornamental shrubberies, which he has adorned pretty freely with them. He has them in all positions, but those in partial shade appear to thrive the best.

Curcuma Roscoeana is one of those plants that of late years have fallen into comparative neglect, though it is a most desirable stove plant, possessing handsome foliage and showy flowers. It grows from 1½ feet to 2 feet high, and bears large Canna-like foliage. The showy part of the plant is the spikes of peculiar lip-like bracts, with which the flower-stems are thickly furnished. These bracts are of a bright reddish orange, enclosing two or three smaller flowers of a clear yellow colour. This plant is now in great beauty in Mr. Bull's nursery at Chelsea, where in one of the houses there is a bold group of it in full flower, and has a pretty effect intermixed with other flowering plants. It is a stove plant of easy culture.

Galtonia (Hyacinthus) candicans.—I am glad to see "*Veronica*" drawing attention to this stately and easily grown autumn flower. I got half-a-dozen bulbs last year, which cost me 3d. each. From these I now have six splendid spikes; the tallest is just 5 feet high, and has upwards of forty expanded flowers and buds. Another stem not quite so high is 3 inches in circumference, and has also about forty flowers. The weakest of the six is about 3 feet 10 inches, and has some twenty-five flowers. These are growing in an open border, and have had no particular care or exceptional treatment. The individual flowers are very fine, resembling gigantic Snowdrops in outline, and look well as cut flowers, their waxy texture making them very valuable.—GREENWOOD PIM.

Fruit of Hedychium Gardnerianum.—Is it generally known that the fruit of this plant is as ornamental, if not more so, than the flowers? In 1875, Mr. Bennett, of Hatfield Gardens, exhibited a specimen of the fruit at one of the Horticultural Society's meetings. Mr. Bennett did not secure fertilisation of the flowers of his *Hedychium* by any artificial means, and yet there does not appear to be any instance of this plant fruiting in gardens since that time. Is it because we cut the flower-spikes off as soon as the flowers wither, and so sacrifice the fruit? Even if it proved necessary to resort to artificial fertilisation for the production of the fruit, the trouble would be little compared with the result. Briefly described, the fruits are aggregated together, forming a dense spike of about a foot in length. Each fruit springs from the axil of the bracts which accompany the flowers and splits up into three leathery orange-yellow valves with a seed attached to the middle of each. These seeds, along with a mace-like arellus, are of a brilliant crimson colour, which, along with the orange-yellow of the valves and the bright green bracts, forms a most beautiful, highly-coloured picture.—B.

THERE are so many fine things for the open garden to be had now at all seasons that the question of growing a number of them well and arranging them tastefully is of greater consequence than getting a large collection. Every day we see evidence of the good of growing simple things thoroughly well. Many fuss about third-rate novelties and neglect or forget wholly such things as the Sweet Pea, Lily of the Valley, and Clove Carnation.

VEGETATION IN THE SCILLY ISLES.

ANYONE interested in plants, if in the neighbourhood of the Land's End, would do well to visit these sea-girt rocky isles, easily accessible from Penzance, from which they are distant some 40 miles. There one may see exotic vegetation flourishing with a vigour quite unknown on the mainland, except in such gigantic glass-houses as those at Kew. From a gardening point of view, by far the most interesting of the half-dozen inhabited islands is Tresco. The gardens belonging to the Abbey there, the residence of Mr. Dorrien-Smith, are highly interesting, being wholly unlike any to be found on the mainland, and only comparable with the most delightful of the gardens to be

plumes of tiny white blossoms, too, emit a spicy fragrance. Hosts of other plants of a similar character grow with equal luxuriance, such as American Aloes (Agave), Yuccas, Puyas, of all of which there are many remarkably fine specimens planted in groups about the place. Here may be seen plants from Australia, New Zealand, South Africa, South America, Mexico, South Europe, and North Africa—in fact, from every quarter whose climate is akin to that in the Scilly Isles. The mere names of all the exotic plants which have been acclimatised at Tresco would make a long list, there being nearly a hundred genera of sub-tropical plants represented, and of some there are numerous species. The



A Dracena grove in the Scilly Islands.

found in the Riviera and the Channel Islands. One may derive an idea of the extreme mildness of the climate in these isles from the fact that the temperature seldom falls to the freezing point, the mean of the winter being about 45°, and that of the summer 58°. A further illustration may be gleaned from the fact that new Potatoes are dug from the open ground there at the end of March, and Asparagus may be cut by the middle of February. Favoured by such a climate, and a wonderfully fertile soil of a light character, exotic vegetation flourishes; in short, all the cultivated plants grown in greenhouses with us, besides plants that are hardy here, succeed perfectly in the open air at Tresco. The accompanying illustration is a representation of a grove of old trees of *Dracena* indivisa that forms one of the most striking features in the Abbey gardens. As may be seen, these *Dracenas* were in full flower at the time when the photograph was taken, and just then must have presented a pretty sight; their huge

whole place is one vast sub-tropical garden containing effects impossible to be seen elsewhere carried out on such a grand scale; any attempt to imitate them in our inland climate would be futile.

RAMBLES OF A PLANT COLLECTOR.

IN November last, through the kindness of the English Resident in Nepaul, I was allowed a trip into that little-known territory. I left Durbhungah on November 26, and in three days encamped on the borders of the great Terai Forest, skirting the Himalayas, at a place called Simmerabassa. I was met here by a Nepaulese sepoy sent by the Resident as a guide, and also, I suppose, to watch what I did on behalf of the Nepaulese Government. I stayed on the way to Simmerabassa at a place called Segoulie, one of the British military outposts. I was most hospitably received by the officers of the Bengal cavalry stationed here. The country from Segoulie to Simmerabassa is under Rice and Poppy cultivation. The Rice was being harvested—a heavy crop—and the Poppy plants

were a few inches high. The soil is evidently very rich. As we neared the Terai, Rape was grown largely and the fields were yellow with its bloom. On arrival at Simmerabassa, I took a stroll through the forest for about four miles. The trees were principally *Shorea* (Sal), *Toon*, *Simmul*, and *Sisso*; very few *Orchids* were on the trees, and the plants were uninteresting to me. The following day I marched on to a place called

BICHIOCO, just at the foot of the first hills, the elevation being about 1600 feet. Past here ran a fine river from the mountains, and I took a walk up the stream amongst the hills. *Sisso* trees, growing in the higher parts of the bed of the stream, were covered with *Aerides odoratum*, masses of its roots hanging in the air; *Saccolabium guttatum* and *Aerides* affine grew on all the trees overhanging the stream, and masses of *Pholidota imbricata* and *Cymbidiums* covered the trunks of trees in the shady forest. A fine *Selaginella* like *Wildenovi* grew on nearly all the shady banks. Some of the rocks were covered with *Adiantum Capillus-veneris* and a pretty dwarf red-stemmed *Selaginella*. I was not allowed to go where I wanted always; the sepoy generally said there were “baagh” (tiger) or “hatti” (elephants) there, particularly if the jungle was very thick, or there was hard climbing to be done. I afterwards found an efficient way to overcome these difficulties, however. On this occasion I contented myself with catching a quantity of the thousands of a trout-like fish for my supper. The following day I began to ascend, and by noon was at an elevation of 2200 feet. The scenery was peculiar. In one place a high precipice rose up, composed of what appeared to be pure silver sand; most of the way upwards was bordered by perpendicular walls of coarse gravel topped with *Pines* (*Pinus longifolia*) and “Sal” (*Shorea robusta*). On the Sal trees *Dendrobium fimbriatum* was at home. It did not grow in very dense shade. In my rambles up the small water-courses leading into the river I came across the dried stems of a Lily, and also saw some grand specimens of *Pandanus*, some of which were 15 feet high. A species of *Phoenix* only growing 4 feet high was common; also in one sheltered valley large numbers of a *Wallichia* (probably *W. disticha*, from what I saw afterwards). As yet very few Ferns were seen. I descended again, after “doing poojah” at a fakir's shrine in the gorge of the pass. This shrine is far away from human dwellings, and is kept by a Hindoo; the outside was covered with “Gaidahs,” or Marigolds. My coolies all gave some copper cash, and I did the same, for a prayer for our safe journey. By evening we arrived at a place called

ETOURA, in a valley between two large rivers; here the forest was densest, and I saw the most *Orchids*—plenty of *Phajus* and trees covered with *Aerides*, *Saccolabiums*, and *Dendrobiums*, all of the common sorts. In all the rest stations in Nepaul a good substantial and generally two-storied house is supplied rent free for travellers; the buildings are very dirty generally, but still acceptable places to stop in. I was obliged once, however, to “clear out” and pitch my tent outside, as no arrangements had been made about chimneys, and all the wood smoke from below came into the room I was in above. Some of these rest houses look like Swiss cottages, and are built with brick. After leaving Etoura we ascended a winding road cut in the mountain side overlooking a mountain torrent; the scenery was grand. At an elevation of 1400 feet I saw the first plant of *Vanda teres*, a very large one; it was situated in the fork of a large tree, and overhanging the mountain stream, fully exposed to the sun; when I gathered it there had probably not been a spot of rain for two or three months, and the days were very hot. Of course the atmosphere over the river would always be moist. *Polypodium coronans* was growing in masses with *Dendrobium moschatum*, and of such masses I took several for my own garden. We continued our ascent through this lovely valley, or rather gorge. One rock that split the torrent into two parts was covered with *Pholidota*, *Saccolabiums*, and *Dendrobiums*, and some dwarf shrubs, and on the top

was *Arundinaria*, from the centre of which sprung a huge *Pandanus* with a single stem—such a glorious plant! It looked as though it had been set there by the hand of man. Here also was to be seen the genuine tropical jungle perfectly impassable, so thick were the climbers, roots, and entangled mass of thorny vegetation. Above 2500 feet we lost the thick jungle forest, and came again to thinner vegetation, where *Dendrobium heterocarpum* and *Pierardi* were growing in abundance. After an almost perpendicular ascent of over 2000 feet I arrived at Fort Cesagurri, and passed from the tropical to the

TEMPERATE ZONE. On my way up, *Dendrobium densiflorum*, *D. transparens*, many *Cologyne*s of different species, and loads of *Davallias* and *Polypodiums* covered some of the trees. The fort stands at an elevation of 5800 feet, and has a good bungalow, where I slept, having got some hours ahead of my baggage. The following morning I began to ascend again, and at 6500 feet came to the top of the pass. I noticed *Roses*, *Pears*, *Clematises*, *Berberises*, *Oaks*, *Rhododendrons*, *Violets*, *Ranunculuses*, and many other familiar plants, *Lastreas*, *Onychiums*, *Osmundas*, and *Polypodiums* being most common. The *Oak* trees were completely clothed with *Mosses* and *Ferns*, in which were growing several species of *Cologyne* and *Cymbidium*. I descended another deep valley quite 3000 feet down, and again ascended the

HIGHEST PASS—CHUNDIGERI, 7600 feet. What a glorious sight was now before me. The Himalayas from east to west lay in front like a semi-circle; the atmosphere was perfectly clear, so I was able to see the whole of the Mowey range. It did not look so high as one would have imagined. Some of the near mountains looked as high as Mount Everest; this lay to my right, and a grand peak stood up to the left. I suppose from this pass one sees the greatest stretch of mountains at once to be seen anywhere in the world. Very few of the tops are under 20,000 feet, and several nearly as high as Everest (29,000 feet). The valley of Nepal lay before me, 3500 feet below, and almost straight down; it looked to be all cultivated. To the right was the city of Katmandu; all round in front, east, and west were snow-capped mountains. I have seen many grand sights, and have seen prettier, but I remember nothing so grand as this view from Chundigiri Pass. I descended, and in a few hours was sitting comfortably beside the Residency fire, for it was very cold.

CHARLES MARIES.

THERMOMETERS AND THEIR USES.

MOST people profess to have an acquaintance with the thermometer, but, as a rule, it is only superficial, and often leads them into error. There is good reason to believe that many of the remarkable records of temperature of which we read at times are quite untrustworthy, the instruments being perhaps often wrongly placed as well as misread. First of all, a few words on the thermometer itself is necessary to the full understanding of its purposes and uses. It is simply a heat measurer. The spirit or mercury within the glass tube expands and contracts according to the temperature, and the degree of expansion or contraction indicates the temperature according to the graduated scale, which is, however, quite arbitrary, as a column of either spirit or mercury of any length will answer the purpose if the scale be graduated to suit. It is of great importance, however, that the tube which holds the mercury should be of uniform bore, otherwise the instrument would mislead, for the measure of expansion by the heat would be more or less in one part of the tube than in another. It is the maker's task to look after this; but buyers of thermometers should take care to get accurately-tested instruments. Mercury or alcohol is used for filling the tubes, and both are useful under certain conditions. The alcohol, which is usually coloured for the purpose, is useful for registering low temperatures, as it cannot be frozen; but it boils at about 120° Fahrenheit, and is therefore useless for recording

temperatures above that figure. Mercury, on the other hand, has a much wider range upwards, as it does not boil under 600°; but it freezes when it falls to a certain point below zero. The mercurial instrument is the best for general purposes. The scales in use for reckoning temperature are three in number, viz., Fahrenheit, Reaumur, and Centigrade, the first being the one generally employed in this country except for very delicate purposes. In measuring temperature, it is necessary to agree upon a minimum and maximum point; and in Reaumur and Centigrade the minimum is the freezing point, and the maximum the boiling point; while in Fahrenheit the freezing point is represented by 32°, and the maximum by 212°, or boiling point. It is, after all, only a question of figures; but the Centigrade method is the most intelligible.

WHERE TO PLACE AN OUTDOOR THERMOMETER.—This is a point of some importance, as it is evident, if such a delicate instrument be placed in a position where the temperature is influenced by local agencies, such as a warm wall or other object, that no true record of temperature will be furnished. Since meteorology has engaged so much attention people have become better acquainted with the thermometer, but it is often still used in such a way as to give very extraordinary and incorrect results. A common position for it is against the dwelling-house wall, which, if it happens to be on the north side, may answer pretty well; but if on the south, west, or east, and exposed to the rays of the sun, the record is sure to be wrong and misleading at some period of the day, especially if the thermometer be a self-registering one. A stout stake, standing 4 feet or 5 feet above the surface of the ground, with a shallow box about 1 foot or 15 inches square nailed on to it, and facing north, makes the best thermometer case, provided it is set far enough away from walls or other objects likely to influence the instrument by radiation. It is always warmest within a few feet or yards of a wall facing south, and a thermometer in the shade, but facing such a wall, is sure to record a false temperature. It should be fully exposed to the air about 5 feet from the ground, but should be permanently and effectually shaded from the sun. A self-registering instrument is the best for recording the outdoor temperature, and the minimum should be noted in the morning, and the maximum in the afternoon after the temperature begins to decline. A wet-bulb thermometer should always be placed in the same case in order to register the state of the air as regards moisture. A common thermometer will answer the purpose if the bulb is enclosed in a piece of thin muslin, which should communicate with a tiny cup of clean water below by means of a piece of common wick which draws up the moisture to the muslin and keeps the bulb constantly wet. In dull, damp days both the dry and the wet bulbs will stand alike or nearly so; but on dry days the wet bulb will record the lowest temperature, and the difference between the two will denote the degree of aridity of the atmosphere at the time.

HOTHOUSE THERMOMETERS.—Two sorts of instruments are used in gardens, viz., "top heat" and "bottom heat" thermometers—the first being used to tell the temperature of the air in glass-houses, the other the temperature of hotbeds. The common boxwood-cased thermometer is good enough for all ordinary top-heat purposes, and with a little care lasts a long time, as the wood does not warp or crack. Such thermometers cost 1s. 6d. or 2s., and are generally fairly true. It is, however, advisable to test them by a good instrument, and if any are found to be a degree or so out one way or the other, it should be noted on the margin of the case, and allowed for in the readings. It is highly important that all thermometers in glasshouses be placed in the shade; which can easily be done by placing them in a plain deal case, consisting of a back about 2 inches wide and 1 foot long, with two sides 3 inches deep. This case must be suspended with its back to the sun, end up, and the thermometer placed inside of it. As the ventilation of fruit and plant

houses has to be entirely regulated by the thermometer, it must be carefully studied according to the weather. Not a few of the misfortunes which befall plants under glass are due to neglect on this head. In steady bright weather the thermometer records the temperature of the moment correctly enough, and is safe to go by; but too frequently the sky is overcast, perhaps, at one time and clear at another many times during the day, and when this happens during the cold, keen days of spring and early summer, when there is no real warmth except when the sun shines out, the range of temperature in a hot house is extreme and dangerous unless the ventilation is attended to, and this is one reason why early forcing is such harassing work. At one minute a bright spell of sunshine will run up the temperature of a vinery or plant house to 80° to 100°, necessitating open ventilators to prevent scorching; and next minute a train of black clouds passing over may cause it to drop 20° or 30° or more just as suddenly, necessitating closed ventilators again to prevent injury from the opposite cause. Then, again, the sun breaking out suddenly on a glass roof will raise the temperature of the internal atmosphere many degrees above that recorded at the moment by the mercury, which does not respond so quickly, but takes some time to expand; hence the inexperienced, who are guided by it alone, often delay airing till damage is done. In such sudden bursts of sunshine the right course is to admit air at once for safety's sake, and regulate the amount afterwards, when the thermometer denotes the correct degree.

BOTTOM-HEAT THERMOMETERS have been found to be very useful, and for all kinds of hotbeds employed in the culture of fruit and flowers they should be used. At one time it was the custom to test the heat of a bed by means of a stake thrust into it, and which could be taken out and felt by the hand; and there were and are gardeners who prefer the stake to the thermometer, but it is a foolish prejudice, for the plan is a very unsafe one indeed; whereas a good bottom-heat thermometer always indicates the exact temperature, and misleads no one. We never succeeded in fruiting our Pines methodically, and at the time we wanted them satisfactorily, till we used the bottom-heat thermometer. The main point is to be sure and insert the bulb or base of the tube to the same depth as the roots. It is the temperature of the soil amongst these that we wish to know; but a hotbed is always warmer at the bottom and cooler at the surface than it is in the middle, where the roots generally are, and that must not be forgotten in estimating the temperature of the bed.

J. S. W.

INDOOR GARDEN.

ERANTHEMUMS.

AMONGST the freest growing and most easily managed occupants of the stove are certainly the *Eranthemums*. They are alike suitable for large or small houses, as they bloom in a very small state, or they may be grown to a considerable size. They propagate easily from cuttings put in at any time of the year when half-ripened shoots can be had, yet spring, about the end of March, is the best time to strike them; they will root in two or three weeks in sand, kept close, warm, and moist. After they are well rooted move them singly into 6-inch pots in ordinary loam with a little rotten manure, leaf-mould, and sand, pinching out the points. They will thrive under such conditions of heat, atmospheric moisture, and air as the generality of stove plants that are grown annually for winter flowering succeed with, that is, plenty of light, a little shade when very hot, with air in the middle of the day, syringing when the air is taken off. They are quick growers and mostly gross feeders. By the beginning of July they will require another shift, giving pots proportionate in size to the strength and size the different kinds naturally acquire. Strong growers, like *E. pulchellum* and *E. cinnabarinum*, will bear a second shift into 8-inch or 10-inch pots; weaker growing sorts, such as *E. aspersum* and *E. Ander-*

soni, will do with 7-inch or 8-inch pots. Attend to stopping, or most of the kinds, being erect-habited plants, will run up thin and insufficiently furnished. Encourage growth, and when the roots have got fairly hold of the soil after the last shift use manure water. An ordinary pit where the plants can stand close to the glass will answer best for them during the summer months. The different species bloom at different periods through the late summer, autumn, and winter, but by stopping the shoots of the earliest flowerers later in the season they may be made to bloom later, at which time their flowers will generally be of most use. In September keep the atmosphere drier, cease shading, and give more air so as to harden up the growth. As the weather gets colder see that enough heat is given to prevent their getting chilled, which would seriously affect their flowering. A temperature of 60° in the night, with an increase by day will answer in the later months of the year, and so on for a time afterwards. When coming into bloom stand them close to the glass, which will give much more substance to the flowers, and cause them to last longer. When the blooming is over the plants may be headed back and kept slightly moving until March, when those that are to be retained for another season's flowering should be turned out of their pots, have their balls reduced, and repotted in fresh soil, at the same time striking cuttings of such as it is deemed advisable to increase. Small or medium-sized examples will in most cases be the most desirable. All the following are well worth growing:—

E. PULCHELLUM.—A well-known, most useful winter-blooming kind, with lovely blue flowers produced from every bit of growth. A native of India.

E. SANGUINOLENTUM.—A handsome variegated-leaved species from Madagascar.

E. CINNABARINUM.—A tall-growing sort, that bears beautiful red flowers with a crimson blotch on the bottom lobe. Martaban.

E. ASPERSUM.—A very fine growing beautiful species, with white flowers spotted with purple, and a conspicuous purple spot on the lower lobe. Solomon Islands.

E. ANDERSONI.—A lovely kind, ground colour of flowers white, spotted with crimson; gives a good succession of bloom. India.

E. LAXIFLORUM.—A dwarf habited sort, with compact foliage, and one which produces a profusion of purple flowers. Fiji.

E. STRICTUM.—A large blue-flowered kind from Nepal.

INSECTS.—*Eranthemums* are not so much subject to insects as many plants that require a high temperature to grow them in. Red spider and aphides sometimes make their appearance; syringe freely with clean water for the former, and fumigate with some one of the tobacco preparations for the aphides. T. BAINES.

PANCRATIUMS AND THEIR CULTURE.

THESE constitute a somewhat numerous family of bulbous plants; nearly all of them have white and generally highly fragrant flowers, which, for beauty and elegance, have few equals. They are found indigenous over a wide range of mostly warm countries, extending from South America, the West Indian Islands, to eastern continental India. With few exceptions they require a warm house to grow them in; consequently, the remarks following on their cultivation will refer to such kinds as do the most satisfactorily with stove heat. Like most bulbous subjects, they succeed best in a close, somewhat strong loamy soil, made firm in the pots. They can be raised from seed sown as soon as it is ripe, which will generally be in the autumn, in pans of sifted loam with a little sand added, pressing the material firmly down, scattering the seeds thinly on it, and covering them slightly, after which stand the pans in a temperature of 65°, shading so as to keep the soil from getting dried and requiring more water than should be given before the seeds vegetate. As soon as the young plants

have made their appearance give them more light. Keep them in a temperature such as that just advised until the solar heat increases, when it may be increased proportionately, giving air daily and water when needed; they will not require much, if any, shade. As soon as they have got large enough to handle they should be pricked out 2 inches apart in soil similar to that in which the seeds were sown, pressing it quite firm. They will bear an ordinary stove temperature through the summer and autumn, reducing it in winter proportionately. In spring put them singly in 3-inch pots, making the soil quite solid and draining the pots well. They will require nothing further during the summer and ensuing winter, except treating as to heat, air, and water, as in the previous season.

IN SPRING they will again want more room. The largest will take 7-inch pots; for the weaker plants an inch less will be big enough. Treat in every way as in the past season. By autumn some of the strongest may be large enough to flower, but nothing will be gained by attempting to hurry them to this; it is far better to let them have another season's growth before blooming, as by so doing they will flower so much stronger. Move them in spring into 10-in. or 12-in. pots, treating liberally in all respects so as to get the bulbs as large as possible; in the autumn gradually withhold water, letting the soil get as dry as the plants will bear without injury. They will stand keeping in a semi-dry state through the winter. In the spring, when the temperature is increased and water given, they will again commence growing, and the strongest may be expected to bloom during the summer. All that is further required is to treat generally as so far advised, giving larger pots as the plants seem to require it, but these, in common with most other bulbous subjects, do best with no more disturbance of their roots than can be avoided. With fair usage the bulbs will go on increasing in size and will make offsets, which can be taken off and treated as recommended for the young bulbs raised from seed, the difference being that the offsets can be induced to bloom in less time than seedling plants. The undermentioned are a few of the most desirable kinds:—

P. FRAGRANS.—A very free flowering handsome species, the most generally cultivated of any. It comes from the West Indies.

P. SPECIOSUM.—Another West Indian plant, a stronger grower than the preceding. It usually blooms later in the summer than *P. fragrans*.

P. ZEYLANICUM.—A very handsome kind of medium growth from Ceylon.

P. ROTATUM is from Carolina, and is a smaller grower than some others of the family.

The above are all white-flowered sorts, and will generally be found to be sufficient, except in the case of those who form collections of these plants.

INSECTS.—The smaller species of insects, such as thrips and aphides, that affect stove plants, will live upon *Pancratiums*. These can be destroyed by fumigating with tobacco. Scale and mealy bug where present are the most troublesome, as they get down into the axils of the leaves, from whence they can only be removed by sponging or the use of a soft brush. T. B.

Dianella cœrulea.—This New Zealand plant forms a clump of Sedge-like foliage about a couple of feet high, from amongst which the flower-spikes are produced. They are much branched, and in the early summer are studded with insignificant whitish flowers, which are afterwards succeeded by berries about the size of large Peas of an intense dark blue colour. When in the fruiting stage, as it is at the present time, this plant is very handsome and quite distinct from the plants usually employed for the decoration of the greenhouse or conservatory. It requires a somewhat moist, rather shady position, and generally succeeds better planted out than in pots, although good showy plants may be obtained by this last method of treatment. If in pots, a free, loamy soil, with plenty of drainage and a good supply of

water, is necessary. One thing to be noted is, that birds are very fond of the berries, and will soon make short work of them if they get access thereto. —B.

LISIANTHUS RUSSELLIANUS.

In this *Lisianthus* we have one of the most beautiful of all biennial plants. Its splendid purple campanulate flowers, produced in large terminal panicles, never fail to render it attractive—so much so, that few who see it in bloom and possess the necessary means for growing it fail to make the attempt. From this it might be supposed that it would be much more common than it is, but it is well to mention at the outset that it is a difficult subject to deal with; yet, nevertheless, well worth all the attention that can be bestowed on it. *Lisianthus Russellianus* is indigenous to Texas, and to grow it successfully it must have special treatment, for, unless well managed, it gives a very imperfect idea of its beauty. The seeds should be sown in February; if deferred later the plants do not acquire their wonted strength before autumn. Drain well a 7-inch or 8-inch pot, and then fill it up to within half an inch of the rim with fine sifted peat, to which has been added a moderate quantity of sand; press this firmly down, and on the top lay half an inch of sand, which water well and press the surface smooth; on this scatter the seeds, just pressing them lightly with the hand so as to imbed them in the sand; put a piece of glass that will cover the top of the pot over it, and stand in a saucer, which keep with about an inch of water in it; place in a temperature of 65°, shading carefully from the sun, so that the surface whereon the seeds are sown will not get dry, for no water should be given overhead until the plants have got two pairs of leaves. As soon as the seed has vegetated stand where the seedlings will get plenty of light, but they must not have the sun directly upon them. A piece of thin white tissue paper I have found the best material for protecting them without keeping out the light. Now give enough water to keep the soil well moistened, with some air daily, and when they have got three pairs of leaves move them singly into 3-inch pots.

SUMMER TREATMENT.—A moderate stove temperature will answer through the summer; pinch out the points of the shoots directly they commence to grow after potting; repeat this once more about the middle of July, and move them into 3-inch pots, using fibrous peat and a little leaf-mould. In September they should be placed on a shelf within 12 inches or 15 inches of the roof, standing the pots in shallow pans, giving no more water through the winter on the surface, but when the soil appears to be getting too dry pour about half an inch into the pans; in this way the plants will suck it up. They must not be allowed to get so dry as to flag, or they will be seriously injured, and they will not bear water being applied to the surface during the winter, as it almost invariably causes them to damp off. A temperature of 50° in the night will suit them until the middle of March. An intermediate Orchid house answers for them through the winter. About the time above named they will require moving into their blooming pots. They should now have a large shift; an 8-inch pot will not be too big for a single plant, using good peat with a little leaf-mould and sand. A 12-inch pot will do for three plants, putting them close together in the middle; they should still have a position with their heads near the glass, and again be shaded when the sun comes on them. The night temperature ought now to be 60°, and 70° or 75° in the daytime; they must have as much water as will keep the soil fairly moist; the shoots will grow fast, and will each want a thin stick to support them. As the weather gets warmer raise the heat to 65° or 68° in the night and 80° by day, with air daily, and a moderately moist atmosphere.

FLOWERING SEASON.—By the end of May they will show flower, which will take five or six weeks before it expands. They will keep on blooming for five or six weeks, during which time the plants

may be stood where a little cooler, but not have too much air or be in a draught. They can now be placed further from the glass, where they will be seen more to advantage. After blooming keep on attending to them until the seed is ripe, when it is best to throw them away, bringing on young seedlings each year to take their place.

INSECTS.—The *Lisianthus* is liable to the attacks of aphides, red spider and thrips, especially the latter. Dipping in Tobacco water and sponging with clean water is the most successful remedy.

T. BAINES.

TORENIAS AND THEIR CULTURE.

THESE are soft-wooded plants, procumbent in habit, and attain a medium size. They are free and long continuous flowerers, and are easily grown and propagated. The two species mentioned below are especially adapted for baskets suspended from the rafters of the house in which they are grown. In this way not only are they seen to the best advantage, but they also contribute materially to the general effect of the assemblage of plants with which they are associated. One gain attached to the cultivation of these and other plants of a similar nature is that they occupy so little time in arriving at a blooming state after being started. Most of the *Torenia*s are annuals, and can be raised from seeds sown in the spring and treated to a moderate stove heat, but the most convenient method of propagation, when once in possession of the plants, will usually be from cuttings. They may be struck at any season of the year when young soft shoots can be had that have not a disposition to bloom, such as are generally to be found springing from the base of the plants. If these are taken off in August or September and put in small pots half filled with a mixture of loam, leaf-mould, and sand (the upper part all sand), kept moist, shaded, and covered with a propagating glass in a temperature of 68° or 70°, they will soon strike; when well rooted they should be moved into pots a size larger, using soil composed of loam with a little leaf-mould and sand added, and the points of the shoots should be pinched. They should be kept on a shelf near the roof so as to be under the full influence of the light. As winter advances keep them in a reduced temperature of 60° by night, and a little more in the day, proportionate to the state of the weather. Towards the end of February give some more heat, and as soon as they begin to grow freely move them into 6-inch pots, using similar soil to that advised for the autumn shift; pinch out the points of the shoots again, still keeping them close to the glass. They will need a small stick or two for support. Give more warmth as the days get longer, and by the end of April they will require moving into the pots they are to bloom in; 9-inch or 10-inch pots will be quite large enough. When in these the plants will be better hung up in a position similar to that they are to occupy when in bloom. Should they not seem likely to form shoots enough to make them fully furnished, stop the points once more; put two or three small sticks so as to hold a few of the growths in an erect position, and let the others hang down. An ordinary stove temperature will suffice, giving a little shade in the middle of the day, with air according to the weather, and syringing overhead in the afternoons; they will soon come into flower, and will want nothing more to keep them in condition for many weeks than a supply of weak manure water. Before the plants get too much enfeebled with flowering, towards the close of the summer again strike cuttings, treating them as just recommended, and discarding the old stock.

The stove species that are best worthy of cultivation are *T. asiatica*, which has purple flowers, and *T. pulcherrima*, which does not differ very much in habit from that just named.

INSECTS.—Green fly is their worst enemy, and should it appear, fumigation with Tobacco is the best remedy. The daily use of the syringe, necessary during spring and summer, will generally be found sufficient to keep down red spider, which also sometimes attacks them.

T. B.

STOVE PALMS.

UNTIL within comparatively recent times these elegant plants were rarely seen except in botanic gardens, the general supposition being that they were too large for cultivation in private places. But better acquaintance with them proves that there are many which possess naturally a sufficiently dwarf habit to admit of their being grown for a number of years in pots or similar appliances, by which their growth may be still further restricted, so as to keep them within sufficient bounds to admit of their being accommodated in houses of ordinary size. Many of the species will bear this dwarfing treatment and yet exhibit their elegant form and character in a way to render them beautiful objects for the decoration of rooms and other places where only plants of small size would be admissible. So accommodating are Palms in this respect, that many which naturally attain a large size can be kept quite small whilst still having a healthy appearance. Another peculiarity possessed by these plants, and which goes far to commend them, is that many of the species will grow in a considerably lower temperature than that in which they exist where found indigenous.

THE FAMILY OF PALMS is a large one, containing many genera and a great number of species, comparatively few of which, however, are suitable for the general cultivator, and to such as grow freely it will be better to confine the accompanying details. Those kinds that produce suckers can be increased by division, potting the suckers when taken off singly, and keeping them warm and in a little closer atmosphere until they get established. But the general method of raising these plants is from seeds, which are imported from the countries where they grow naturally. The seeds ought to be fresh, and, supposing them to be started about the beginning of the year, they should be sown thickly in shallow pans, drained and filled with ordinary loam sifted and mixed with enough sand to make it moderately free and porous; put a little fine soil over the seeds and place them in a temperature of from 70° to 75°. There is considerable difference in the time the different species take to germinate, some being much quicker in this than others. When the young plants have made a little growth they must be put singly into small pots before their roots get entangled; if allowed to stop too long in seed-pans they suffer in this way. The seedlings will bear a strong heat during the summer—65° or 70° in the night, although the higher figure is not absolutely necessary, but under it they make more progress. They will do with 10° or 15° higher than this in the daytime. They should have a fair amount of light to keep them from drawing up weakly, with air in the day; shade when the weather is bright, and give plenty of water, without which at all times most kinds will not succeed well, getting a sickly yellow colour. Some of the freest growers will want a little larger pots towards the end of summer; in this the cultivator must be guided by the amount of roots they have made, as it will not do to let them get pot-bound at this early stage. Discontinue shading as the autumn advances, and reduce the temperature day and night; 60° in the night through the winter will answer for all the heat-requiring kinds, with a rise of a few degrees in the day more or less according to the weather. About the end of February all that were not potted a second time will most likely require moving into larger pots, in size proportionate to the size of the particular species and the progress it has made. Such as are 4 inches to 6 inches in diameter will most likely be found large enough, using soil a little heavier than that in which they were started, making the drainage secure and pressing the soil firm. Increase the heat as the days lengthen, giving air and shade as required with plenty of water to the roots, syringing freely overhead daily. Treat generally as advised for the preceding summer and alike similarly through the winter; again give more room about February, shifting them into pots from 2 inches to 4 inches or 6 inches larger as the plants seem to require more or less room, not letting the

roots get cramped at this early stage, except in the case of such as are required for use in a miniature state.

FOR DECORATIVE PURPOSES in a larger state, it will usually be found advisable to grow the different kinds on to a height of 3 feet or 4 feet with as little delay as possible; consequently, until that or something of a like size has been attained it will be well to treat them to as much root-room as will in this way assist free growth. All that is required afterwards is to continue the treatment hitherto advised summer and winter, regulating the size of the pots according to the size the plants are desired to be grown to. Most of the smaller growing kinds can be kept in a healthy state for years in pots from 10 inches to 18 inches in diameter, but when so restricted they must have manure water once or twice a week through the growing season, or the leaves will most likely be deficient of that healthy green colour which adds so



Chamaedorea geoncmiformis.

materially to their appearance. Many of these stove species will bear standing in a warm conservatory for a time during the summer season, and so used will be found very attractive, but they should be returned to warmer quarters as the weather gets cooler. Care ought always to be taken that they have enough shade in bright weather to prevent the leaves being disfigured, for, if scorched with the sun, it takes a considerable time to admit of their regaining their wonted appearance—only possible by reclothing with new leaves. The following will be found a selection of the best kinds for general use:—

ARECA BAURI.—A robust grower, with large, handsome, pinnate leaves. The plant will bear a temperature a little above that of a greenhouse. It comes from Norfolk Island.

A. LUTESCENS.—A straight-stemmed, moderately tall-growing species, with beautiful spreading pinnate leaves; a handsome kind of stately appearance, that can be kept within moderate bounds as to size. It is a good grower, and will succeed in an intermediate temperature. It is from the Mauritius.

A. SÆPIDA.—A stately species, with handsome spreading leaves. It attains a moderate size, but can be kept for years in a comparatively small state. It will bear a warm greenhouse temperature. A native of New Zealand.

A. VERSCHAFFELTI.—A very elegant Palm, with drooping pinnate leaves, that can be kept for years in a small state. It requires to be kept moderately warm in the winter. Mascaren Islands.

CALAMUS DEALBATUS.—A very handsome spiny-stemmed species, of small growth, with ele-

C. KARWINSKIANA.—A most elegant species, but not often met with. It produces five or six



Chamaedorea Karwinskiana.

gantly arched pinnate leaves. It requires to be kept always moderately warm. Madagascar.

CHAMAEDOREA GRAMINIFOLIA.—A lovely plant of slender habit; the narrow, finely-divided leaf segments, which droop elegantly, give it a beau-

stems, each furnished with five or six pinnate leaves about a yard long and of a lively green colour. It is a native of Mexico, and will succeed in a lower temperature than that in which the majority of the *Chamaedoreas* will



Areca sapida.

tiful appearance, especially when in a small state. It is one of the best for table decoration. It comes from Brazil, and will succeed in an intermediate temperature.

thrive. The annexed illustration shows well its habit of growth.

C. GEONOMEFORMIS is a Palm not at all common, but a very handsome one. It grows only

from 2 feet to 4 feet in height, a circumstance which makes it most useful as a decorative plant. The flower-spikes hang gracefully from leaf axils like long necklaces of beads. The leaves, as may be seen by the annexed engraving, are broader and nobler in appearance than those of most of the *Chamaedoreas*. It is a native of Guatemala.

C. GLAUCOPHYLLA.—A very slender-growing species, that in a few years forms a straight, thin stem, furnished with a moderate number of elegant spreading leaves. It only requires a very small pot, and is a beautiful object grouped with other plants. Being a native of Tropical America, it requires warm treatment.

COCOS WEDDELLIANA.—One of the most elegant and beautiful of all Palms in all stages of its growth, from small examples in 6-inch pots to others of a height of 6 feet or 8 feet; it has a slender stem and nicely balanced head of plume-like, arched, drooping, pinnate leaves. It will bear a night temperature of 50° in winter, and will succeed with a proportionately low temperature in summer. It comes from Rio Negro.

DEMONOROPS PALEMBANICUS.—A handsome, stately species, with formidable spines on the stem. The leaves are pinnate and elegantly arched. It requires a warm house to grow it satisfactorily. From Java.

GEONOMA SEEMANNI.—This is a very distinct, compact, dwarf species, with broad, handsome leaves, entire, except a deep indentation at the apex. It can be kept for several years in a comparatively small state. It requires moderately warm treatment. A native of the Chontales Mountains.

G. GRACILIS.—A handsome kind, with leaves of a well-marked character. It comes from South America, and will do with moderate warmth.

KENTIA WENDLANDIANA.—A fine kind of the pinnate-leaved section, very distinct in habit; the toothed segments of the leaves are unequal in size, giving the plant a very fine appearance. It requires a moderate warmth. A native of Queensland.

LATANIA RUBRA.—A species that ultimately attains considerable dimensions, but can be kept for years within manageable size by not giving it too much heat and pot room. It is a plant of noble port, its broad, glossy, palmate leaves having a fine appearance. It will grow in medium heat. Mascaren Islands.

LIVISTONA ALTISSIMA.—A handsome, moderate growing species, with medium-sized palmate leaves, borne on stalks proportionate in length, but not so long as to give the plant a straggling appearance. It does best in a somewhat warm house. A native of Java.

PRITCHARDIA GRANDIS.—One of the grandest of all Palms, attaining comparatively small or medium size. The leaves are somewhat rounded in shape, deeply corrugated, and the outer edge slightly divided into narrow lobes. They are convex in form, and borne on rather erect stalks of medium length. It is a fine addition to the family, being one of the handsomest and most distinct ever introduced. Coming from the South Sea Islands, it requires to be kept warm.

P. PACIFICA.—A handsome, moderate-sized species, with large massive leaves, deeply corrugated, curving in a way that gives the plant a distinct appearance. It likes a fair amount of warmth, and comes from the Polynesian Islands.

STEVENSANIA GRANDIFOLIA.—One of the finest of the broad entire-leaved section, forming, for the moderate size to which the plants grow, enormous leaves, deeply corrugated, deep green in colour, interspersed with small reddish spots. The stem is armed with stout spines. It requires to be grown in a high temperature to bring out its true character, in a good-sized pot some 18 inches in diameter for a specimen 7 feet or 8 feet high. A native of the Seychelle Islands.

THRINAX ELEGANS.—One of the most elegant of the Fan-leaved section, bearing moderately large glossy palmate leaves on long stalks. It looks well in either a large or small state. It comes from the West Indies, and requires a moderate stove temperature.

VERSCHAFFELTIA SPLENDIDA.—This is another of the broad entire-leaved forms. As the lower leaves die off the plant forms a straight, somewhat slender stem surmounted by five or six of its massive leaves, when it has a striking and handsome appearance. It is heavily armed with formidable spines all up the outside of the sheath-like lower part of the leaf-stalks which clasp the stem. It requires a liberal amount of heat both summer and winter. A native of the Seychelle Islands.

The above are only a small selection of the now numerous heat-requiring Palms known to cultivators, but they comprise those that are the most distinct, handsome, and manageable in size, and may be relied on as suitable for general cultivation.

T. BAINES.

MIXED CLIMBERS.

ONE of the best effects that can be made with conservatory climbers may be obtained by mixing *Lapageria rosea* and *Cobæa scandens variegata* together, and letting them hang down from the roof thinly and naturally. In this way they not only look elegant and light, but the foliage of the one shows up the flowers of the other to advantage, and affords a fine contrast as regards colour. The best time to plant the *Lapageria* is in spring, just before the young shoots begin to show; then the roots may be carefully spread out and the plants will start strongly without feeling much check. To grow the *Lapageria* well and keep it in health for a very long period, it is necessary to provide thorough drainage, which may be done by clearing out the border a yard deep or so, and then placing in it a 6-inch layer of broken-up bricks. In order to keep the interstices of these permanently open, a layer of tough fibry peat should be spread over them; the other portion may be filled up with the same kind of peat chopped or broken roughly to pieces and mixed with a liberal sprinkling of clean sharp sand, which will make the whole porous and maintain it in that condition. The *Cobæa* does best in freshly cut, fibry loam, which lasts a long time free and open, and is always preferable for border making to any that has been lying by, as that soon gets close and inert. In starting these climbers, and more especially the *Lapageria*, great watchfulness is required to protect them from slugs which are often carried into a house with new soil, or they hatch in it from eggs previously deposited, and are very destructive, as they are sure to find out young *Lapageria* shoots and take off their tops. To prevent this there is nothing better than the broken chimneys of lamps, over the sharp edges of which slugs cannot crawl. Place them over the points of the shoots as they peep through the ground, and at the same time trapping the slugs should go on by laying down Lettuce leaves and examining them late at night, when the slugs will be caught feeding on them.

S. D.

RESTING AMARYLLISES.

THE resting period of these plants has nearly arrived; indeed, in some cases they are already at rest. During summer we have been keeping our plants in a moderate stove temperature with or without bottom-heat; the latter treatment is best. Many mismanage the *Amaryllis* through not having sufficient knowledge of its manner of growth. In order to grow even decent looking specimens it is necessary to start the bulbs in heat some time early in the year. Growth and flower are both produced (or developed rather) very rapidly; sometimes the flower is first, sometimes the growth. In a little time the flowers open and disappear, the leaves develop to their full size, and it seems as if the resting period was near, but that is a delusion. The plants are waiting to make a second growth greater than the first, and to do this they must be aided by generous treatment. We surface-dress the pots, stir up the plunging material, and give the plants sufficient water. It is this growth that forms the incipient flowers and stems, consolidates the bulbs, and fits them for development during the following season. Now even this process has been completed, and the bulbs require

a season of rest. The water supply and artificial warmth must gradually cease, until both are withheld together. Seedlings require rather different treatment. Even the plants raised last year will remain green a month or two longer, while the plants from this year's seeds have but recently been potted off from the seedling pans. They do not seem inclined to take any rest, but will grow on all through the winter months. About six weeks at a stretch at mid-winter they may go without water, and about the end of January should be reotted.

J. DOUGLAS.

Rochea falcata.—As regularly as the season comes round is the praise of this brilliant plant sounded; yet even while it is so beautiful in places where it is properly treated or where it is allowed to take care of itself, many fail to bloom it. A quantity of little plants, only a few inches high, at Mr. A. J. Hollington's, at Enfield, now each bearing dense masses of scarlet, golden anthered flowers, plainly indicate the treatment required. They occupy a narrow shelf running high up across the inside of the sunny end of a span-roofed greenhouse; sometimes they get water, but little notice is taken of them in their out-of-the-way sunny quarters until they bloom, and then their beauty commands the attention of all.—J. O'B.

Æschynanthus grandiflorus.—The different kinds of *Æschynanthus* form conspicuous objects in the stove when grown in suspended baskets, or when allowed to ramble at will over some such support as an old Tree Fern stem, as if it is kept moist the plant will attach itself by roots from all parts. They also succeed perfectly on a damp wall, to which they secure themselves in a similar manner. *Æ. grandiflorus* and *Lobbi* are the two kinds generally grown, and both are now bearing great numbers of their bright orange-scarlet coloured flowers.—A.

Magnolia fuscata.—Among plants suitable for clothing a pillar or small portion of a wall in a greenhouse, or in any cool structure of a similar character, *Magnolia fuscata* should find a place. It cannot lay claim to rapidity of growth, or to any great beauty of flower, two characteristics especially sought for in climbers; but its scent is simply delicious, unique alike in its peculiar odour and extraordinary power. Growing against a back wall in a Camellia house, this *Magnolia* has given us occasional flowers for nearly three months, a single bloom being sufficient to scent the house and make the passer-by at some yards distance stop and look around for the source of the perfume. Its comparative homeliness has caused it to be generally placed in some out-of-the-way corner, and, consequently, its growths are rarely well ripened; but, given a fair chance in some good situation, I fancy it would flower well, and form a decided acquisition. Is it not a fact that the small-flowering varieties of *Magnolia* have a much more extended season of blooming than the larger kinds? Out of doors, for example, *glauca* is far better, from this point of view, than *grandiflora* or *macrophylla*.—E. B.

SHORT NOTES.—INDOOR.

Magnolia fuscata, in a 10 inch pot here is 6 feet high and as much in circumference. It flowers two or three times in a year; the blooms are about the size of a two-shilling piece, dark purple in colour, and very fragrant. Our plant grows in a cool conservatory 120 feet in length, and when in flower fills the house with its delicious odour.—J. MUIR, *Margam*.

The tuberous *Begonias*, both single and double, raised at Sunbury House, Harrow, are of fine quality and well bloomed. These *Begonias*, *Scutellaria Mociniana*, a few *Salvias* and Ferns make a house bright at this season. The gardener, Mr. McLeod, says that when he considers the trouble he had to get bloom at this time of year before he grew *Begonias*, he cannot too highly recommend them to the notice of others.—J. O'B.

Eucharis amazonica.—In addition to a number of plants in pots, Mr. Ward at Hewell plants this *Eucharis* out. On the floor of the stove all round the front by the hot-water pipes a narrow raised border has been made and planted with it. The same thing has been done along the back and the ends of the house. Not only is a novel feature thus created, but the flowers are very useful, and are seldom altogether absent, for when the plants by the pipes in front cease to blossom those in the back begin.—H.

Abutilon Boule de Neige.—Wherever white flowers for cutting are in request, this *Abutilon* should be grown; for, as regards beauty of form and purity of colour, it is equalled by few other winter-blooming plants. A good way of growing it is to plant it out for the summer in good soil in a sunny position, potting it up in September. Kept during the winter months in a constant temperature of from 55° to 60°, it will flower with great freedom.—J. C., *Byfleet*.

NOTES AND READINGS.

Cloves and Carnations.—It is not easy to tell now where these begin and end, and it does not matter much, but those two very old favourites, the crimson and scarlet Cloves, with their strong and delightful fragrance, hardy constitution, and distinct habit should not be lost sight of. They belong to the typical Clove, and have been cultivated ever since we remember, but spurious varieties, evidently of Clove parentage, are grown. The true old crimson Clove is a dwarf subject of sturdy habit, with broad, distinct foliage and flowers not much smaller than those of the large *Souvenir de la Malmaison* Carnation. All the large flowerers have strong foliage. The scarlet Clove is very like the crimson one in every way, but the flowers are of a fiery scarlet colour. We know a garden where it has been grown for thirty or forty years in the open border.

*

Florists' Carnations.—Nothing, we have often thought, denotes the arbitrary taste of the florist more than the fact that the old Clove is virtually excluded from his list of "good Carnations," according to his "properties." The author of "Hardy Florist Flowers" tells us that the flower-stem of a good Carnation should not be "less than 30 inches nor more than 45 inches high, and able to support the weight of the flowers without their hanging down; the flower should be at least 2 inches in diameter; the petals should be long, broad, and substantial, particularly those of the outer circle, commonly called the guard petals; these should rise perpendicularly about half an inch above the calyx, and then turn off gracefully in a horizontal direction, supporting the inner petals, which should gradually decrease in size, and fill up without crowding the centre of the flower. All the petals should be regularly disposed, and lie over each other in such a manner that their respective beauties should meet the eye altogether; they should be nearly flat, or with only a small degree of inflection at the broad end; their edges should be perfectly entire, without notch, fringe, or indenture. The calyx should be at least an inch long, and sufficiently strong at the top to keep the bases of the petals in a strong and circular body."

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The misfortune of the true old scarlet and crimson Cloves is that they do not possess the good points here enumerated, and are therefore not included in Mr. Douglas's list. The flower-stems are not more than 12 inches or 15 inches high; their heads are so large and heavy that they do droop, and they are so stout that the calyx is not sufficiently strong to hold the petals fast in its grasp; hence they hang over in wanton confusion. Neither are they "regularly disposed," nor do they "lie flat," and, worst of all, they are always "notched, fringed, and indented." According to the above rules, the Clove is just about the worst form of a flower a florist ever saw. We should really like to know why the flower-stem of a Carnation should not be less than exactly 2 feet 6 inches, nor more than 3 feet 9 inches in height. For what reason is the line drawn at that particular measure?

*

Rain-proof flowers.—We have had a week of dashing storms of rain and wind sufficient to lay the crops and spoil many flowers in the garden, but the now popular flower, the single *Dahlia*, hardly shows it in the least, but stands as bright

and erect as ever; the water seems to roll off it like off a duck's back. How grand large masses of these plants look! They begin to flower long before the doubles, and completely eclipse them in effect. The Cactus Dahlia is a prominent flower, but does not bloom so soon or so freely as the singles, among which plants of an equally, or even more, intense colour are to be found.

*

Phlox Drummondii from cuttings.—

Have any of your readers tried to perpetuate this plant from cuttings like other bedding annuals, Nasturtiums and Verbenas, for example? It is becoming a favourite, and deservedly so, for it produces numerous and rich shades of colour, such as bedding-out gardeners have long sighed for, in the shape of "intermediates," and it produces, besides the richest and deepest of crimsons and crimson-scarlets, as well as many rosy reds and pinks. Seedling plants bloom early and long, but in some soils they are rank, like Lobelias from seed, and grow 1 foot or 15 inches high, or even more.

*

Plant Daffodils.—

We hear of trade establishments, both north and south, setting their houses in order to supply the expected demand for Daffodils. What a good thing it would be if "F. W. B." Mr. Brookbank, and others would tell gardeners what varieties to plant most extensively. Daffodils want weeding out like a good many other things, and there is no need for anyone growing a tithe of the varieties chronicled as garden flowers, but gardeners are in darkness on the subject. I observe that while the professional Daffodil man enumerates about 150 varieties of one sort and another, the plain, but still highly respectable, seedsman reduces the list in his catalogue to about one dozen sorts. He ought to know. These consist of *albus plenus odoratus* (double white), *bicolor*, *biflorus*, *Emperor*, *Empress*, *Horsfieldi*, *incomparabilis* (the double yellow), *maximus*, *nanus*, *major*, *Orange Phoenix*, and *poeticus*; while a still more abridged list of the whole consists of *Sulphur Phoenix*, *double Daffodil*, *single Daffodil*, and *poeticus*. The little and pretty *Narcissus Bulbocodium* is an exception, and should rank with the *Crocus* in quantity if we could get enough of it.

*

Investments for gardeners.—

The correspondents of some of your contemporaries must be extremely unsophisticated on the subject of money matters, judging by the questions they ask, but they must be the exceptions. Anent my note on gardeners' benevolent associations in last "notes," a master gardener writes: "I repudiate the idea of the 'hat' for gardeners who are in any way thrifty or deserving. I insured my life when I got married, and for every one hundred pounds of my policy, allowing for bonuses added to the principal in the shape of interest, I pay, I think, about sevenpence or eightpence a week. So much for my wife and family; but, in addition, I am in a branch of the great "Manchester Unity," with large funds at its disposal, not invested in 3 per cents., but in property at 5 per cent., and from which I can draw when ill 10s. per week for a certain time, and never less than 5s. as long as I may need it, and doctor's attendance is also provided. These privileges cost me about 1s. 10d. per month, and nearly every man in the garden here is in the society as well as myself." It is quite true; there are no lack of investments for gardeners who wish to provide for a rainy day, and life assurance tables are now arranged so as to allow a policy holder to "die" at any age above 50 years—to use a common expression.

*

Where do the Orchids go?—

I fear many of them go to a place from which they never return. The Orchid is the fashionable plant among the wealthy of the present day, and the rivalry existing among possessors of small collections in the suburbs of some large towns where gardens are numerous is well understood by the trade. The regrettable thing is that many collections are badly managed. Everybody observes this who

attends sales or goes much about. At a late sale of what was described in the catalogue as a collection containing many "grand" plants, hardly one of them was worth buying, they had gone back so much. The specimens were simply miserable, and yet neighbouring amateurs, both ladies and gentlemen, mostly all wearing Orchid button-holes—the badge of the enthusiastic amateur—were noticed by the auctioneer to be bidding against each other for the worthless stuff in a manner that must have gratified the seller at least. Nearly all the plants were much overpotted, the bulbs in nearly all cases buried. There were six or seven pots of *Cœlogyne cristata*, every bulb of which an ordinarily skilled Orchid grower would have found room for in one pot with ease, notwithstanding that each of the seven pots they were spread over were 18 inches in diameter and about as deep. Many of the varieties were good, but in the last stage of debility, and hardly a flower on the whole collection—the result clearly of mismanagement. Other collections could be named deserving of the highest praise as regards culture, but although these are also numerous, they are the exception.

*

Teak wood for hothouses.—

I understand that some of our enterprising hothouse builders are introducing this wood into horticultural buildings, and it is expected it will supersede Pine to a considerable extent. It is light, strong, and durable and not difficult to work. Teak baskets for Orchids are now common, and gardeners know how much more lasting they are than those of Hazel and other common woods. Lightness and elegance of structure are important considerations in hothouses in more ways than one, and in this respect Teak has the decided advantage, for it enables the builder to dispense with heavy rafters and beams, and is not much less durable than iron, to which it is preferable in other respects.

*

Flavour of fruits.—

I cannot agree with Mr. Baines that much of the flavour of a ripe Melon is gone in two days, but he is, on the whole, right about the flavour of many fruits deteriorating in flavour from the moment they are removed from the tree. Grapes, for example, are never so good as just when they are newly, but fully ripe; and notwithstanding the advantages of bottling Grapes, in some respects it is a fact that bottled Grapes are never so good in flavour as those just cut from the Vine. The Black Hamburg will show this in a week or less if simply hung and not bottled, the difference being remarkable. If bottled it will preserve its quality longer, but it will even then become sensibly impaired in flavour. The Lady Downes lasts longer. Peaches, Melons, Figs, Strawberries, and Gooseberries also lose flavour, but Apples and Pears seem to ripen and improve by keeping up to a certain point. It is well known that the common white Valencia Grapes of the shops, though sweet and refreshing, have absolutely no flavour whatever such as they do possess when gathered ripe. In the cork dust packing the flavour wholly disappears. Some Plums keep well, and notably Coe's Golden Drop, which hangs till it shrivels and is delicious, as many have had opportunities of knowing.

*

Hardy flowers in September.—

It has often been urged that a good display of colour cannot be had in autumn from hardy plants. During the past week we noted in one garden in the midlands the following subjects, every one of them in perfection, and likely to flower for a long time. They were planted in the mixed border and in a hardy garden, each species in distinct masses, and on the bedding-out principle of putting in sufficient plants to make a show: *Harpallium rigidum*; late, scarlet, crimson, vermilion, pure white, rose, and intermediate coloured Phloxes in splendid condition; *Gaillardias*; *Coryopsis lanceolata*; white and red *Anemone japonica*; scarlet, red, crimson, white, purple, and other Carnations and Cloves, many just coming in; *Violas* and *Pansies* in variety; *Sweet Williams*, *Lilium auratum*, *Lychnis chalcœdonica*, *Lathyrus*

grandiflorus, *Gladioli*, and the *Irish Heath*. Of annuals, mostly sown in the open ground, were noted *Lupinus nanus* (agem); other Lupines; purple, scarlet, lilac, and white Candytufts; *Phlox Drummondii*, very rich and effective; *Dianthus Heddewigi*, fine; *East Lothian Stocks* in distinct colours; *Ten-week Stocks* and *Asters* in great variety; *Marigolds* in three distinct sorts, including *Bull's bright fancy border kinds*, *Nasturtiums* in many colours, and *Everlastings*, the whole presenting such a variety of colour and habit as might enable anyone to make the autumn garden as gay as any bedding-out arrangement ever designed. The great point is to select the right species, and especially good varieties of these, and plant plenty of them. Look at the varieties of Carnations, for example, and when allowed to grow where layered the plants are completely hidden by their load of flowers, some varieties of which are extremely vivid, while others are soft and pleasing. The same may be said of Phloxes.

PEREGRINE.

GARDEN DESTROYERS.

THE DESTRUCTION OF APHIDES.

THE Royal Society has just issued the fourth and concluding volume of Mr. G. B. Buckton's "Monograph of the British Aphides." This very valuable work contains elaborate figures and descriptions of all the British aphides. Though a most useful, and, I may say, necessary, work to all entomologists and others who may wish to study these insects; it is not every horticulturist who cares to do so more than to learn the best means of destroying them, so I have taken the liberty of extracting the following paragraphs from a chapter which Mr. Buckton, in his last volume, devotes to "Observations on the Natural and Artificial Checks to the Increase of Aphides," which, I am sure, will be read with interest and profit by all horticulturists: "Several notices will be found scattered throughout my previous volumes relating to the parasitic insects which prey on aphides, and these parasites will be found the most powerful checks to aphid increase, if perhaps we except all electrical storms, rains, and winds. As to the artificial methods, it must be confessed that the numerous nostrums advocated and published through various journals, both home and foreign, only prove how little we can do where the evil is spread over a large area; the immediate destructive agents are legion, and their economy is often obscure. . . . There can be no doubt that our corn harvest is repeatedly saved by the presence of the little black *Ephedrus plagiator*, a small ichneumon fly, which oviposits in the larvæ of *Siphonophora granaria*. The brown, globular, ichneumonoid bodies of the *Rose aphid* is also familiar to most horticulturists. The common *Rape aphid* and the *Cabbage aphid* are so much attacked by parasites, that scarcely one in a hundred escapes the winged state. The Hop grower knows the value of the lady-bird, and will not allow it to be wantonly destroyed; and equal protection should be given to the aphid-eating golden eye (described in THE GARDEN of the 1st March, 1877, as the golden-eyed or large-winged fly"). Mr. Worthington Smith states that the *Potato fungus* (*Peronospora infestans*) passes its mycelium into the bodies of the aphides which commonly infest the stalks of that plant when diseased. That aphides are liable to fungoid growths is clear from the observation of many investigators. Very much to the same purpose, Prof. Metschnikow suggested the deliberate cultivation of such fungoid growths as produce diseases in insects, and he proposed that the fungi so cultivated should be scattered in places infested by noxious insects, with a view to their extermination. Dr. H. A. Hagen, of Cambridge, Mass., made experiments on the effect of common yeast on beetles, &c., and he states that sprinkling the bodies with this substance resulted in the death of the insects within the space of three or four days. It is not clear how this yeast plan is most advantageously applied, but possibly a few insects, anointed with the scum from the brewing of beer, when set at

liberty would cause the desired dissemination. I would recommend such experiments to the notice of those who are overrun with the common cockroach. A little attention will always keep the green fly out of greenhouses and forcing pits. The great thing to avoid is insect possession through a neglect of the early broods of the year; these broods, being less numerous as to individuals, may be overlooked, but they are the centres of fresh companies.

Pot plants plunged a few moments into water heated to 140° Fahr. will kill most insects, and probably in no case the treatment will injure the plants. Syringing with a weak solution of soft-soap, that is, 2 ounces to the gallon of water, is efficacious. The potency of this wash is increased by boiling in it 2 ounces of flowers of sulphur. Sulphur, indeed, is the most important ingredient in the various washes offered to the public as insecticides.

A cheap solution of calcium sulphide may be easily prepared by boiling together flowers of sulphur 1 pound, caustic lime 2 pounds, water 4 gallons. To prepare the liquid for use, take of the above calcium sulphide 4 ounces, soft soap 2 ounces; mix together, add hot water 1 gallon, stir, and allow to settle. When cold, this liquid may be used as a bath, or sprinkled by the syringe or by the garden hand-engine or by a brush. This last instrument most effectively rubs the solution into buds and bark infested by aphids. Some have strongly advocated a copious syringing of infested trees when the thermometer is 7° or more below the freezing point. No injury is done to the trees by thus using the above solution, but the freezing and thawing loosens and clears the aphid eggs out of innumerable crannies. Smoke of all kinds has a sickening effect on aphids, and the old plan of fumigation by the slow combustion of coarse and wetted Tobacco is very convenient in glass houses and forcing frames. During the last year (1882) M. Monillefert used the sulpho-carbonate of potassium in no less than 285 vineyards, and he states he has met with great success. The cost varied from .05 of a franc to .03 of a franc (or from a halfpenny to one-third of a penny) per stock, which, considering the advantage gained, cannot be considered as an excessive cost to the grower. With reference to the Hop aphid (*Phorodon humili*), there would seem to be but little doubt as to the hibernation either of the oviparous female or her egg. An application of the sulpho-carbonate to the soil close to the root-stocks early in the spring, when the foundatrix is expected to hatch from the egg, surely is worthy of a trial. The application to the Hop plant cannot have greater difficulties than those experienced in the Grape Vine. Careful washing of the Hop plants soon after the appearance of the Hop aphid has often secured a fine crop of blossoms to the grower, and, notwithstanding the extra cost, it will well repay him for his labour. This may be well understood when one acre of ground may produce as much as 7 cwt. of Hops, representing a value of £22. The loss over the United Kingdom caused by the fly during this last year is estimated by a large Hop grower at not less than £1,750,000, of which the labourers, through deficiency of wages, &c., are thought to have sustained at least £200,000. The advice I here would give is to burn the vines immediately after the Hops are picked; watch for the foundress as she rises from the soil, and takes to the young plant when it is only a few inches high. Wash thoroughly by hand at first, and in February or March on a sufficiently large scale, and use the same means as our neighbours on the other side of the English Channel to stamp out the Phylloxera. There is yet another consideration I here offer to those interested in destroying the Hop aphid. As this species feeds on the green leaves, and has not been shown to be dependent on the roots of the Hop for its sustenance at any time, the life cycle is complete in a single year. Therefore, if by mutual consent, no Hops are grown (say for three years) on a district so wide that the winged insect is not likely to traverse it, a large portion of this area would be free from aphid for an indefinite time. There can be no

doubt that, as rapid locomotion and ready transit transplant fresh species of insects into new localities, so isolation will be a chief factor in stamping them out. As investigators are likely to find the subterranean Tychea and Endeis (two genera of aphides which live underground), they must be prepared not to confound them with *Phorodon*, which has nectaries and the characteristic frontal tubercles. Mr. Buckton's suggestion for stamping out the Hop aphid would be no doubt very effective if it were possible to carry it out, but the cost would be very great, and it would be very difficult to ascertain to what distance a Hop aphid might fly with a favourable wind, and there would always be the chance of introducing the aphid when Hops were again planted, unless the plants were grown from seed in the cleared land. If all Hop growers in a certain district were to agree to wash their Hops thoroughly on the first appearance of "the fly" and to watch carefully for it, I believe in that district this pest might be stamped out in the course of a few years.

G. S. S.

GARDEN FLORA.

PLATE 406.

CAMELLIA C. M. HOVEY.*

OUR plate this week represents a Camellia of American origin, and one of the finest that has come to us from that country. Already it has become popular, and some of our best cultivators place it in the foremost rank among Camellias. For the following account of it, and also of other American Camellias, we are indebted to the raiser, Mr. C. M. Hovey, of Boston, Mass.

This Camellia was raised from seed about the year 1840, and first flowered in 1847. I find it described in my note book of that date as "fine double red, imbricated." Subsequently, flowers and plants of it in bloom were exhibited annually at the Massachusetts Horticultural Society, and in 1854 this variety was awarded a gold medal. The late Mr. Joseph Breck, chairman of the committee on flowers attached to that Society, thus wrote of it about that time: "During the last seven years Mr. C. M. Hovey has exhibited a great variety of seedling Camellias, some of them beautiful and perfect. The committee are disposed to denominate some of them fine, and two of them very fine, but the most perfect in their estimation is one designated by the letter I, already noticed in the report of the Flower Committee of 1853 as worthy of the Society's gold medal, provided its high character should be sustained another season. This, our committee report, has been the case, and therefore now recommend the award of the Society's large gold medal for this seedling Camellia to Mr. C. M. Hovey. The flowers are very large, nearly 4½ inches in diameter, full, and perfectly double to the centre, and of great depth. Their colour is rich vivid crimson-scarlet—a nearer approach to scarlet than any variety with which we are acquainted, and decidedly the finest dark variety we have yet seen. From 1847 up to 1879 this Camellia remained in my hands, and the first plant I ever parted with, except one presented to Mr. Breck ten or twelve years ago, and which unfortunately disappeared from his collection, was sold at Stevens' in King Street, Covent Garden, in the autumn of 1878. Not one had then been offered for sale in America, and, therefore, this Camellia is not so well known in that country as in England. About 1830 I had collected together

* Drawn in Messrs. Veitch's nursery, Chelsea, in April last.

about a dozen varieties of Camellias. I had read all I could find upon Camellia culture, and particularly what Chandler, of Vauxhall, had to say, the pioneer in the growth of seedling Camellias in England. I was also familiar with the "Iconographe" of L'Abbé Belize, and had looked up all the plates of Camellias in Sweet, Paxton, "Flore des Serres," &c. But it was in that year that I for the first time visited New York and the garden of the late Michael Floy, of that city, to see his great collection of seedlings, and this gave me Camellias on the brain. I thought of nothing but Camellias, dreamt of them, read about them, purchased them; yes, one hundred and fifty, and about as worthless a number to-day as one could get together, though some of them cost 20 fr. and 30 fr. each. And, as to add fuel to flame, I also visited Philadelphia for the first time, and there found the florists all growing Camellias and raising seedlings. I found my good old friend, Robert Buist, with a houseful of fine young Camellias and lots of seedlings, and Mr. Landreth, who had only a year or two before produced the very fine Landrethi, still a good sort, only a poor grower. Mr. Smith had also a house of rare Palms and Cacti, and some fine seedling Camellias, Smith's amabilis being still a beautiful one; and a young man, gardener to Mr. Geo. Pepper, in Chestnut Street, named Chalmers, had produced some superior seedlings, Chalmers's Perfection being one of them. Then there was Mr. P. Mackenzie, who raised subsequently Jenny Lind, which Henderson purchased for 200 guineas. Proceeding to Baltimore, I found Mr. Samuel Fend had anticipated me, and also produced one or two very beautiful sorts, and so had Mr. Kurtz and Dr. Edmonson. At Washington I found quantities of seedlings, all pretty good, but none extra fine. Returning home, on my way I accidentally became acquainted with the late Mr. P. Dunlap, then gardener close to New York. He, too, had some fine seedlings, and he introduced me to an old sailor and neighbour, Capt. Harrison, who had a most beautiful double white, more exquisite than alba plena, a perfect gem to-day. This same Capt. Harrison also raised the yellow Harrison's Rose, which I believe some English rosarians consider to be about the most beautiful and valuable hardy or yellow Rose extant. So you see we do raise some good things in America, or, perhaps I should say, did so fifty years ago. All, or about all, of Mr. Floy's Camellias were seedlings, a house, 40 feet long, being full in the centre with the grand Floyi; the various kinds numbered nearly fifty, the names and descriptions of which were published in Hovey's *Magazine of Horticulture* in 1838 (vol. iv., p. 155). Mr. Floy was an English gardener, who came to America in the year 1800, bringing with him plants of the old double white, believed to be the first ever imported into America. He was an intelligent and enthusiastic cultivator, and a corresponding member of the London Horticultural Society, to whose valuable transactions he communicated some very interesting information about American fruits and forwarded a collection of our finest Peach trees for trial.

As I have stated, it was about the year 1830 that I had a small collection of the then and now good old Camellias, and among them *pæoniiflora* and the Middlemas red. It then occurred to me that if I had the old Waratah or Anemone-flowered variety I could fertilise it and get plenty of seed, and naturally, as I supposed, the small

centre petals would be elongated, and the result a good double flower. I purchased three plants, and these same plants I have to-day. They were fertilised by such varieties as I could procure pollen from, the only full double varieties on which I could ever find any being Lady Hume and myrtifolia; these occasionally produce several stamens full of pollen. Annually we had a crop of seeds and a crop of plants, and it was while these were growing that I imported the great number of kinds already alluded to. Fortunately, some of them proved valuable as seed-bearing plants. After some five or six years the first seedlings from Waratah began to flower; and what a disappointment! Instead of a double flower imbricated to the centre, I had just what Chandler obtained—a flower with two, three, or four rows of outer petals and a larger or smaller bunch of little ones in the centre. Here I at once saw that there was no hope for improvement with that parent; all the large petals had the stereotyped notch in the centre. It was this I wished to get rid of, and I was desirous of securing a full, regularly imbricated, perfect flower. I studied up the matter, and came to the conclusion to begin anew after the loss of five or six valuable years. I noticed among the numerous seedlings I raised a large number with single flowers, some large, some small, and some with clear cut round petals filled with petaloid stamens in the centre. The latter I decided were to be my seed-bearers, and I at once began fertilising them with the pollen of the many different kinds which I then had in bloom, always selecting such stamens as are called petaloid. I had no lack of seed-pods, and found it quite a task to keep in view the various fertilisations. During this period something was written in the *Magazine of Horticulture* concerning the hybridisation of Camellias, the writer contending that they could not be well fertilised with two kinds of pollen at the same time, but that it should be applied successively; such as failed at first would take a second time. Whether this is strictly correct or not I cannot now determine. I applied it in both ways, but the labour of recording the result was too great. All, therefore, of my fine seedlings were produced from single flowers, fertilised with the most double sorts I had, such as Colvillei, pæoniflora, &c., and for colour, such as corallina, rubra plena, &c.; for a time a record was kept of the fertilisations, but as many of the seedlings did not bloom for six or seven years, the labels were broken, defaced, or lost. I had then under culture some three or four hundred seedlings.

THE FIRST SEEDLING that was really beautiful bloomed in 1847. This was what is now known as Mrs. Anne Marie Hovey. It happened to be on an inarched plant which I had tried on the recommendation of Thomas Andrew Knight, as recorded in the Transactions of the London Horticultural Society. It was a lovely flower of its prevailing colour, white, beautifully pencilled with carmine. I felt well repaid for my labour, and at once set to work to increase the stock. The plant was carefully nurtured, and the next year was full of buds. Judge of my surprise when it opened of the most exquisite carmine, a tint I never saw in any other flower except that of the *Nymphaea odorata rosea*. I now saw there was no mistake, and the plant was more carefully watched. Another year I had not only the white-pencilled carmine and the pure carmine, but I had also intermediate tinted flowers impossible to paint or describe. In successive years these continued to

change till they were perfect harlequins. Letter I, now known as C. M. Hovey, followed letter A. Oh, what a sight! There was no good scarlet Camellia in existence, and to find not only a brilliant scarlet, but a flower so bold and grand, in fact perfection, was a treat such as only the raiser of novelties can appreciate. Nature gives us wonders in the floral world, but the Creator has placed in our hands only the raw materials, and has left it to the intelligence, industry, and power of man to work out of these simple materials forms which appear almost beyond conception. A single Rose growing by the wayside opening its petals in early morn, fresh with the evening dew, is indeed a pretty flower; but what would we say if in roaming over the wild wood we should espy a Maréchal Niel—a golden goblet from which nymphs might quench their thirst? Of all the flowers of the garden the Rose is pre-eminent; of all the flowers of the conservatory the Camellia is, and ever will be, unrivalled.

OTHER SEEDLINGS which I have are, however quite as beautiful and quite as distinct as C. M. Hovey. Three of these are better known to English and Continental florists than to American cultivators. Both C. M. Hovey and C. H. Hovey were sent to London one year before they were offered for sale here, and the number of plants disseminated shows that even without ever seeing a flower people had confidence enough to purchase the plants. It was a great gratification to me to be able to show some fine flowers of Mrs. Anne Marie Hovey from plants which I took with me to London, and to receive not only the thanks of the committee with the award of a certificate, but the congratulations of the distinguished amateurs and lovers of beautiful plants who make up the assembly at Kensington. This Camellia surpasses in every quality all other varieties yet produced. In the shape and symmetry of the flower, and in the form, substance, and perfection of petal, it has no equal; but its most remarkable character is its peculiar and distinct quality of producing flowers of many different colours on the same plant. The prevailing colour is a clear, waxy white, delicately pencilled with crimson; but often a great number are of the darkest and richest carmine. In fact, new combinations of colour are displayed every year; the marbling, spotting, pencilling, blotching, and tinting of the various flowers, as well as the soft blush and carmine blossoms, have no parallel among plants. The form is perfection, the petals perfectly round without the smallest notch in the petals. It flowers abundantly, beginning about January and continuing till June. C. H. Hovey is the darkest Camellia ever produced. The colour is entirely new, resembling as nearly as possible that of Lord Raglan Rose or most of the new dark velvety crimson Perpetuals, a colour never seen in any Camellia. The shape is perfect, the petal as round and symmetrical as if cut with a compass; the flowers remarkably deep and imbricated, as all three varieties are to the centre; habit vigorous and pyramidal, with unusually rich handsome foliage, and a most profuse bloomer.

SOME SEEDLINGS I have which have never yet been offered for sale. I have the parent plants of all of them, now of very large size. Most of them are from 12 feet to 15 feet high and from 6 feet to 8 feet in diameter. Of some I have not even a duplicate plant, of others only three or four, and of some five or six. I am just now increasing the stock. All of them were fertilised by my own hand, potted, repotted, and entirely managed by

myself till they attained the height of 8 feet or 10 feet. It was one of the most delightful occupations of my younger days, after attending to business in the city, to return home, and after tea to ramble among the Camellias with the temperature outside at nearly zero, and at nine o'clock to give them a thorough syringing; the water as it fell from the glossy leaves sparkled in the candle-light, and the leaves reflected the brightness of the flame. Such work was a source of unbounded pleasure, enhanced by the anticipation of adding a new flower that would be worth a place, even by the side of the old double white or Lady Hume. None of my large plants have been repotted for six or seven years; they number upwards of 500, and fill two houses 180 feet long, 30 feet wide, and 20 feet high in the centre; yet I had to cut back the heads of the largest this year 2 feet to prevent them from touching the roof. Of course I do not recommend such treatment, but they are so large, the house would not hold them if encouraged to grow; as it is I have excavated 2 feet of earth to lower them down from the glass, yet they are in vigorous health and bloom. The best evidence of this is the fact that the first prize of the Massachusetts Horticultural Society for the finest twelve cut flowers has been awarded to us for twenty consecutive years, often the second prize and the first prize for the best display of flowers. One year ago I exhibited cut flowers of thirty seedlings. Some of the stems of our plants measure 13 inches in circumference at the ground, and they are growing in 24-inch and 28-inch tubs. Some of the pots are so densely covered with Moss, that Holly Ferns with six or eight leaves are growing all around the outside. All they get is a semi-annual top-dressing of Standen's manure or bone dust and soot. All the plants are grown from cuttings; no grafting, budding, or inarching. The soil which I use is a brownish loam from the surface of Oak woods, with leaf-mould or very old thoroughly decayed manure, and very little sand for old plants. I ought not to omit to notice the success of the Hon. Marshall P. Wilder in raising seedlings, of which Wilderi or Storeyi (which are identical) is well known. He commenced the production of seedlings soon after myself, and has raised at least six or eight very beautiful sorts.

It is somewhat remarkable that, while the Philadelphia and Baltimore amateurs had large and fine collections of Camellias, there was but one in New York besides Mr. Floy's—Mr. Becar's, who raised the fine variety A. J. Downing, and none in Boston, except Mr. Wilder's and our own. There is to-day, after so many years, only one single addition worthy of the name, and that one is the collection of the Hon. F. B. Hayes, who purchased two years ago half of Mr. Wilder's collection and fine large specimens of our three seedlings first described.

NEW SEEDLINGS.—Amongst these the following are well worth attention:—

EVA CORINNE HOVEY.—A fine, bold, full-sized flower, very double, all the petals incurved, forming a solid bloom; colour, light rosy carmine, every petal finely tipped or bordered with white; foliage large, thick, glossy; habit erect, extremely vigorous, and flowering so profusely that, unless many of the buds are taken off, they fail, from the great number of petals they contain, to open in perfection. First flowered in 1850.

SOUVENIR OF ANNIE MARIE HOVEY.—An exquisite double white flower of medium size, with

perfectly rounded petals, broad, and incurved, forming when expanded a perfect cup-shaped flower; the colour is not the cold, icy white of *alba plena*, but is inclined to a warm French white; foliage large, almost round, prettily recurved, and of the deepest and glossiest green; habit erect and vigorous; a late blooming kind, which first flowered in 1850.

SUZETTE HOVEY.—One of the most lovely of all my seedlings; a perfect counterpart of some of the very finest light Perpetual Roses, say *Mad. Gabriel Luizet*. If the flower is taken off and placed on the stem of a Rose accompanied by its leaves, it is almost impossible to detect the fraud. The flower is of good size, with beautifully cupped petals of the loveliest rose, very slightly veined or reticulated with a little deeper shade; foliage medium sized, deep green; habit handsome and vigorous. First flowered in 1852.

FLORENCE HOVEY.—Still another remarkably distinct and good flower, with petals whose outline is as clear as if cut with the compass; colour, new rich violet-rose, unknown in any other *Camellia*. The flower is full medium sized, almost globular, with that exquisite incurving which adds so much to the beauty of the best Roses; foliage large and habit vigorous. First flowered in 1852.

EULALIE HOVEY.—Take *Fordi* or *Henri Favre*, and make of them just such a flower as would be your idea of perfection, and you have this *Camellia*, a bright rose of satiny texture, exquisitely cupped and imbricated to the last petal with a precision almost wonderful. Foliage medium sized, habit moderately vigorous. First flowered in 1852.

MRS. J. R. CARTER.—A very fine flower of a rosy crimson colour, splashed with white on the centre of each petal; very full and double; habit very vigorous. First flowered in 1849.

HON. JOHN CUMMINGS.—A handsome flower, rather below medium size, and of a peculiar dark ruddy scarlet, quite distinct. Foliage small; flower-buds quite pointed. First flowered in 1858.

POND LILY.—A remarkably distinct variety, resembling what we usually call our *Nymphaea odorata*, the Pond Lily. It had only two rows of petals, with a few small ones in the centre; but the outer petals are so very large, thick, and bold in outline, and of such a warm tint of white, that it is one of the most attractive of *Camellias*. It is a free bloomer, but a poor grower; leaves large, roundish, flat; habit irregular. It first flowered in 1849, and the original plant is only 6 feet high.

One more I have, the last of my seedlings, which first flowered eight or ten years ago. It is the most charming of all white *Camellias*; the petals are perfectly round, as if cast in a mould, unfold beautifully without reflexing, and remain in that semi-open state till the flowers fade and the petals fall. It is not yet named. C. M. HOVEY.

Herbaceous plants in a out state.—These are becoming popular at exhibitions. Last week I saw a group of them arranged like cut flowers of stove and greenhouse plants, and an excellent effect they produced, numerous species and varieties obtainable in autumn being useful for this purpose. Of these some of the best are *Aster leucanthemus*, very striking and pretty; *A. bessarabicus*, *Anemone japonica alba*, *Gypsophila paniculata*, very light and useful for artistic arrangements; *Geranium sanguineum*, *Helenium grandiflorum*, *Helianthus multiflorus*, *Rudbeckia Newmanni*, *Statice Limonium*, *Tradescantia virginica*, *Lobelia fulgens*, a very showy kind; and *Pentstemon Leonora*. These and other

kinds formed an interesting collection. It came from the nurseries of Mr. Balchin, of Brighton. In another smaller group from Messrs. Cheal, of Crawley, were fine sprays of *Tropeolum speciosum*, *Chelone barbata*, *Statice incana hybrida*, *Hyacinthus candicans*, fine blooms of *Lilium Harrisii*, and of other useful hardy garden plants.—OBSERVER.

SEASONABLE WORK.

FLOWER GARDEN.

YUCCAS.—There is such a distinctive, graceful appearance about several varieties of this genus that they must be placed in the very forefront of ornamental plants for the flower garden. Greenhouse varieties may be used for standard or dot plants in summer foliage bedding, and hardy kinds for a like purpose in winter, and for grouping on the turf as permanent plants. *Recurva*, *filamentosa*, *gloriosa*, and *stricta* are the best hardy *Yuccas*, and kinds that will grow well in any kind of soil, provided it be well drained. The greenhouse varieties *aloifolia*, a *variegata*, *serrulata*, and *superba*, which make excellent plants for association with summer bedding succulents, can with safety be planted out early in May, and they may be left out without being in danger of injury from frost till the end of October. All the kinds are propagated by cutting up the large roots into eyes, inserting them in sandy soil and placing them in heat. *Yuccas* also sometimes throw up suckers from the roots, which, if severed with a piece of root attached to them, make plants much more quickly than do eyes taken from the roots.

PREPARING FOR WINTER.—At no time during the present season have bedded-out plants been more brilliant than now; but their season is all but over, and preparation must be made for housing such plants as are intended to be saved, or, at any rate, for securing cuttings for next year's stock. Our plan with all tender kinds is to house them as soon as ever there is any danger of injury from frost, and replace the same with hardy plants to stand the winter. In this way the change of the garden from its summer to its winter dress goes on so gradually and imperceptibly as to be hardly noticeable till the whole has been donned in winter garb. *Coleuses*, *Alternantheras*, and *Iresines* are always the first to be destroyed, and as soon as this takes place, we substitute hardy *Heaths*, dwarf *Sedums*, *Thymes*, *Ajugas*, and small shrubs, such as *Retinosporas*, *Cupressus*, *Aucubas*, *Euonymus*, and *Iris*, the one aim in their disposition and arrangement being that the colours and design of the beds shall as nearly as possible be similar to those of the summer arrangement. Of course, summer gaiety is impossible, but a winter garden of coloured foliage, taking into account the changed season, is at least of equal merit to summer brilliancy. This combined summer and winter embellishment of the parterre of course necessitates a reserve garden for the accommodation of the necessary plants, but much of it may also be of a permanent nature, or at least consist of such plants as will do equally well for summer or winter. This fact we keep in view when making our summer arrangements, and work in all the hardy plants possible—perhaps at the loss of a certain amount of brightness; but this is more than counterbalanced by the lightened autumn labour of changing the plants, and the insured cheerful aspect of the beds in winter. Those who have not attempted the winter furnishing of parterre beds, and as a matter of course have not yet got the plants for doing it, may make a beginning by using the hardy dwarf carpeting plants that are now so generally used in summer bedding. A groundwork of these and a few small shrubs dotted over it is wonderfully telling in dull winter weather. Bulbs, such as *Hyacinths* and *Tulips*, may also be planted in masses, and the ground be covered with these live carpets, which also prove a good protection to the bulbs. Other ways might be suggested as to winter planting, but these will suffice to show in what direction to work in order to get rid of those ugly mounds of soil that disfigure our gardens all the winter.

GENERAL WORK.—This will consist in keeping flower beds and borders in trim condition by repeated picking over, cutting edgings, and tying up such plants as need it. Herbaceous borders are still very gay with Japanese *Anemones*, *Rudbeckias*, *Phloxes*, *Achilleas*, *Gladioli*, and *Asters*, but there are numbers of other plants that have done flowering, and are looking so "seedy" as to spoil the appearance of others; the stems of these, as soon as matured, should be removed, and in any case they should have the old flower-heads and rusty foliage cut off. The tall *Pyrethrums* and *Michaelmas Daisies* require stakes and the like attention is needed by *Castor-oils*, *Hempes*, *Gums*, and other tall plants used as sub-tropicals. Pot up and house *Pelargoniums* that have been struck in open borders, and those recently put in pots and boxes must soon have the shelter of a frame. *Violas* and *Calceolarias* should complete propagation for the present. All kinds that are being struck on a hot-bed should be taken out the moment they are well rooted, and be placed in other frames that can be well ventilated or protected as may be needed, it being necessary to successful wintering that the growth be of the most robust kind; and this cannot be unless great attention be paid to ventilation, which does not mean full exposure in all weather, but only in suitable weather. The clipping of hedges, moving of shrubs, and preparing soils in which to plant them, also digging and trenching ground for new plantations, are some of the other operations that claim immediate attention.

FRUIT.

VINES.—The late crop of *Muscats* will now be getting ripe and capable of bearing all the light that can be given to them. Where a large portion of the roots are in external borders the heavy rains have started an abundance of fresh laterals, and as these are now doing no good to the Vines or the Grapes, keep them closely stopped back to the main foliage, and at the same time remove all laterals down to the main bud from young canes and leaders intended for next year's fruiting. As the berries become nicely coloured, and the foliage shows signs of ripening, gradually reduce the temperature by ventilating more freely and keeping up a steady warmth in the pipes in preference to keeping the ventilation closed and trying to dispense with fire heat. *Lady Downes*, *Alicantes*, and the usual run of late Grapes, including *Alnwick Seedling*, will require a constant circulation of warm air with liberal ventilation to keep forward the ripening of the fruit and wood before the long cold nights check the flow of sap. If the internal borders in which the surface roots are getting very airy require more water, and the berries show an indisposition to colour up to the footstalks, choose a fine morning for the operation, and give them one or two light waterings with generous diluted liquid at a temperature of 90°. The laterals in this house may be kept well stopped back, but not so close as the *Muscats*, as black Grapes always colour best under a good canopy of foliage. *Hamburgs* and other thin skinned kinds intended for autumn use will require careful management, as too much fire heat will cause them to shrivel and the want of it will let in damp, and mould will soon destroy the bunches. Perhaps the best way to encourage this house is to reduce all laterals and to keep an even spread of foliage clear of the roof; to keep the glass, wood, and floors perfectly clean; to give the final internal watering on a fine day, and to cover up the border with a good layer of dry Fern or Bracken. Plants in pots should never be allowed to remain in anyinery after the Grapes begin to colour. Early Vines intended for forcing in November will be sufficiently matured to admit of pruning without delay. Vigorous young Vines that have been well ripened may be pruned in close, but old ones whose satisfactory crops compensate for appearance should be pruned to a plump bud. After pruning remove loose bark with the hand, but avoid the barbarous practice of scraping; wash well with strong soap water, and if insects have been troublesome dress with the following com-

position: One pound soft soap, and the same quantity of sulphur boiled together for ten minutes in one gallon of water; while hot, add one pint of strong tobacco water, an egg-cupful of turpentine and as much fine loam as will give the consistency of paint. Thoroughly cleanse the house, clear away and burn all loose surfacing, and surface the borders with rich top-dressings consisting of turf, bones, and rotten manure.

PEACHES.—The lifting, root pruning, and rearrangement of the trees in the early house may be proceeded with at the earliest convenience. To perform this work successfully it should be taken in hand and carried out with as little delay as possible, and if the trees are completely lifted and removed to fresh stations the roots will require a good soaking of water to settle the soil about them, when new growth will soon set in. To have ripe Peaches in May, houses planted with the earliest kinds of recent introduction may be started in December; but for giving the best quality of fruit this section must give way to such kinds as *A Bec* and *Early Grosse Mignonne*—two varieties which require a little more time to finish them properly. For succession we have *Belle Beauce*, *Stirling Castle*, *Royal George*, *Violette Hâtive*, and *Bellegarde*, still one of the best Peaches in cultivation. To the above for planting in the mid-season and late houses may be added a very superior old Peach named *Dymond* (not *Diamond*), *Barrington*, *Gregory's Late* and *Walburton Late Admirable*, a large pale Peach equal to *Noblesse* in quality, but a shy setter unless the wood is thoroughly ripened. Where more than two kinds of Nectarine are grown *Lord Napier* and *Stanwick Elrue* should have a place, the one to precede and the other to succeed the indispensable *Elrue* or *Violette Hâtive*. All the yellow-fleshed Nectarines are excellent. As time is now approaching for selecting trees from the nursery the first consideration should be the stock, as the best kinds on bad stocks always end in disappointment and loss.

FIGS.—By removal of the roof lights and the withholding of water early-forced pot trees will now be losing their leaves and going to rest. If any small fruit remain on the points of the shoots rub them off, and leave all quiet and undisturbed until the end of October, when the annual thinning and cleansing may be performed. If, and by no means improbable, the trees have been attacked by spider or scale, repeated washings with strong soap water or Gishurst compound will weaken the enemy before the final cleansing takes place. Where the early trees are planted out and space is limited annual root pruning is recommended. The period immediately preceding the fall of the leaf is the best time for lifting. Every tree should be well drained with broken bricks and old rubble, and the compost, consisting of strong turfy loam, old mortar, and crushed bones should be mixed up and used in a dry state. Succession trees are still producing fruit, but it is quite time they were going to rest, as nothing is gained by allowing a tree to bear a few small fruits after it has matured two full crops. Remove all small Figs, wash well with the engine, and leave the ventilators open with gentle fire-heat until the foliage falls. Give particular attention to trees in late houses and cases against walls, as the scarcity of open-air Figs is very great, and a large dessert in September without a good dish of this delicious fruit is by no means complete.

CHERRIES.—The early forced trees, now leafless and resting, must be kept as cool as possible. If established in inside borders, and the lights have been removed from the roof, shutters, or some kind of covering should be placed over the roots to protect them from heavy rain, as an excess of moisture while the soil continues warm might start some of the most prominent buds. If any of the trees require lifting and replanting or replacing with others from the open wall, not a day should be lost in getting the work proceeded with. Good drainage is an important element, and the soil which suits the Cherry best is a strong calcareous loam, with a liberal admixture of old lime rubble and charred refuse. Animal manure should

never be used with the soil, as a gross growth is generally affected with gum, perhaps the worst evil we have to contend with in the management of Cherries. Old trees which have been weakened by heavy cropping may be well mulched with rotten manure, or, better still, a good quantity of the exhausted soil may be removed and replaced with fresh compost, similar to the above, with the addition of a good sprinkling of bone dust. All border operations should be performed when the soil is dry and in a fit state for being firmly rammed without becoming adhesive. Examine the pot trees, report if necessary, and see that the drainage is satisfactory. Where top-dressing is thought sufficient, work well down the insides of the pots with a sharp-pointed piece of iron, and fill up with turf, bone dust, or rotten manure. Ram firmly and keep the trees out of doors for the present.

CUCUMBERS.—Plants in full bearing will now require to have more artificial heat to keep them going until those sown in August come into bearing. If they show a tendency to produce thick-ended fruit, remove them at once, unless they are wanted for seed, and top-dress with rich light loam, leaf-mould, or manure. Water well with warm diluted liquid and crop lightly. For autumn and winter work the pot system has many advantages, not the least being the facility with which fresh fermenting tan or Oak leaves may be placed in immediate contact with the pots. Of the two we give preference to sound leaves, as plants of all kinds seems to luxuriate in the moisture which arises from them; but some little care is needed in turning and exposing them to the atmosphere for a few hours after they are dislodged from the stove. Where young plants have filled two-thirds of the trellis, they may be stopped to induce a good break of laterals from the base, and as these will produce finer fruit with more certainty and less trouble than old plants in pits and frames, a few of them may be allowed to commence bearing at once. If brought on from the seed-pot in the genial heat produced by fermenting material, they are sure to be clean and vigorous, and capable of bearing a few fruit without being fed with strong stimulants. Where Cucumbers succeed Melons, see that a few good plants are always ready for filling up the different sections as they become vacant. Sow seeds at short intervals, and throw plants away in preference to turning them out after they become pot-bound.

STRAWBERRIES.—Let the most forward plants of the kinds intended for early forcing be examined and moved from time to time to prevent the roots from striking into the ground or bottom of the bed in which they are partly plunged. If, as is generally the case, they occupy very small pots, they will require a supply of water every day to keep the balls from shrinking away from the sides, and an occasional syringe over with clean sulphur water will do no harm in checking spider and mildew, which sometimes get a hold of the plants and break out in a very lively form when they are introduced to the genial warmth of the forcing house early in the spring. This must be looked to. Pay also particular attention to the midseason and late kinds now making rapid growth, and move them to the most suitable places for ripening up the crowns and foliage. In unfavourable situations, where the crowns barely ripen in good seasons we have always advised the appropriation of dwarf walls or raised shelves for ripening the roots as well as the crowns, as the pots can be arranged in single rows, turned and tended with the greatest care, instead of being crowded, as we too often see them, into a limited space in which the exclusion of warmth, light, and air might be looked upon as the first element of success.

PINES.—By this time the fruiting house will have been nearly cleared of summer fruiters, and the few left may be removed to a smaller compartment where they can have plenty of light and bottom-heat to swell and ripen off the fruit. If a complete clearance and cleansing of the pit has been decided upon, this work should not be delayed, as some little time will elapse before the

new plunging material, be it tan or leaves, is in a fit state for the reception of the plants. They may, however, be placed on the surface or in shallow basins where they may remain until the violent heat declines, when the beds can be made up again without disturbing them. As many of these which have quite recently started into fruit will have to remain through the dead months of the year when ventilation will be reduced to a minimum, close arrangements must be avoided, and the crowns must be kept well up to the glass, otherwise they will become drawn and out of proportion to the size of the fruit. Although watering will not be so frequent, the plants must be examined every week, and those only which actually require water must be liberally supplied with warm diluted liquid or guano water, while all available surfaces capable of giving off atmospheric moisture will require damping to counteract the drying influence of fire-heat, as overhead syringing will have to be discontinued. Queens intended for early starting may be kept a little more on the dry side, and atmospheric moisture may also be reduced; but it will not be well to lower the temperature to any great extent until days become shorter and nights colder than they are at the present time. Plants which will make a spring growth before they start may be kept progressing for some weeks longer, and where, owing to the unfavourable state of the past summer, the fruiting pots are only partially filled with roots, the growing may be steadily continuous until we have a change to severe weather. An important point in winter management is cleanliness, internally by the removal of all other plants, and externally by the frequent washing of the glass. Shading on the brightest days is no longer needful—indeed, it is positively hurtful—but the blinds will do good service by being let down at night to economise fire-heat, and to prevent the loss of moisture by radiation.

INDOOR PLANTS.

STOVE.—Plants completing their growth should be encouraged to ripen their wood—a matter of the greatest importance as regards their blooming well next year. Under the head of deciduous flowering plants may be included *Allamandas*, the twining *Clerodendrons*, *Vincas*, *Aristolochias*, *Bougainvilleas*, *Hexacentris*, and *Thunbergias*, for, though many of these are not, strictly speaking, deciduous in their habit, still, the most approved way of managing them is to so far check shoot extension in autumn as to cause them to shed most of their leaves. All such plants as the above should now, as far as possible, be moved to the coolest end of the house, giving all the air that it is needful to admit at the end in which they are placed, and applying no more water than is requisite to prevent the leaves from shrivelling up, allowing them to flag freely each time before water is given. *Achimenes*, *Gloxinias*, *Tydas*, *Curcumas*, *Gloriosas*, the summer-flowering bulbous-rooted *Gesneras*, and *Caladiums* should also, where their tops are yet fresh, be kept dry enough to cause the foliage to die down gradually. *Stephanotis* that flowered early, and which have since made sufficient growth, should now be kept as dry as they will bear without injury to the foliage, but it is not well to expose the plants to so low a temperature, or the roots are liable to suffer and deficient bloom to be the result. *Gardenias* and *Ixoras* that have been up to this time accommodated with enough heat to keep up the formation of enough growth and flower-buds should not be allowed to get much below 70° at night. Under this treatment with a proportionate increase of heat in the daytime, they will keep on flowering freely for the next two months. Winter-blooming plants annually grown from cutting, such as *Poinsettias*, *Euphorbia jacquiniæflora*, *Eranthemum pulchellum*, *Plumbago rosea*, *Thysacanthus rutilans*, *Sericographis Ghiesbreghtii*, and *Begonias*, should, if not already done, be put where they can receive sufficient heat to keep them from receiving a check on cold nights, or they will move slowly when an attempt is made to push them on into

flower. Roses forced last winter or spring, and which have been stood out-of-doors during summer, should be got under cover before long, especially those intended to be forced early.

CHRYSANTHEMUMS.—Where these are grown on the planting out and layering system, with a view to produce dwarf single-stemmed plants, the time of taking up and potting needs to be regulated by the setting of the buds, but as soon as these are fairly set, and the layers are well rooted, they may be cut away from the stools and potted. If the soil in which they were layered is of a light sandy character, when taken up much of it can be shaken from the roots without breaking them, and this will enable the young plants to be put into comparatively small pots; they will bear soil much richer than most things. One-fifth rotten manure added to the loam in which they are to be potted will not be too much, as upon their being thus liberally sustained depends the quantity and full development of the flowers; press the material moderately firm in the pots, and thoroughly soak them with water to keep them from flagging. If after potting they can be shut up close in a cold house or pit, it will prevent any loss of the leaves, which, if the work is well managed, should keep wholly perfect down to the soil. Where dwarf, floriferous plants are wanted to stand on conservatory or greenhouse stages where tall specimens would be unsuitable, this planting out and layering method has much to recommend it, but the plants must be well attended to with water, so as never to let the soil get dry until the flowers are fully open, otherwise many are apt to go blind or open imperfectly. Pretty little plants can be had in 7-inch or 8-inch pots. The Pomponé varieties and the medium-sized free-flowering kinds, such as the white Mrs. George Rundle and the yellow Mrs. Dickson, conform to this treatment best.

EPACRIS.—Where a good selection of these is grown it will be found that some varieties naturally flower much earlier than others. Amongst these will be most of the erect growing kinds; the time of blooming is in a great measure dependent upon the treatment to which the stock has been subjected, as Epacris generally set flower soon after they are turned out in the open air in summer, no matter what time that may be. They are not plants that bear forcing, but their blooming may be accelerated by keeping them a little close, such as in a pit or house where double Primulas and Cyclamens are being brought on say where the temperature is not lower than 45° at night. Those thus encouraged to come on should be placed close to the light and should have plenty of air every day, otherwise a certain amount of shoot growth will take place, which it is desirable to avoid.

EPIPHYLLUM TRUNCATUM.—Where the stock of Epiphyllums is limited it will in most cases not be advisable to have them in flower until the beginning of the year, but where there is a sufficient number of plants to afford a succession, a few may shortly be put in gentle heat; for this purpose plants should be selected that bloomed early last winter, and which, after making growth, were well hardened up by exposure to the sun in the open air, treatment under which the bloom-buds will now show prominently at the points of the shoots. Where bright coloured flowers for intermixture with others of paler hue are in demand for bouquet-making or filling small vases, this section of Epiphyllums is very useful.

HYACINTHS AND OTHER BULBS.—Although the potting of these may, in the case of those that are required for blooming late in the spring, be deferred for some time, yet it is best to get the principal lot completed now, as it gives time for their being well rooted, upon which, before any excitement is attempted, much of their success in flowering depends. Out-of-doors, plunged in ashes or Cocoa-nut fibre, is still the best way of treating them, as they naturally root best where the sun comes full on the position in which they are set.

HELIOTROPES.—These are impatient of cold, but where sweet-smelling flowers are in demand

they are indispensable through the late months of the year. Whether grown as standards, large bush specimens or small stock, such as that struck from cuttings in the spring, they should soon be placed where a little fire heat can be used on cold nights. Those wanted to keep on blooming should be kept at from 45° to 50°, with plenty of air and light, for though the flowers will open in a lower temperature than this, still, if not warm enough, the plants will make but little after-growth, which is indispensable where a succession of bloom is looked for.

KITCHEN GARDEN.

TOMATOES which will not ripen should be cut just when tinged with colour, and placed over hot-water pipes in late vineries. This is a capital time to put in cuttings, and if selected from the smooth fruiting plants and those that bear satisfactorily, you will always keep improving the stock. Carter's Green Gage is much liked. Small fruits simply put into bottles filled with white vinegar, with a few Capsicums and Peppercorns, make an excellent pickle. If French Beans are not already sown, get them in at once. We have a houseful sown in boxes 3 feet long and 11 inches broad. Canadian Wonder we always sow for an autumn and early spring supply, but Osborn's for mid-winter is preferable in more ways than one. Do not forget to see that slugs are not eating the young Lettuce and Cabbage plants. We have been told to sow dust on them twice a week, and leave the rest to Dame Nature. So much has been said respecting Mushrooms, that the subject is getting threadbare; nevertheless we may be allowed to say we have had and are now having grand weather for making up beds, and as far as £ s. d. is concerned, there is no other kitchen garden crop so profitable. Our beds for autumn are now all spawned, sealed, and thatched with rough Grass (keeping out the wet after spawning is one of the secrets of success). We are now cutting Bracken for winter covering; when cut green the fronds keep intact. We find this invaluable for covering all kinds of Broccoli, Celery, and Mushrooms; in fact, we cover everything up that is likely to suffer, even Lettuce and Endive. It is light and clean, and in most places it can be had in any quantity.

FLOWER GARDEN.

GLADIOLI AT LANGPORT.

THOSE who have been in the habit of visiting any of the leading exhibitions that take place during the latter part of summer cannot fail to have noticed the fine collections of Gladioli exhibited by Messrs. Kelway & Son, whose long and skilful labours in raising new varieties of this grand hardy flower have been attended with such marked success. Yet fine as are the stands of Gladioli spikes arranged on the exhibition stage, the idea that they convey is infinitesimally meagre compared with a sight of this English home of the Gladioli, where acres upon acres are in flower during the months of August and September. Much has been said about the affection, disease, or whatever it may be called by which Gladioli frequently die off, and which is so much more destructive in its effects in some places than in others. To see the character of the soil and the course of treatment followed that has given such satisfactory results was the object of my visit. Personal experience with a fairly representative collection of varieties of this flower, including both English and French raised kinds, on land widely different in its character from that of a light, sandy, dry nature to the opposite of being strong and heavy, has convinced me that light soils are not near so well suited to Gladioli as such as are of a stronger, heavier nature, inasmuch as they are much more subject to die off in the former than in the latter. And I may here remark that the land at Langport is good holding loam that answers admirably for wheat.

THE EXTENT OF GROUND occupied here by Gladioli is this year greater than ever, being over twenty acres, distributed in plots of varied extent

over the 200 acres which Messrs. Kelway have altogether under cultivation. It is needless to say that Gladioli are the principal consideration, and and to give them the requisite change of ground the above extent is required. Except near Mr. Kelway's house, where some are grown to give effect, the whole have a change of place every year. Corn, principally wheat, is grown as an alternate crop, along with select varieties of vegetables for seed, such as red Beet, Carrots, Parsnips, Peas, &c., which are grown in considerable quantities, with Clover, and seed Grass for hay. The clean, deep cultivation to which the land is subjected enables unusually heavy crops to be grown. Cow manure is liked best as a manure for the Gladioli, and to furnish this in quantity a large stock of bullocks is fattened on the corn and other produce grown. Sand is used freely about the bulbs at the time of planting, and for this purpose it used to be got from the sea-shore, but latterly a pit has been found in one part of the ground that affords an unlimited supply which is found to answer as well as the sea sand. The immense stock was in the best possible condition, the foliage large and of a healthy green colour. The effect which the innumerable distinct varieties present when in bloom must be seen to be realised, grown as they are, each sort by itself, in plots containing from 1000 to 10,000 of a kind. September is the best time to see them; the effect is then such as I have not seen presented by any other flower; grouped as described, the different colours and shades of colour stand out distinctly and are most gorgeous. Amongst Gladioli there is much greater difference in the time of flowering of the different varieties than those who have only cultivated a few kinds will have had an opportunity of noticing, and when grouped in masses of one sort together there is nothing to mar the appearance, such as occur in a mixed bed made up of different varieties that come into bloom at various times, from the beginning of August to the middle of September. Those who have grown an ordinary collection of Gladioli, and have gone to the trouble at taking-up time of saving, naming, and growing on the small bulbs that in greater or less numbers the different varieties make, will be able to form some idea of the immense amount of care and labour required to keep the twenty acres produce correct and true to name through the processes of drying, storing, cleaning, and replanting, work which has to be repeated every year; in addition to this, too must be added the daily attention through the blooming season needed to watch and note the thousands of seedlings that require to be compared with others to which they bear a resemblance in colour and form. Some there are, and amongst them splendid flowers, distinct in colour and unexceptionable in habit, yet which are all but useless from a commercial point of view, through their producing next to no offsets, and consequent slow increase. The following is a

SELECTION OF THE BEST KINDS. It includes some that have been let out within the last two or three years: Actæon, flesh colour, with a blotch of rose on the lower divisions; Ada, salmon-red, flaked with carmine, with a white line on each petal; Agrius, salmon-pink, the edges flaked with vermilion, eye creamy yellow; Anthony Waterer, scarlet, streaked down the centres of the lower divisions; Arimus, claret, flaked with purple, with a white centre; Ball of Fire, scarlet-crimson, centre blue, maroon spot; Belgica, flesh colour, veined with lilac; Brennus, crimson-maroon, centre white, tinged with blue, the lower divisions striped with violet; Captain Boyton, red, centre bluish, white spots on the lower petals; Charles Noble, orange-scarlet, feathered and flaked with rose; Cleogenus, white, shaded purple, the lower petals striped with violet; Dercyllus, rosy pink, flaked with carmine, the lower lip tinged with yellow; Dr. Woodford, salmon, flaked with carmine, with a yellow spot on the lower petal; Dr. Woodman, salmon, flaked with lake and pink, the lower petal having a large blotch of carmine; Duchess of Edinburgh, purplish rose, with a carmine stripe on the lower divisions; Egyptian King, maroon, shaded and flaked mahogany colour, lower

petals striped with violet; Electra, pink, shaded with rosy crimson, edges flaked with carmine, violet stripe on the lower petal; Elgira, red edge, marbled, centre white, violet stripe on lower divisions; Gorgonius, purple-crimson, a white line on each petal, and a white spot on the lower divisions; Grace Darling, rose flaked and shaded with maroon, a yellow spot on the lower divisions; Henry Irving, yellowish bronze, veined with red; James Kelway, crimson, edged with maroon, a white line on each petal, and a violet stripe and a white spot on the lower divisions; Joseph Broom, magenta, suffused with rose and lined with white; Lassia, scarlet-crimson, violet stripe on the lower divisions; Lady Bridport, blush, flaked and striped carmine; Lord Derby, crimson, edged with black, violet stripe; Lord Howard, orange-scarlet, lower petals white; Lord Leigh, crimson, flaked with maroon, a white spot on the lower lip; Lord Newport, lilac-rose, lower lip white with a violet stripe; Marcianus, brilliant orange-red with a blue tinge, carmine stripes on the lower segments; Maxentius, white, slightly tinted with lavender, edged with purple; Mr. Baines, orange-carmine, the lower petal having a dark carmine stripe (a very large flower); Mr. Derry, amaranth flaked with purple, with white lines; Mr. Groves, mauve, veined with purple; Mr. Thornton, purple-crimson, veined with red; Mrs. J. Eyton, white, shaded with lilac-rose; Phillis Stuckey, rose, with a white line, lower divisions blotched; Pictus, salmon-scarlet, flaked with carmine; Queen Mary, white tinted with lavender, violet flakes on the edges, and a violet stripe on the lower petal; Rev. J. B. M. Camm, creamy white, tinged with madder, slightly flaked with pink or lake; Rev. H. H. Dombrian, cerise, with a white throat; Samuel Jennings, scarlet, with white blotches on the lower divisions; Severianus, flesh, rose feather and lilac; Shirley Hibberd, purplish crimson; Sir George Nares, purplish crimson, flaked with red on the edges, with a white line on each petal; Trojan, mauve, white centre, rose markings; T. S. Ware, scarlet-crimson, with a white blotch on the lower divisions; Victory, crimson flaked, purple centre. A very complete collection of

HARDY HERBACEOUS PLANTS is grown at Langport, including most of the best kinds, which soil and situation alike appear to suit. In some of the houses, of which there is a considerable number devoted to ordinary nursery stock, may be seen an association of occupants such as I have not elsewhere met with, that is, Tea Roses planted out in the inside border along the front, and in the same houses large quantities of Cucumbers for seed. The Roses have enough heat applied during winter, so as to keep up a continuance of flowers and the production of young wood for propagating. In the spring these houses are filled with Cucumbers, consisting of favourite sorts, each sort in a house by itself, the only object being the production of seed. Some twenty houses and pits are each summer occupied by Cucumbers for this purpose. T. B.

Iberis gibraltarica hybrida.—I think this plant must be classed among biennials, and not among perennials. I find that when plants of it have flowered they either die or become so deteriorated that it is not worth while troubling about them, and it is best to throw them away. It is a seed-yielding plant, and the best plan is to sow some seed every season as soon as it can be gathered, and flower the plants in spring and early summer.—R. D.

Iberis Empress.—Under this name there was recently exhibited at a meeting of the Royal Horticultural Society, by Messrs. Biddies & Co., of Loughborough, a very fine Candytuft, which was awarded a first-class certificate. It first came under my notice at the show of the Atherton Horticultural Society on last Bank holiday, and I was struck with its distinctness and fine properties. It is nearly or quite allied to the annual Candytuft, and blooms the same year from seed; it can also be treated as a biennial, and when

grown in this way makes fine plants for flowering at the end of the summer. Originally shown as Biddle's New Giant White Candytuft, it has since been named by the floral committee as above.—R. D.

ANNUAL SUNFLOWERS.

AN interesting series of these has been sent to us by Messrs. Robert Veitch & Sons from the New North Road Nursery, Exeter. There were about a dozen in all, mostly varieties of the common Sunflower (*Helianthus annuus*). One of the flowers presented a curious and uncommon appearance, of which the annexed woodcut is a representation. The monstrosity consists in having several secondary flowers produced from the disk of the parent flower. These small secondary flowers appear to be quite perfect, having ray and disk florets and a green involucre as in the large flower-head. The other



*Proliferous flower of the common annual Sunflower (*Helianthus annuus*).*

specimens sent bore the following names: *Helianthus globosus fistulosus*, from 4 feet to 5 feet high, very fine, a double variety of a pure yellow colour, with a shade of green over the petals in the centre; *H. globosus multiflorus*, very double and one of the best; it grows from 5 feet to 6 feet high, and is very free flowering; *H. nanus foliis variegatis*, from 4 feet to 5 feet high, colour of flower distinct, being a pale lemon yellow; *H. nanus fl.-pl.*, 5 feet high, florets after a time very much reflexed; *H. nanus simplex*, 4 feet to 5 feet high, pretty and distinct; *H. peruvianus*, 5 feet high, habit of growth good, much branched and very free flowering, flowers from 4 inches to 5 inches across, single and handsome; *H. argophyllus*, 4 feet high, silvery foliage, habit branching and fairly free blooming, flowers 4 inches across, single, and star-shaped; *H. cucumerifolius*, 4 feet, branching, flowers rather small and single, but pretty, and they last well in water; *H. californicus fl.-pl.*, from 5 feet to 6 feet high, a grand flower and the deepest in colour of all the varieties, one of the finest; *H. centrochlorus fl.-pl.*, from 5 feet to 6 feet high, handsome large double blooms appearing to come quilled; *H. uniflorus*, an extremely fine variety growing from 6 feet to 7 feet high, flower large, flat, single, distinct, centre black; *H. macrophyllus giganteus*, from 10 feet to 12 feet in height, flowers large and flat petalled; centre generally green. The seed of all these was sown on April 11 in pots and raised in a cold frame; the plants were planted out in June. When

grown finely these Sunflowers are very handsome objects, and if properly placed are capable of producing very fine effects. They amply repay good culture, and for several weeks and even months continue to bloom until cut down by frosts.

Pæonies in market gardens.—Many make a practice of planting Pæonies amongst fruit trees, the Pæonies alternating with bush fruits or filling some portions of the vacant soil amongst Apples and other standard fruit trees. Grown in this way, the Pæony certainly pays, as the plants require but little cultural care, and occupy ground otherwise of but little use. The flowers are cut in the bud state, and are sent to market in large hampers, realising at first 2s. 6d. per dozen, but dropping in the end to 3d. per doz.—J. C. B.

Lobelia fulgens.—This is one of the finest of all plants for flower garden decoration at this season. It is as hardy as a Phlox, and requires much the same treatment in order to grow it successfully. It grows about 3 feet in height, the leaves are almost black, and the long, bright spikes of flowers which it produces are of the most intense scarlet. One of the finest beds of this Lobelia which I have seen I saw the other day in the flower garden at Penllergare. It was edged with *Centaurea ragusina*, and looked quite charming.—CAMBRIAN.

"Sweet William."—In reference to the origin of this pretty name, St. Clair Baddeley adduces, in the *Athenæum*, the following passage from an essay on flowers in the *Quarterly Review* of July, 1863. Speaking of the small red-pink *Dianthus* prolifer, the writer says: "This is perhaps the original Sweet Saint William, for the word saint has only been dropped since days which saw the demolition of St. William's shrine in Rochester Cathedral. This, however, is but a conjecture; and we must be content to remain uncertain whether the masses of bright flowers which form one of the chief glories of old-fashioned gardens commemorate St. William of Rochester, St. William of York, or, likeliest of the three, St. William of Aquitaine, the half-soldier, half-monk, whose fame was so widely spread throughout the south of Europe."

SHORT NOTES.—FLOWER.

China Asters.—How is it that it is now a very rare thing to see these plants well grown? I declare I have not seen a well-grown bed of them for these last ten years, though always on the outlook for something to admire.—J. H.

The scarlet Lobelia in Hyde Park.—In the fine piece of floral oil-cloth along Park Lane, oddly enough, there is an instance of this tall and handsome plant being allowed to show its charming spike of vivid blossoms to a height of nearly 4 feet.—V.

Carnation Painted Lady.—This is not likely to be lost to the country, as in Peel Park, Manchester, there are many scores of tufts of it, each more than a yard across. They must have been handsome a few weeks back, though the trees in mid-September had scarcely a leaf left.—V.

Violas and Pansies.—It is pleasing to note how well these have served us in the flower garden all through the summer and autumn; there is no need to speak of their beauty in the spring and early summer. Even in London they have been good all through, though suffering a little from heat and dust.

Variegated Ivy for rockwork.—In a villa garden, not far from where I write, I saw the other day a beautiful display of variegated Ivy fringing the front of a piece of rockwork. I found that it had been planted nearly six years. The soil was good in which it was growing, and it formed about the prettiest piece of variegated drapery I had seen for a long time.—J. C. C.

Lithospermum prostratum.—Growing on a piece of rockwork along with variegated Ivy, a specimen of this *Lithospermum*, 3 feet 9 inches in circumference, is now a beautiful object. It is properly a spring-flowering plant, but is gaily bedecked with many charming blue flowers, which, from the scarcity of such a colour, are most charming. This plant has been in flower more or less all the summer.—J. C. C.

Chelones.—These are now very effective in many gardens in Ireland. *C. barbata* var. *Lorreyi*, with tall branching spikes of bright scarlet flowers, and the variety *antwerpense* are prominent objects in the herbaceous grounds at Glasnevin. They are easily propagated, and if grown freely in good soil these showy herbaceous plants would form quite a feature in any garden.—J. D. E.

FRUIT GARDEN.

ORANGES AND THEIR CULTURE.*

No kind of fruit is better known amongst all classes of the community than the Orange. It is estimated that England alone imports over 2,000,000 bushels annually, and, owing to the very cheap rate at which they can be bought throughout the greater part of the year, the cultivation of the plants with the object of growing and fruiting them for profit has never been attempted to any great extent in this country. In a few nurseries, notably that of the Messrs. Rivers at Sawbridge-worth, they are grown rather extensively and to a high state of perfection, but commercially they stand no chance of competing against imported fruit. There are some private gardens, too, in which their culture, with the view of supplying fruit for dessert, is successfully carried on, but I think it may safely be said that not only the Orange, but other Citron-worts are not grown so extensively under glass with us as they deserve to be. All, I am sure, who have seen an Orange tree either in bloom or laden with ripe fruit must admit that it is very attractive, and all who have seen Oranges grown must allow that they are quite worth the care which their cultural attention demands. Many, I believe, are deterred from growing Citron-worts from an impression that they are harbourers of insect pests which would contaminate other plants, but this is a mistake. Orange trees are as clean and easily grown as Camellias. In our gardens, as a rule, they are kept too much in the background, and left to take care of themselves in odd corners and shady, sunless recesses. Pampering they do not want, but a fair situation and proper attention will always produce satisfactory results. The collection of Oranges at Margam is one of the most extensive in the country. The majority of the trees have been here 300 years or thereabouts; many of them have attained large proportions, and to show the interest taken in them, I may mention that a house 350 feet long and 40 feet wide has been specially erected for the bush trees, and the trained ones clothe the high back wall of an old-fashioned conservatory 130 feet in length.

VARIETIES.—Lindley and others state that the Citron, Lemon, Orange, and Lime are sports from the one species, viz., *Citrus Medica*, and I may add that the whole of the species of the genus *Citrus* have been reduced by botanists to some five or six. Varieties are plentiful. The sweet Orange of the shops is *Citrus vulgaris* of some and *Aurantium* of others. The bitter Orange, so much used for marmalade, candied peel, and tinctures, is the *C. Bigaradia*. The blood or Malta Orange is very rich both in colour and flavour. The Mandarin is another favourite sort. The Lemon (*Citrus Limonum*) and its varieties are too well known to need comment. The Citron (*Citrus Medica*) is useful for preserving, but more difficult to mature and not so valuable as the Lemon. The Bergamot (*Citrus Bergamia*) is very ornamental, valuable for preserving, and extensively cultivated for the production of bergamot oil and citric acid. The Lime is usually called *Citrus Limetta* and the Shaddock *C. decumana*. The chief value of the Lime consists in its juice; the Shaddocks produce the largest fruits of all, some weighing, it is said, 20 lbs. The following are a few of the most useful and ornamental varieties:—

<i>Citrus Aurantium</i>	<i>Citrus melitensis</i>
<i>sinensis</i>	<i>carnosa</i>
<i>depressa</i>	<i>lusitanica</i>
<i>ilicifolia</i>	<i>violacea</i>
<i>pyrifolmis</i>	<i>florentina</i>
<i>genuensis</i>	<i>myrtifolia</i>
<i>nircensis</i>	<i>microcarpa</i>

PROPAGATION.—All kinds of Citron-worts are easily propagated from seed, and many instances are to be met with of young Orange trees growing in cottage and other windows through some one, while eating an Orange, having put a seed into a

flower-pot. But although such plants are often very pretty and often valued for the associations connected with them, they are useless as fruit bearers. Like many other fruit trees, they must be grafted. Such seedlings make excellent stocks, and those of the *Citrus Bigaradia* the best of all. Grafting or budding is done in the ordinary way, and I have been successful in inarching one variety on to another in the way in which Vines are inarched.

SOIL AND POTTING.—The question of soil is an important one. A fanciful mixture of numerous ingredients is not the most desirable. Something plain and substantial is best. A compost consisting of three parts rough fibrous loam and one of half-decayed manure, with the addition of a 10-inch flower-potful of 1-inch bones to every wheelbarrowload of compost, makes an admirable mixture in which to grow all kinds of Orange trees. The roots have a decided dislike to coming in contact with anything in the form of stagnant moisture, and in potting the utmost precautions should be taken to secure perfect drainage. Over-potting should also be avoided, as Orange trees always succeed best when there is not too much superfluous soil about their roots. Small plants in 6-inch pots might be transferred to 10-inch ones, and others should have shifts in proportion; but moving them from a very small pot to a very large one is not a rapid way of making fine plants. The best time to pot is the month of March, and for some time afterwards the plants should be shaded from bright sunshine and be syringed overhead daily. As top growth begins the roots will also be pushing, and plants potted in March should be well established in their new quarters by mid-summer. Where small plants of such varieties as *Citrus myrtifolia* are grown for table decoration, pot culture alone can be practised, and ordinary plants for furnishing conservatories have generally to be confined to pots, but where very large specimens can be accommodated the finest plants can be produced in boxes or tubs. These may be of any convenient size, and should always be made of good Oak timber. Here our largest boxes are 4 feet square and 3 feet deep. They require renewing every ten years or so, and the plants do remarkably well in them. Our tallest box Orange trees are about 18 feet in height and 12 feet in diameter. When they become too large for pots they should be transferred to boxes a little larger than the pots last used, and by-and-by they may be given a larger box, the time of shifting being determined by the condition of the plants. It is never wise to give sickly plants increased root room, because, as a rule, it is through deficient root action that bad health occurs, and they can generally be revived through renovation at the roots. In putting them into boxes the same care should be exercised as regards drainage and using the proper soil as that observed in potting, and the new soil should always be rammed very firmly about the roots.

PLANTING OUT.—As decorative wall plants few subjects are more useful than Citron-worts, their luxuriant foliage being well adapted for clothing bare places, and as they are perpetual fruit bearers, they are always showy and interesting. Pot or box plants may be planted out at any time. They should have a properly drained and prepared border, and the branches should be trained like those of any ordinary climber. A sunny position facing the south is the best of all situations for them, and if there is one kind more than another better adapted for a wall, it is the Lemon, as it produces such gorgeous clusters of fruit.

WATERING.—As before stated, Oranges have a strong dislike to excessive moisture at the roots, and much of their successful culture depends on careful watering. When the plants are large and growing freely and have their pots or boxes well filled with roots there is not much danger of doing harm through watering, especially in the summer time, but after transplanting, and before new roots have made much progress, and during the dull months there is always the greatest danger of doing harm through careless watering. During hot summer weather some of our largest box trees receive 10

gals. or 12 gals. daily, and they enjoy this when the boxes are full of roots, but when the same trees are standing in a cool house in December, January, February, and March, they are sometimes not watered oftener than once in six weeks. It is astonishing how healthy they will remain if kept on the side of dryness; if treated otherwise the leaves soon become yellow and unsightly.

INSECTS.—There is hardly any kind of insect pest which will not luxuriate on Orange trees, and if not checked and destroyed, they soon do much harm, but, fortunately, they are just as easily removed from plants of this kind as from any other, and where abundant the trees are clearly not receiving proper attention. A dark coloured deposit is very apt to over-spread the leaves, and this is as difficult to remove as any insect; in fact, it cannot be done without sponging; the best way, however, of avoiding all accumulations of this kind is to make free use of the syringe. During the growing season, and at all times, except in winter, they should be thoroughly syringed once or twice weekly, and whenever there is any indication of insects appearing, syringing should be carried on with vigour. We do not spend one week in twelve months in sponging Orange trees here, and very little of any insecticide is used on them. Our main and, indeed, only weapon of defence is the syringe. Had we to deal with badly infested trees, we would sponge and brush them all over with Gishurst compound; after that care would be taken that all pests were kept under subjection.

TEMPERATURES.—Sometimes Orange trees are treated as the most tender of exotic subjects, and kept in a steaming hot stove. I do not propose to condemn such treatment, as where they can be so treated they grow rapidly and produce plenty of fruit, but at the same time it should be clearly pointed out that they may be grown to a high state of perfection in a temperate house, and where only required for ornament they succeed very well in any ordinary greenhouse. Lemons especially do excellently well in such structures; they are more hardy, more fruitful, and altogether more easily grown than Oranges. Here none of the Orange trees are grown in more than a greenhouse temperature, and the trees in boxes are placed out in the open air from the middle of May till the middle of October. They are then taken into the large house and kept throughout the winter without any artificial heat. During severe frost we have had as much as 10° in this house and the trees did not suffer materially. At such times we try to have the soil and atmosphere as dry as possible, and this always prevents much damage from being done. I do not, however, approve of freezing them, and I would, therefore, prefer wintering them in a house from which frost could be excluded.

PRUNING.—Young ungrafted trees make wood stronger and more rapidly than fruit-bearing ones, and those who are so unfortunate as to possess the former, may have to cut them in and restrict them every year, but ordinary trees in pots or boxes do not require pruning often. Under good culture they make a good deal of wood in a season, and it is sometimes necessary to thin out the shoots or cut back the branches—and, in connection with this matter, I may put in a word of caution against the plan, occasionally practised, of clipping the trees. Where this is done the graceful beauty of the plant becomes lost. Spring is the time when all pruning should be done; trees planted out and trained to walls make more wood than those that are more restricted. Sometimes such plants need a good deal of pruning, and in performing that operation we always remove the smallest of the shoots, and allow the strong ones to remain to produce fruit, and furnish wood and leaves to cover the wall. Bush trees require little training, but those growing against walls frequently need that attention. As a rule they should be tied in every spring and autumn; but shoot after shoot should never be tied on to the top of each other, or so close together as to interfere with their proper development.

* A paper read by Mr. J. Muir, Margam Park, South Wales, at a monthly meeting of the Scotch Horticultural Association, September 4.

EXTRA FEEDING.—When the trees have been cultivated to a large size, and are growing freely both root and branch, they are greatly benefited by extra feeding over and above that which is supplied to them in the ordinary compost. Various manures have been recommended for this purpose. In the "*Histoire Naturelle des Orangers*," the best work published on the Citrus family, sheep droppings are said to be an excellent stimulant for Orange trees, and evidently this is the chief manure used for them in France. Here, however, we prefer to feed them with manure water made from dissolved pig droppings, guano, or soot; and in the growing season we often sprinkle a quantity of the two latter on the surface of the soil, and wash them down to the roots. When trees have been in the same pots or boxes for a number of years, the lower soil is apt to become poor. Such plants may therefore be top-dressed with much advantage every spring. In doing this the additional material put on should be richer than the mixture in which they are growing. Manure water and artificial feeding of all kinds should only be applied during spring and summer, as in winter they are better without any stimulant.

CUTTING THE BLOSSOM.—On certain occasions there is a special demand for Orange blossom, and, for the benefit of all whom it may concern, it may be well to point out that the healthiest trees always bloom most profusely, and from such the blossom may be cut freely without doing them the slightest injury.

THINNING AND GATHERING THE FRUIT.—Under favourable conditions some varieties form a great many more fruit than can be properly matured, and where quality of produce is the object in view it is often necessary to thin off quantities when quite small. As a rule it is not desirable to have the fruit in large clusters, as it becomes finest when grown singly or in pairs. As the fruit becomes ripe it should be gathered before it falls, and as Orange trees possess the peculiarity of being in bloom and of bearing green and ripe fruit all at the same time, it is an advantage to gather the ripe fruit as often as possible in order that a constant succession may be kept up. Respecting the quality of home-grown Oranges, I may say that the more heat they are grown in the better the flavour. Stove-grown fruit is quite equal to the best of that which is imported. We have, however, found fruits grown in a cool conservatory as well flavoured as could be desired at the end of a sunny, hot summer. Heat is required to make the skins thin and the pulp juicy and sweet, but this only applies to fruits grown for dessert; Lemons and sorts for candying are just as good and useful from a cool house as from a warm one.

BAD SETTING GRAPES.

THERE are few pursuits in which any decided innovation from an accepted practice is received with so much caution as in gardening. Not that gardeners are less alive than others to improvements, but use becomes second nature, and the occupation is one that needs more caution and foresight than most pursuits; and to turn round on an old practice and do something completely opposite requires a good deal of courage. To this may be charged the little progress that the use of the syringe has made in setting Grapes that require assistance in fertilising. It is many years since this method was found to answer, and spoken about as being certain in its effects, but it makes way slowly, although from the result of trying this means some years ago myself, and from what I have seen with others since, I have no doubt that it is the most simple and certain way of setting the sticky flowered kinds that need help in some way to fertilise them; in addition to this it has the still further merit of giving much less trouble than the old plan of drawing the bunches through the hand, brushing, &c., besides being, as I have already said, so much more certain that every berry will set. Several cases of syringe-setting that I have seen this season go to confirm this, two in particular—one a house of Muscats on the cold Manchester clay, that I understand had never

set a crop full enough; this spring the syringe was used, and, from the appearance of the house a few weeks back, the bunches look as if every berry had set. At the recent Preston show Mr. McLean, gardener S. C. De Trafford, Esq., had some of the best Alnwick Seedling I have ever seen in his collection of fruit, and also a single dish, which was first in the class for black Grapes, took the Royal Horticultural Society's medal for the best dish of fruit in the show. I asked Mr. McLean how he set them, and he replied, "With the syringe." No doubt the sound of water overhead, where ever so little moisture has been looked on as harmful, will for some time deter many from using the syringe; but I think it safe to predict that the time is not far distant when a revolution in Grape setting will in this way take place. Had the practice been generally in use, it would have saved a good many disappointments, such as an acquaintance of mine who grows for market experienced; he went to see Mr. Bell's Alnwick Seedling, and was so much in love with it that he at once put up a very big house for this variety, starting the eyes the following Christmas, planting in June, and when I saw them in September they had reached the top of the house. When the time for fruiting came there was not a decently set bunch in the house, and the whole lot of Vines came out as quickly as they went in. What was done in this instance only reflects what on a smaller scale has often been done with such kinds as Muscat Hamburg and other shy setters. T. BAINES.

LANCASHIRE LAD GOOSEBERRY.

THIS is undoubtedly one of the most prolific and sure cropping Gooseberries in cultivation; in fact, it needs no higher testimonial than that of being probably more largely planted in fruit-growing districts than any other, and that it does not lose its free bearing property by removal to localities less favourable than that from which it came I have ample proof; for, in gardens in which Gooseberries used to frequently fail, I have noted that since the introduction of this kind, good crops have been an annual occurrence. Anyone, therefore, desirous of improving their supply of bush fruits should make a note of this kind now that the planting season is at hand. No fruits cultivated in gardens yield such certain returns as bush fruits—Gooseberries in particular. Good strong cut-back bushes planted in October will be almost certain to bear as much fruit the first season as will repay the cost of the bushes, and if planted from 6 feet to 8 feet apart, the intermediate spaces may be cropped the first year or two; therefore, there is no waste or idle ground. Keep the shoots thin by pruning, an operation that should be performed just as the buds are bursting, and a rich coating of manure lightly forked in about the roots will be well repaid. Keep birds from attacking the buds at all hazards; they not only destroy the crop, but spoil the growth of the bush as well. If caterpillars attack the leaves, dust freely with lime or Hellebore powder. In picking always lighten the crop at the tips of the shoots first, as the berries weigh them down and get splashed with mud, and green Gooseberries for tarts and bottling or preserving are always in great request in April and May, when home-grown fruit is at its lowest ebb. J. G.

Hants.

Wrongly named fruits.—Some years ago I was much put about in finding several Peach trees received from a nursery and planted for early forcing turn out to be wrongly named, one of the Peaches proving to be a second-rate Nectarine. There are good reasons for supposing that such mistakes happen often, and lead to wrong estimates being formed of certain varieties. For example, only this week I saw quite another variety of Grape growing for the Alnwick Seedling, and beside it a strong Buckland Sweetwater for the Duke of Buccleuch, much to the chagrin of the gardener when he had fruited them, for to him it meant a dead loss of time and means. Both Vines came from an Edinburgh firm which has dis-

tributed many Duke of Buccleuchs, and I can very well imagine a gardener less familiar with the true sort than the gardener in question forming quite a wrong estimate of the sort it was supposed to be, and perhaps publishing it in some of the papers.—GROWER.

MULCHING OUTDOOR FRUITS.

IT is impossible to advocate too strongly the benefit to be derived by fruit trees from a good mulching of cow manure applied in autumn or early winter. Not only is it suitable for wall trees, but also for pyramids and bush trees, especially where an indifferent supply of labour renders summer watering impossible, and, indeed, where the latter can be done, and done thoroughly, so far as an ample supply of water and summer mulching are concerned, personal experience would lead me to waive the latter treatment in favour of the winter dressing of cow manure. This may be done at any time after the fall of the leaf during open weather. Taking the stem as a centre, the surface soil may be lightly stirred within an area of 4 feet from the same where circumstances will permit, and then carefully removed until the first signs of fibre appear, distributing the manure evenly over the surface and topping with the soil. I find the manure answers the purpose in whatever state it be applied, and where a sufficient quantity can be procured a liberal allowance should be given, say three parts of a barrowload to each tree. Where this is effectually done it will be found that all wall trees, and especially Peaches and Nectarines, will pass successfully through a season, giving a good crop of fruit, and making strong, healthy growth without the aid of a drop of water or any surface summer mulching; at least, such has been our experience here (West Surrey) with a Peach border lying on a foot from the gravel path, soil light loam. I would also strongly recommend all intending planters to work in a little cow manure well chopped up for all young trees. It helps a first season's growth wonderfully, especially if that season prove hot and dry. Attention should be directed during the present month to all outside fruit walls to ascertain what trees may be required to fill up gaps, and also to keep some growing along to take the place of any that may suddenly fail. There is sometimes a tendency when old trees are doing fairly well to forget how apt they are to lose ground occasionally in an unexpected manner, and if no provision has been made to fill such a vacant place, two or three barren seasons are the result. E. B.

Strawberry culture on light soils.—

The most important points in connection with this subject are the thorough breaking up and deepening of the soil and firm planting. Where the soil parches quickly in summer at least 18 inches deep of earth should be at the disposal of the roots, and if the surface can be made as hard as a barn floor so much the better. With depth of soil, a firm surface, and a good mulch, excellent Strawberries may be grown even in a bed of pure sand.—J. C. B.

Exhibiting fruit.—I am surprised that any gardener who ever acts as a judge should express such an opinion as "D. T. F." does (p. 204) respecting the disqualifying of "W. B.'s" collection of fruit on account of his having shown in it three varieties of Grapes, when the schedule, as I understand, put no limit to the number of varieties of any particular kind of fruit shown. This is not a matter to be settled by fancy or opinion, but to be decided legally on the strict wording of the schedule, and that alone. All that is not forbidden is permitted. The fact of the schedule at some exhibitions stating that no more than so many varieties of any particular fruit may be shown, and of others putting no limit to the number, carries conviction with it, such as I had supposed anyone at all conversant with such matters could not have misunderstood. I admit that three varieties of any kind of fruit in a collection of six dishes was too many, and had I been judging it would have counted as a point against it. But in disqualify-

ing the collection the judges went beyond that which they had any right to do. In all cases the schedule is the code of rules binding on both exhibitors and judges, and the latter have not a particle of right to put any interpretation beyond that which is expressed in the schedule for the particular show at which they are acting. What other societies may require or not require, so long as there is no uniform rule, is outside the question. Numbers of schedules issued throughout the country put no restriction on the number of dishes of any particular kind of fruit to be shown, and judges who know their work do not go out of their way to disqualify exhibitors who do not infringe any rule.—T. B.

Poole's late yellow Peach.—Can any of your readers give me a hint as to the character of this variety? The fruit is large, rather conical, and deeply indented on one side from top to base; colour a very deep yellow-red on the sunny side; flesh firm, and yellow right through; season, middle of September. With the exception of its irregular surface, it so much resembles an Apricot both in consistency and colour, that it would hardly be a stretch of the imagination to call it the Apricot Peach.—E. B.

Pears on Quince stocks.—In most matters connected with gardening opinions differ, and even on subjects on which it might be supposed there would be unanimity. With regard to the best stock for Pears, opinions are usually as wide as the poles, some declaring for the Quince as the best stock for this fruit, others as freely condemning it, advocating the Pear stock alone as the best, and I think it can scarcely be denied that those who hold the latter view have most to support them, at all events if the results of such seasons as the present were to decide the question. I have seen few Pears on the Quince this autumn that do not show unmistakable signs of being so gritty as to be all but worthless. And what is more in favour of the Pear stock is that we get a good many summers that have a like influence on the crop when the trees are on the Quince, leaving out of account the tendency to this fault always existent where this stock is used. As a matter of course, with the Pear stock, if the trees are to be kept within moderate bounds as to size, such as is usually desirable in a garden where there is a general mixture of crops, the roots of the trees need to be pruned from time to time, but this is so simple a matter, requiring little labour, that the objection to the Pear stock on this head is groundless. At any rate those who use the Quince stock this season, in not a few places will not have much to depend on in the shape of usable Pears.—T. BAINES.

NOTES ON NEW PLANTS.

Brocchinia cordylinoides.—Plants of this interesting Bromeliad have recently been added to the cultivated collection at Kew. It was found by Mr. G. S. Jenman in the Kaieteur Savannah, British Guiana, who describes it in his "Remarks on the Aspect and Flora of the Kaieteur Savannah," published in the "Journal of the Agricultural Society of British Guiana," the following extract from which will give the reader some idea of the gigantic dimensions of this new addition to our cultivated members of the Pine-apple family: "*Brocchinia cordylinoides* has a stem as stout as a man's thigh. It grows erect, and eventually reaches a height of 15 feet in sheltered situations. The leaves never part from the stem, but in course of time decay, their fibrous bases always remaining. The head forms a dense plume the size of one of the largest Agaves or Fourcroyas, but with three or four times the quantity of foliage possessed by any member of those genera. The dead leaves hang down, lapping closely one over the other on the stem, which in specimens only a few feet high they quite hide. It flowers at various sizes, depending absolutely on whether the situation be favourable or not to healthy development. The age when this takes place I found nothing to enable me to determine. It is so many years, however, that this *Brocchinia*

might be regarded according to the popular fancy concerning the Agaves as a 'century plant.' The panicle is several feet high, much branched, with pale inconspicuous flowers. After the performance of the reproductive function the plant dies." Where room can be found for this large growing

of the leaves. "Without injuring in the least the great plant which supports its life, it (the *Utricularia*) lifts its stems high and throws the glory of its beautiful bloom over the broad pallid head that has afforded it a home." The flowers are blue and borne in lax panicles rising 3 feet or 4



Eucharis Sanderi, showing habit of growth and flower stem (natural size).

Bromeliad, it will, no doubt, prove a stately and striking plant even when not in flower. The leaves are perfectly smooth and spineless, channelled, about 1 foot wide in large specimens, and of a bright shining green colour. Botanically it is interesting, because of its being the giant of the family to which it belongs.

It may be interesting to note that Mr. Jenman found the beautiful *Utricularia Humboldtii* growing in the midst of the leaves of the *Brocchinia* where water is held by the sheathing bases

feet, and spreading from among the leaves of the *Brocchinia*. As this species of *Utricularia* thrives under conditions similar to those under which *U. montana* and *U. Endresi* are cultivated here, it is to be hoped that Mr. Jenman's rediscovery of what both Schomburgk and Gardner found in their travels in Brazil will lead to the introduction of so desirable a plant into this country.

Richea pandanifolia.—Young plants of this most interesting Tasmanian Epacrid are growing at Kew. Although closely related to the

Epacris, it has the appearance of some Pandanus or Dracæna both as regards its habit and the form of its inflorescence. In the north gallery there is a picture of another species of Richea, viz., *R. dracophylla*, which enables one to form some idea of what the "Pandanus-leaved" species must be like. Briefly described, this species grows to a height of about 40 feet, with the stem ringed just as in *Dracæna* or *Aloe*, and bearing heads of long strap-shaped serrated leaves with a spiny point. The flower-spike is produced from the centre of the foliage, and is in the form of a stiff, dense raceme of white star-shaped flowers crowned at the top with large purplish leafy bracts. It is a most remarkable plant, though possibly, as is the case with other curious forms of plant life from the same regions, such as *Xanthorrhoea*, *Kingia*, &c., it may not thrive well in this country.

Dichorisandra Aubletiana is a very pretty addition to our stove representatives of the Spider-wort family. It is of scanty habit, growing to a length of about 6 feet, with an abundance of lateral branches, on the ends of which a little bunch of blue flowers with white eyes are borne. The flowers are of good substance, about three-quarters of an inch across, and remain fresh for several days. Foliage bright green, ovate acuminate, and about 2 inches long. It is a tuberous-rooted species, and produces its growth annually. The tubers are as large as a child's fist, and deep purple-coloured at one end, white at the other. There are several fine specimens of it at Kew. A native of Tropical America and the West Indies.

Monochoria cyanea.—A handsome blue-flowered aquatic, related to the Pontederias. It is characterised by a creeping rhizome, from which the leaves rise, and by the curious way in which the flower-scape is developed. The foliage is ovate acuminate, with a long petiole, from the upper portion of which, near the base of the leaf-blade, a sheath is pushed, in which the flower-spike is borne. There are about ten flowers on each spike, of a deep blue colour, and about three-quarters of an inch wide. A pretty addition to our stove aquatics, introduced to Kew from Australia. A plant is now in flower in the Water Lily house at Kew. B.

New Pentstemon.—I send you a specimen of a fine new *Pentstemon* I have raised from Californian seeds—the *P. labrosus*. It is allied to *P. barbatus*, but Sir J. D. Hooker considers it quite distinct specifically. Height from 3 feet to 5 feet; radical foliage narrower and thicker than in *barbatus*; corolla, as you will see, perfectly free from beard; the lower lip divided into three long and rather narrow lobes. As it stood the brunt of last winter, it is no doubt quite hardy. The plant is described in "Botany of California" by Dr. A. Gray as a probable var. of *P. barbatus*, but it is almost certain that he had not had the opportunity of seeing the living plant. I shall have another species in flower shortly, also scarlet, the *P. Eatonii*, a dwarfier plant.—W. THOMPSON, Ipswich.

* A pretty plant, the colour, a scarlet, being very bright and effective. Judging by the flower-spikes Mr. Thompson sends, it seems to be a freer flowerer than *P. barbatus* or *Chelone barbata*, as it is often called.

EUCCHARIS SANDERI.

THIS plant is likely to become a dangerous rival of the popular *E. grandiflora* (amazonica). The first flowers of it that opened in this country were poor indeed compared with those which the plant has since produced under good culture. The accompanying illustration, for which we are indebted to Mr. W. Bull, shows well the character of the growth and the flower-spike, but the flowers are considerably under-sized compared with those that may now be seen in Mr. Bull's nursery at Chelsea, and which are as large as those of *E. grandiflora*. They are pure white and of wax-like texture; their distinguishing characteristic is the absence of a distinct corona, which separates it at once from

both the other species now in cultivation. The corona seems to be fused with the inner surface of the perianth tube. The umbels each bear from five to nine flowers, which expand in quick succession, and are borne on sufficiently long stalks to be useful in a cut state. Its constitution is said to be hardier than that of the old *E. grandiflora*, and it can, it is said, be grown and flowered successfully in a much lower temperature. If such be the case, it will be valuable, as it could be grown by those who do not possess a stove. It is very distinct in foliage, being hardly distinguishable in that respect from *Euryclæ australasica*. The leaves are large and somewhat heart-shaped, strongly ribbed, and pale green. It is a native of the United States of Colombia.

ORCHIDS.

NEW AERIDES.

AT Stevens' Rooms, King Street, Covent Garden, on Wednesday last, a large specimen of a very fine new species of *Aerides* was sold for the extraordinary sum of 235 guineas, the purchaser being Sir Trevor Lawrence, Burford Lodge, Dorking. The plant was the only one brought home some two years ago by one of Messrs. Sander's collectors. Since then it has made good growth in the St. Albans Nursery, and the first blooms were seen about a fortnight ago. The plant consists of some six healthy breaks, each furnished with deep green foliage 2 inches broad. The pendulous flower-spike measured about 2 feet in length, and carried thirty-two blossoms, nearly all of which were expanded at the time when the plant was sold. They partake somewhat of the character of those of the rare *A. Leoni* and the common *A. odoratum*, and possess the strong aromatic perfume of the latter species. They are nearly 2 inches long and $1\frac{1}{2}$ inches broad, and the whole flower is of wax-like substance. The sepals and petals are white, conspicuously tipped with amethyst-purple, while the broad trilobed labellum has the infolded wings pure white, with the middle lobe of a rich amethyst, and each of the lobes is terminated by a delicate fringe. The appearance of the whole spike, carrying so many expanded blooms, was very fine; in fact, no other *Aerides* in cultivation can compare with it, either as regards noble appearance or beauty of colour. For this coveted treasure there was a spirited competition. The price which it fetched is the highest that has ever been given for an Orchid put up for sale at a public auction.

The Dove Plant (*Peristeria elata*) has been uncommonly fine this season at Mr. W. Bull's nursery, Chelsea, where there are still numbers of fine specimens in flower. The tall spikes of singular shaped white and wax-like flowers, imitating exactly miniature birds, rise boldly from the mass of handsome foliage. The delicious aromatic perfume of the flowers, too, adds much to the charms of the plant.

Odontoglossum crispum virginale.—Out of the thousands of imported plants that annually flower for the first time in this country, it is very seldom indeed that an albino turns up among them, notwithstanding the extreme diversity of the markings of the flowers. A white form may therefore be considered a rarity, and, moreover, a beautiful one. There is now in bloom in Messrs. Shuttleworth & Carder's nursery a fine specimen of a white-flowered variety that has been appropriately named *virginale*, for there is nothing to mar the chaste purity of the flower, save a dash of yellow on the labellum. The rest is pure white without even the suggestion of a blotch. The flower, moreover, is of the broad-petalled type, and the spike is tall and arching.

Paphinia cristata grandis is the name given to an exceptionally fine variety of this Demerara Orchid, which has been imported in

quantity by Messrs. Shuttleworth & Carder, Park Road, Clapham. The flowers are much larger than usual, being $3\frac{3}{4}$ inches across, and the dorsal sepal is fully 3 inches in length. The colour, too, is darker, the chocolate ground colour being of a more purplish hue barred transversely with white. The labellum is white and barred with chocolate, and surmounted by the characteristic fringe of white. It is a dwarf-growing plant, only about 6 inches high, and has small pseudo-bulbs, from the base of which the pendulous flower-stalks are produced, usually in pairs and threes. The plants have a singularly pretty effect suspended in a long line. Mr. Shuttleworth grows it very successfully in the Cattleya house in small hanging pans.

Vandas.—I was surprised to read "Peregrine's" condemnatory notice of these, as, rightly grown, they are amongst the noblest of Orchids, and they are not at all difficult to manage. As one of your correspondents rightly remarks, it is the stewing temperature to which they are often subjected which robs them of their beauty and renders their culture expensive. We have so many Orchids which are valuable only for their flowers, that we ought to prize such as are ornamental all the year round, and this much may certainly be said of *V. tricolor* and *suavis* when grown under conditions favourable to the production of healthy luxuriant foliage.—J. C. B.

QUESTIONS.

5753.—**Fruit book.**—Can any of the readers of THE GARDEN inform me of a book describing the different purposes for which fruit is used in England?—F. F.

5054.—**Designs for flower beds.**—Would some of your readers kindly inform me where I can get some designs for flower beds to be cut out on a large lawn?—SUBSCRIBER.

5055.—**Treatment of Crotons.**—Will any reader of THE GARDEN kindly give me information regarding the treatment of Crotons from young plants onwards?—CONSTANT READER.

5056.—**Caladiums.**—I want to know whether these should go to rest now or be kept growing? Will some reader of THE GARDEN kindly tell me? also should *Vincas* be cut down or kept growing?—J. H.

5057.—**Seedless Grapes.**—Can any of your correspondents inform me why Muscat Hamburgs do not produce seeds? Mine are in a late vineyard and have not seeded well for these four or five years.—N. MCD.

5058.—**Select Gooseberries.**—Will some of your readers kindly give me the names of a dozen of the best Gooseberries for cultivation in this part of the country? A few remarks on their culture would also be appreciated.—J. H., Sunderland.

5059.—**Oaks in Warwickshire.**—Would anyone who has taken note of the kind of soil in which the nobler Oaks in this county (or elsewhere in England) have done well kindly let me know through THE GARDEN what its character usually is?—V.

5060.—**Stocks.**—Will anyone tell me something of the nature of Stocks? Do they ever object to light, warm sandy ground? I am very fond of them and fail repeatedly. I am not interested in the kinds that bloom so well early in August in many places.—N. J.

5061.—**Melon leaves.**—My Melon leaves turn brown and dry; they have become so ever since the young plants were put out. The latter are growing in a good loam and have plenty of drainage; the older they get the worse they get, and I fear they will never ripen their fruit, which is now swelling. Will some one kindly tell me how to mend matters?—H. G. B.

5062.—**Softening hard water.**—I should be very glad if some of the readers of THE GARDEN could tell me of a simple way of rendering hard water soft, as the lime therein has a tendency to discolour the Grapes in my house. We have to continue syringing very late in the season in order to keep the Vines clean, as we use the house for various plants besides the Grapes.—G. F.

5063.—**Tortoises.**—Are these of any use in a kitchen garden, and of what does their food consist? I put one into a Lettuce bed early in June. After a few days he found his way to the Strawberry beds, where he has lived ever since, but he evidently does not subsist on the fruit, as the Strawberry berries were not ripe when he arrived there, and are now over. Must he be housed in winter?—J. H. W. THOMAS, Belmont, Carlou.

5064.—**Gladiolus viperatus.**—Can any one of your readers inform me whether this *Gladiolus* is to be had either in England or on the Continent? The plant is figured and described by Mrs. Loudon in her well-known work on bulbous plants. It is not particularly showy, but it seems at least probable that its extreme fragrance may render it useful in experiments in the hybridisation of the family of plants to which it belongs. I do not find it in any British or foreign price list accessible to me.—W. G., Newport, Rhode Island.

NOTES OF THE WEEK.

Dogs in public gardens.—"No dogs allowed loose in the park" is the rule in the Alexandra Park, Manchester. Those who notice the way in which dogs run amuck among the flowers and chase or worry the sheep in London parks will probably think it a good rule.—J. L.

International Horticultural and Forestry Exhibition.—We briefly announced last week (p. 218) that this had been postponed till 1885. Mr. Birkbeck, in a letter to Mr. John Wills, states that, "after a long and exhaustive discussion, it was unanimously decided that, having in view the vast amount of preparation necessary for its success, especially with reference to forestry, it would be impossible to hold it at so early a date as next year, and that much more good would be done and the chances of success much greater if it were postponed to the year 1885, which it was accordingly decided to do." It is also added that this additional time will be needed in order that due notice may be given to the trade that it is intended to hold such an exhibition in the spring, summer, and autumn of the year 1885.

Alexandra Park.—The acquisition of the extensive grounds of the Alexandra Park by the London Corporation as a public park is at present under consideration, and is said to be favourably regarded.—Lord Shaftesbury and other influential persons having urged the expediency of the purchase in the interest of the public at large, and especially in that of the great suburban district on the north of London, now being covered with houses at so rapid a rate. Some demur, we understand, has, however, arisen in regard to the Palace itself, for which it was apprehended no remunerative use could be found, as it has failed as a place of amusement in successive hands. Mr. Bourne, the Principal of the new College of Practical Engineering at Muswell Hill, suggests that a portion of the Palace building should be converted into a sanitarium, the residue being devoted to popular amusement and instruction as heretofore; and he reckons that by the introduction of this new feature the receipts will be so much increased that the scale will be turned in the right direction. Certainly there is no sanitarium in England such as the Palace thus utilised would constitute. It is heated throughout by hot-water pipes, so that an equable temperature can easily be maintained throughout the year.

National Apple congress.—At a meeting of the sub-committee, held at the Royal Horticultural Society's Gardens, Chiswick, on Sept. 18, Mr. John Lee, in the chair, it was decided that exhibitors be requested to send not less than two fruits of a kind, or more than six, for the purpose of examination. All packages should be addressed to the secretary, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick; the charges for carriage of the same will be defrayed by the society. Admission to the public will be 1s. on the 4th, and 6d. on other days. This conference will not take the form of an ordinary exhibition, as there will be no competition and no prizes, the sole object being to seize so favourable an opportunity of gaining information, and making the meeting instructive and educational. All fruit growers are invited to send, and the more widely the collections are procured the greater will be the interest the exhibition will create. It is very desirable, therefore, that every collection should be accompanied with as much information as can be furnished with regard to soil, exposure, and physical conditions of the districts from which they are gathered. No limit will be put upon the number which anyone may see fit to send, and it is not at all necessary that they should be the product of his own grounds. The committee desire that an effort be made to procure representatives of all the varieties that are grown in the various districts, and that all should be distinctly labelled with the name or names under which they may be known in their respective localities. As the specimens sent are strictly for examination, they must necessarily be at the dis-

posal of the committee where required. All packages addressed to the secretary must be delivered on or before October 3. Exhibitors staging their own fruit may do so on October 3 or morning of October 4, to be ready for the inspection of the committee. Notice of intention to exhibit must be given to Mr. Barron not later than September 29, stating the number of varieties to be exhibited, or the amount of space that will be required. All exhibitors will be admitted to the gardens free, and they will receive a certain number of tickets, according to the extent of their exhibits, for the admission of friends. Growers of fruit will have in this exhibition an opportunity of correcting or verifying the nomenclature of their fruits, by bringing specimens with them and making a personal comparison.

The fourth annual "cryptogamic meeting" of the Essex Field Club will take place in Epping Forest on September 29. A large number of London botanists have promised to be present and to act as referees. In the evening a meeting for the exhibition of botanical specimens will be held in the Assembly Room at the Roebuck Hotel, Buckhurst Hill, when the following papers will be read: "Recent Additions to the Fungus Flora of Epping Forest," by Dr. M. C. Cooke; "The 'Lower Orders' of Fungi," by Worthington G. Smith; and "Fungi as Poisons," by Dr. Wharton. Botanists wishing to attend the meeting or willing to assist by exhibiting specimens should communicate with the hon. secretary, Mr. W. Cole, Buckhurst Hill, Essex.

National Floral League.—This is the name of a movement which is being set on foot for the purpose of fostering flower culture by the industrial classes, the poor, and by children of Sunday and day schools. This is sought to be attained by—(1) The establishment of floral societies for the promotion of window gardening, and imparting elementary education in the structure and growth of plants, and by helping to sustain and enlarge any existing societies for kindred objects. (2) The diffusion of practical information concerning the growth and propagation of flowering and foliage plants, especially as adapted for window gardening. (3) The formation of classes and delivery of addresses and lectures on botany, and holding examinations thereon. (4) Promoting floral exhibitions, at which prizes and certificates shall be awarded for the best exhibits, upon the adjudication of competent judges. (5) The holding of an annual conference of persons delegated by societies in union, and others interested in the operations of the league, when papers would be read, followed by discussions thereon. (6) The publication of a journal reporting meetings and exhibitions, and containing articles generally conducing to the objects of the league. We may add that Mr. Carruthers, Mr. Britten (British Museum), and Mr. Nicholson (Kew) are interested in the movement, which, we think, cannot fail to find support.

KITCHEN GARDEN.

Market Carrots.—These promise to be good crops—both long Surrey and intermediate—having been favoured with frequent showers during their earlier stages of growth. When once they get firm hold of the soil, they do not much mind hot, dry weather. The low prices obtained last winter have, however, had the effect of decreasing the area sown this spring.—J. C. B.

Novel practices with Celery and Brussels Sprouts.—I was lately in a large and well cultivated kitchen garden under the care of a practical Scotch gardener, and was surprised to see all the Brussels Sprouts (a fine crop) divested of the whole of their leaves except a few at the top, the object being, I was informed, to make the crop of Sprouts better and hardier. Of the merits of the plan I cannot speak, but the rule is to leave the leaves on the plants for protection and in order to promote the growth of the Sprouts. In the case referred to the Sprouts were only appear-

ing, the time being early in September. The other novel practice was leaving the earthing up of the Celery till the beginning of October. The plants were fine and tall, but green to the base, and I was told the plan was an excellent one. My idea has always been that as the eatable and blanched portion of a stalk of Celery is that portion of it which grows after earthing up, the sooner the latter operation is performed the better, there not being so much growth after October. Still, I would be glad to hear your correspondents' opinions on the subject.—J. S. W.

Northern King Cos Lettuce.—Last winter I found this Lettuce the best to withstand the damp. The leaves are thick, but at the same time crisp and tender. We had a supply of it in frames for salad till late in the spring. I have found it also one of the best this summer. The colour, a pale green, when blanched is crisp and white. It stands a long time before bolting to seed, even in the hot, dry weather which we had during the month of August.—W. C.

Protecting Asparagus beds.—Not the least important of the details of Asparagus culture is the protection of the full grown plants from injury by wind, for I need hardly say that on the full development of the tops depends the size and strength of the crowns the next season. The growth gets heavy as it becomes fully developed, and is liable to injury from gales of wind, which twist the stems until they snap right off at the base. When Asparagus is grown in beds, I find Pea sticks stuck firmly between the plants to make an efficient support, and no amount of wind will dislodge the stems. But the best way to grow Asparagus is in single clumps a yard apart, and then three or four stout stakes should be put to each plant about 1 foot from the crown and strong cords run round to make a sort of cradle. Another important point in Asparagus culture is the removal of the seeds, or rather berries, directly, for if allowed to remain on the stems, they must naturally weaken the plant. If fine Asparagus is desired, these trifling details of culture must be well carried out. If near the sea coast, apply a mulching of sea weed as soon as the Asparagus stems are cut off in November.—J. G., *Hants.*

Single Dahlias (E. M. Davis).—Your flowers arrived so withered that it was impossible to distinguish one from the other.

Apple blossoms (J. G. B.).—It is not very uncommon to find blossom and fruit at this time of year on the same Apple tree.

Lathyrus Drummondii.—Having had several requests for seeds of this Pea mentioned in THE GARDEN (p. 15), I may state that I shall be glad to send seed of it to any person who sends me a stamped and addressed envelope.—JOHN T. POE, *Riverston, Nenagh.*

Names of plants.—*Mrs. Bullar.*—*Lilium Batemanniae*, *Tricyrtis hirta nigra*—*Anon.*—2, *Eccremocarpus scaber*; 3, *Solidago canadensis*; 4, *Adiantum scutum*; 5, *A. cuneatum*.—*J. H. W. T.*—*Lobelia Milleri*, supposed to be a hybrid between *L. syphilitica* and *L. cardinalis*.—*W. Peet.*—1, *Sparmannia africana*; 2, *Rhamnus alaternus*.—*A. E. McIntosh.*—1, *Polypodium vulgare semilacrum* (rare); 2, *Pteris hastata*; 3, *Onoclea sensibilis*; 4, *Pteris longifolia*.—*J. B.*—*Odontoglossum Lindleyanum* (Orchid); other is apparently *Pastipora quadrangularis*.—*Constant Reader.*—Orchid is *Stanhopea eburnea*, *Begonia* is *B. Evansiana*; names of *Heaths* next week.—*Mrs. Guile.*—*Sedum Fabaria*.—*Delta.*—*Sisyrinchium convolutum*.—*S. S.*—2, *Rudbeckia speciosa* (Newmann); 3, *Pteris umbrosa*; 4, *Pteris cretica albo-lineata*.—*Dis.*—We have been unable to ascertain the names of the Conifers, the specimens being too small. Send a good sized piece of each and as characteristic as you can find. Please attach numbers securely next time.

Naming fruit.—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

Names of fruits.—*E. B.*—Your Peach looks like Royal George from an open wall, but not very good examples of it. This variety is a good one for a Peach house, but if you require an early crop you had better have a tree of one of the best of the early sorts—Hale's Early, for example.—*J. Fletcher.*—We cannot name fruits from single specimens only; three at least should be sent of each sort.—*T. R.*—Dumelow's Seedling or Wellington.—*S. Dart.*—1, Kerry Pippin; 2, Golden Noble; 3, Cat's Head.

No. 619. SATURDAY, SEPT. 29, 1883. Vol XXIV.

This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSES IN THE MIDLANDS.

ROSES here have been this year plentiful enough, but poor in quality. The wood of the cut-backs and the dormant eyes both of standards and dwarfs remained uninjured through the winter of 1882-83. The summer-like weather which we had in February brought out the young growth to a state unprecedented in our time. March, that cruel month to vegetation in this country, brought with it a frost of 26° and a continuation for fourteen days of cold north-easterly winds. I need scarcely say that this to the rosarians in this locality made the "whole heart faint." But with the genial weather we had in April it was not a little surprising to see the quick change that took place in the plants and buds that had partially escaped the devastating storm. Seldom, if ever, did we notice Roses recover themselves so quickly. Fly, grub, and all insect pests were conspicuous for their absence; and again our hopes were great for a good and glorious harvest. After such a severe check we knew that our blooming season must in a measure be delayed, and more especially did this apply to maiden plants, which, as a rule, always give us our finest bloom. And while we read and heard from various sources that southern growers were showing and cutting fine blooms for the early meetings, we in this part of the country had nothing but malformed flowers. When actual growth, however, did set in, the foliage and robustness of the plant were all that could be desired, and when the bloom arrived we were struck firstly by the want of petal, the thinness of the Rose, and, secondly, we never saw Roses droop so quickly after being cut. I believe this has been a season remarkable for both the faults just mentioned. Quantity has taken the place of quality in the case of the Roses of 1883. Our standards and Manettis have been a complete failure in this respect, the Seedling Brier yielding us our best blooms, but not until the early days of August.

Another remarkable coincidence this year has been with us the absence of many good Roses in their usual form. Among them we have particularly noticed the following: Madame Victor Verdier, Dr. André, Reynolds Hole, François Michelon, La France, Charles Lefebvre, Dupuy Jamain, Star of Waltham, Emilie Hausburgh, Duchesse de Vallombrosa, and Mdle. Eugénie Verdier. Among those that have pleased us most are Gabriel Luizet, Marie Baumann, Alfred Colomb, Charles Darwin, May Quennell (extra fine), A. K. Williams, Duchess of Bedford, Ferdinand de Lesseps, Louis Van Houtte (exquisite), Beauty of Waltham, Senateur Vaisse (old, yet one of the best), Horace Vernet, and Henry William Eaton. For richness of colour in Roses we have to speak in the highest terms; if some have been "short and loose," the brilliancy of the crimson has never been so rich; this I attribute to the dullness of the weather in a great measure. At the great meetings—Liverpool, Sheffield, and Manchester—where the southern, midland, and northern growers could meet *en masse*, I noticed more especially this element in the Rose, coupled with, as previously stated, the thinness of the petal.

The finest Roses I have seen this year were those shown by Mr. Whitwell, of Darlington; his boxes at Sheffield and Manchester were simply superb, showing at the former place a Thomas Mills, the finest and most perfect bloom in the whole exhibition; while at Manchester, at the Botanical Gardens, the bloom of Madame Hippolyte Jamain in his singles was so extraordinary in size and so beautifully furnished, that, shown as

it was there, it was not inferior in size to that grand new Rose, Her Majesty. The three plants of Annie Wood in the box of triplets shown by the same grower were not inferior to Mad. Hippolyte Jamain in size, while for form, richness, and colour I never saw their equals; the petals were evenly disposed, the form like that of a good A. K. Williams (not with the usual eye), but full up to the centre. But while we midland growers complain (and in a measure we have cause), how is it that one so much further north, like Mr. Whitwell, can produce flowers far superior in colour, size, and substance to any Roses grown either by nurserymen or amateurs? This is a question I do not pretend to answer myself, and leave it to more scientific heads. One thing is certain, that few amateurs and fewer nurserymen would care to go to battle with Mr. Whitwell when in full form. W. H. FRETtingham.

Beeston, Notts.

TEA ROSE ADAM.

THIS is one of the most useful Roses in cultivation, and I venture to say that some of these days it will stand in the front rank of Roses grown more for the continuous supply of buds and flowers which they yield than for the decorative effect which they are capable of affording. My first acquaintance with this Rose was made on the Continent some years ago, where, in a large establishment, the back wall of a Camellia house was devoted to Tea Roses, amongst which were some plants of Adam. All the kinds planted there did well, and gave a large amount of bloom, but there were periods when they were out of bloom with the exception of Adam, which always furnished a bud or two in times of need, and often caused the remark to be made that it was worth all the other varieties put together. It is, however, only fair to say that that favourite of the market growers, Niphetos, did not have a place there, but although Adam scarcely ranks so high as that popular kind, it comes next to it, and the two should always be found in company, forming, as they do, a good contrast as regards colour. I cannot think of two better kinds for a small greenhouse than these two Teas, and I am sure amateurs would find them more satisfactory than Maréchal Niel, which, glorious Rose though it is, is not so well fitted for "small houses, and its flowering season is far too short for those who like to cut a Rose every few days through the spring, summer, and autumn months. Speaking of Tea Roses the other day to a friend, a large trade grower of them, he confirmed my good opinion of Adam, but considers it to be quite distinct from President. This is a matter of some importance, and a point which should be cleared up, as if there are two distinct Roses under the same name, it may be that the true Adam is often not obtainable, and that some disappointment may be the result, that is supposing the two kinds not to be equal in general good properties. What is the opinion of Rose growers in reference to this matter? J. CORNHILL.

ROSE PRINCESS OF WALES.

THIS Rose, flowered out of doors, is altogether different from and superior to any I have seen under glass. The blooms have a deeper colour and a more substantial substance; the wood is also stronger, and even the spurs are more vigorous and more hooked. The general character and colour of the Rose is a good deal like Marie Van Houtte, but it has a deeper golden centre, and the undersides of the petals are rosy yellow instead of rose. But the fact of its being possible to compare the Princess of Wales with Marie Van Houtte is perhaps the highest praise that could be given to any new Rose. The buds are also long and pointed, the blooms of fair average size, and the form almost all that can be desired in Roses of that class. I bear testimony the more readily to the substantial merits of this Rose in the open air, as neither it nor Lady Mary Fitzwilliam, nor several others, have come up to my expectations under glass. The Princess of Wales is likely to

take a high place as a bouquet and decorative Rose, as well as on the exhibition table, with such established favourites as Souvenir d'Elise, President, Devoniensis, and Marie Van Houtte.

D. T. FISH.

TEA ROSES ON RAISED BEDS.

THE special culture of Tea Roses at Cheshunt consists chiefly in furnishing them with the shelter afforded by rows of cordon fruit trees or Beech hedges at the sides, and raising their roots a foot or so above the general surface. These raised root runs for Tea Roses are also well trenched and duly enriched. Beds 6 feet wide, with alleys about 2 feet between, are ranged side by side in quantities, and planted with rows of fine plants across the beds at intervals of 18 inches. Most of these dwarf trees are worked on the seedling Brier, which Mr. George Paul considers the best stock for Teas. Teas on the Manetti, however, flower earlier than on the seedling Brier, while, more singular still, Teas on Brier cuttings bloom almost as early as those on the Manetti. These

RAISED BEDS not only afford a drier, but a warmer root run for the roots than could be found on the level surface. The most substantial advantages of the raised bed culture of Teas are probably realised in winter just before the advent of severe weather, say early in November. The Roses are earthed up across the beds very much in the same way as Potatoes. This simple expedient sheds all the water off their crowns and the major part of it off the roots into the alleys, which are in wet weather converted into water-courses or miniature canals for the time being. Either way the roots are kept warm, and the collars of the plants with a few inches above them are rendered frost proof.

MULCHING.—Should exceptionally cold weather occur, the bed system of Tea Roses likewise facilitates their overhead covering with Fern fronds or litter of any sort. For this purpose there is nothing better than longish stable manure with all its droppings intact. A spread an inch or two in thickness of such slow conducting material would render the roots and tops of Tea Roses frost-proof in the most severe seasons. In ordinary ones they would be quite safe without litter, the earthing up saving a sufficiency of top for the future free breaking, luxuriant growth and free flowering of the Teas. Still, to render security doubly secure, especially as our temperature at times runs down 30°, or even 40°, with only a few hours' warning, it is prudent practice to surface mulch Teas with litter. This is the more desirable, inasmuch as the litter proves useful in other ways; for example, as a manure and as a conservator of moisture and resister of heat during the droughts of summer. The slow and gradual distribution of the manurial properties of the litter to the roots of the Roses all through the winter and early spring is one of the best preparations for their vigorous breaking and healthy growth in summer. Roots thus long and liberally fed will never fail to forward supplies to meet—and that with unstinted liberality—all the wants of the growing and blooming tops. All this will be the more apparent when it is borne in mind that root growth extension and enlargement ceases not throughout the winter months when protected by earth and other mulchings from the severities of the weather.

In April or May, according to the season, the mulching may be removed, the soil levelled down and the Teas pruned back as closely as desired. At Cheshunt most of them are pruned back to within three or four eyes of their base. If the Roses seem to need additional support, the mulching or a little fresh manure may be put in the furrows before the ridges are levelled down, or it may be left on the fresh level surface as a summer mulch. Only those who have practised these simple and efficient methods of preserving, stimulating, and strengthening their Roses can have any adequate notion of their invigorating effects. This system virtually renews, almost recreates, the Roses annually. Under this treatment it matters comparatively little what becomes of the tops. So much

force is concentrated in the roots and root stocks, that all necessary supplies of flowering shoots are speedily reproduced. Like, however, most systems, this one has one great risk or drawback. The Roses have to pass through a crucial period immediately after uncovering and pruning. In ticklish seasons it is wise to do both tentatively. This system ensures the safety of the Roses while they are under it. But as time and weather enforce our return to level culture, then comes the risk. It is trying to our patience to uncover our Roses a straw or a clod at a time. But the nearer we approach this course in capricious seasons, the safer and better for our Roses. Still, by noting time and studying the weather, and also the state and condition of the Roses, the critical processes of unearthing, pruning, &c., may mostly be passed through in safety. Such, at least, is the experience at Cheshunt and other places where similar methods of safely wintering Teas are adopted. The loose and mellow condition of the soil of these Rose beds is almost as useful in preserving the roots moist and cool in summer as in keeping them warm and dry in winter. Loose earth alone is an excellent mulch, and when to this is added a considerable proportion of litter, the two combined, especially if further enriched with a little night soil or other fertiliser, may be described as a model mulch for Teas. Should

A DELUGING OF SEWAGE or clean water be needed, the loose surface will take in the moisture like a sieve, and hold it firmly as a vice. Were complete irrigation needed, nothing would be easier than to form walls of earth or turf by the side of the beds, and turn the water over the Roses. On the other hand, in wet districts the beds might be raised so much in the middle as to shed a portion of the water into the alleys, and so away from the roots. But these are but the possible side issues of this most simple and sensible mode of cultivating Tea Roses on raised beds. Its vital merits are the carrying of any number of Tea Roses safely through our winters in the open at the least possible cost of time, labour, and material, thus virtually making Teas as hardy as our Hybrid Perpetual and other Roses. With this fact established there seems absolutely no limit to the culture of Tea Roses in the open air. Much has been written and said of the substantial merits of choice alpine and herbaceous plants, and even annuals, for filling our gardens and borders, and superseding the all too stereotyped forms of summer bedding plants. Without questioning the worth or value of any of these, Tea Roses are preferable to any or all of them put together. And a bright vision appears to me of the gardens of the future mainly furnished with Tea Roses, with Clove Carnations and Picotees by way of variation, and with bases of Mignonette and Musk Mimulus by way of relieving the full and satisfying fragrance of the Roses. A few more crimson and scarlet Tea Roses and handfuls of blue Cornflowers would be needed to complete the circle of perfect colouring in our coming Tea Rose gardens. D. T. FISH.

Large v. small pots for Roses.—It may be set down as a general rule that plants grown in pots are more frequently over than under-potted, and for what may be termed decorative plants, the smaller the pot that a good large plant can be grown in the better. In the case of Roses, the size of the pot is not so objectionable, and I feel sure that the Rose that produces the finest blooms or buds and the greatest number of them will be one for which a good sized pot has been provided. Last winter I potted a good many Roses of various kinds, and amongst them some, although small plants, were put into very large pots for growing on the stages of a new conservatory where there was no convenience for planting them out. Although those in large pots and those in small ones were both treated alike in every respect, those in larger pots made not only the finest shoots and produced by far the finest blooms, but they appeared to enjoy a far greater immunity from insect pests than those in even moderate sized pots. At the end of the first season's growth they

are more like young trees than ordinary pot Roses; therefore, in the case of anyone desiring a good supply of Roses from plants in pots I would decidedly recommend liberal pot room and good rich soil, for no Rose can be a perpetual bloomer if starved at the root. Many, however, that have no pretension to being perpetual flowerers will continue to produce fresh growths and fresh blooms as long as they can find fresh food for their roots, and without this, no matter how carefully selected the plants may be, their blossoming season will be brief.—J. G., *Hants.*

A good autumn Rose.—One of the best Roses we have at this season is the Hybrid Perpetual Louis Van Houtte. It seems especially "at home" in the west of England, and I observed that good blooms of it were included in many prize stands at exhibitions in August and early in September. It is not a strong grower, neither are the blooms large, but they are of good form, and the colour—a bright velvety crimson—renders it very attractive.—I.

NOTES FROM HECKFIELD.

Mixed flower borders.—Though by no means an advocate for the annihilation of summer bedding out, I am this season more than ever convinced that it has been overdone, particularly in the direction of tender plants that need so much attention and space in their preparation, and yet continue but a very few weeks in good condition. The greatest bulk of our bedders now belong to the harder section, and these will another year be much increased, as will also the mixed system of planting, both in the bedded out and the herbaceous parts of the garden. This resolve results from trials made on a small scale this season that in every way have proved satisfactory, even in association with formal and geometrically designed beds. The centres of the larger beds have been given up to suitable shrubs, *Phormiums*, *Sedum spectabile*, single *Dahlias*, *Fuchsias*, *Acacias*, *Grevilleas*, and *Abutilons*, with an undergrowth of *Violas*, *Ageratums*, tuberous *Begonias*, &c. The bedding out proper is confined to the outer portions of the beds, the designs being worked out principally with hardy plants, such as *Sedums*, *Herniarias*, and dwarf *Veronicas*, and, taking the hint from the present effect of the herbaceous beds, we shall next year add to the plants suitable for the centres of these beds the Japanese *Anemones*, *Rudbeckia Newmanni*, *Hyacinthus candicans*, *Papaver nudicaule*, the perennial *Sunflowers*, *Pentstemons*, and *Antirrhinums*, as all these are now, and have been for some time past, in grand flower. I consider the Japanese *Anemone* infinitely superior to the best single *Dahlia*, and the perennial *Sunflowers* a thousand per cent. better than their congeners of the annual section, which, if they were not just now fashionable, I should say, do not grow them.

Succulents.—These we have long used as bedders, and they are so generally admired that one regrets that many of them do not belong to the hardy plant section; however, they are far more hardy than are very many bedding plants, and are really so very little trouble to increase and winter, that we shall continue to use them. Very fortunately, the most appropriate plants for carpeting the ground beneath them are quite hardy; hence we find but little difficulty in transforming a summer succulent arrangement into a winter one, simply by carefully lifting with a hand-fork all the tender succulents, and in their place putting in small shrubs and hardy Heaths; thus the groundwork of *Sedums* and *Saxifrages* remains intact, and the bed is at once clothed in winter costume. To keep in good order for the longest time, and to produce a bright and novel effect, we have found none to exceed those named in the following list: *Yucca aloifolia variegata*, *Echeveria metallica*, *Echeveria glauca metallica*, *Sempervivum arboreum variegatum*, *S. urbicum*, *S. canariense*, *S. Donckelaari*, *Agave aloifolia variegata*. All these being large growers are suitable for central, standard, or dot plants, and the following which are smaller for margins or edgings,

and if thought desirable for groundwork, viz., *Echeveria secunda*, *E. s. glauca*, *E. Peacockii*, *E. farinosa*, *Sempervivum calcareum*, *S. montanum*, *S. arachnoideum*, *Saxifraga rosularis*, *S. hirta*, *Sedum acre elegans*, *Sedum glaucum*, *S. Lydium*, &c. To my mind there is something so incongruous in intermixing in the same bed succulents and ordinary bedding plants, that I may be pardoned for saying to any who have done it, "Leave off the practice," and to any intending to begin it, "Don't!"

A simple and effective foliage arrangement.—Seedlings of *Acacia lophantha*, alternated with the silvery *Solanum marginatum*, with here and there a plant of *Ricinus Gibsoni*, and throughout the whole an undergrowth of *Perilla laciniata*. A deep rich soil, a sheltered position, and a large mass of such plants in combination produce a truly sub-tropical effect without the real sub-tropical plants.

Memoranda for next year.—The most satisfying bit of colouring in the bedding-out way that we have this season is a mixture of single *Dahlias*, various colours; the yellow *Marguerite*, *Chrysanthemum Etoile d'Or*, the blue *Marguerite*, *Agathe celestis*, and the hardy *Sedum spectabile*. A large bed or long border planted with such mixture would be so quiet, yet bright, that it might be viewed daily and hourly without the least danger of the sight becoming tiring or monotonous.

Campanula pyramidalis.—Having more plants of both the blue and white varieties of this *Campanula* than are needed for pot culture, the surplus was early in May planted out in the herbaceous borders, where they have and are still doing such good service, that our only regret has been that they were so few in number. I may be advertising my own ignorance by expressing my belief that this *Campanula* has generally been regarded as only suitable for pot culture and greenhouse decoration; at any rate such have hitherto been my own impressions, but they are so no longer, for in future it will be placed very nearly at the head of the list of plants needed for the herbaceous garden. Perhaps I ought to add that the seeds of the plants now flowering were sown in April, 1882, and the plants for next year last April; they are being grown on in pots in the open air, and by-and-by they will be afforded the shelter of a frame for the winter, though I doubt not they would stand if planted in the borders at once; at any rate we shall try a few and report results in due course.

Good Potatoes.—There are plenty of these this year. Hereabouts the disease was very threatening at one time, but dry, hot weather set in just at the right moment and prevented its spread, and now they are being stored away by the ton in place of the hundredweight that has been the rule for the last few years. But my subject is good Potatoes, and the International Potato Committee have just given us 184 varieties to select from; therefore to start is rather a formidable task, and I shall begin by an appeal to these Potato authorities to next year reduce the number by at least fifty, instead of, as they have done this year, increase it by twenty-five. I am one of a considerable minority who believe that the International Potato Society has done a great work in the direction of high culture, shape, size, and quality of the noble tuber, but they have also—unwittingly, it may be—done some harm by offering and giving prizes for varieties that have only appearance, or it may be productiveness, to recommend them, and till they set their faces resolutely to exclude, even from exhibition, all kinds that are known to be not second rate only, but really bad in quality, the good they are doing will be more than counterbalanced by the evil. I note with satisfaction that though this year there is an increase of twenty-five kinds on the number of last, there are fewer bad American and more good English varieties than in any former list, and it is to be hoped that next year there will be a great reduction of the bad kinds in both sections. I know that local conditions, such as soil, exposure, and culture,

have much to do with quality of Potatoes, but making due allowance for this, there are numbers of kinds that under any and every condition are simply execrable, and should be publicly repudiated by the committee, and I for one am hopeful of their being educated up to this point. Meanwhile, I shall be presumptuous enough to at once register my definition of a good Potato—nutty flavour; white and flowery when cooked; a sturdy, wiry haulm, not exceeding, in the best soils, 30 inches in height; medium sized tuber, without undulation or deep eyes; and lastly, long keeping, combined with early maturity of tubers.

Cauliflowers and manure.—Having a plot of Cauliflowers extra vigorous, the leaves on many of them being 30 inches long, and of that deep glaucous green colour that one always likes to see in every variety of the Cabbage tribe, a friend remarked, "You have given them a double dose of manure; won't the quality be unpleasantly affected by it?" by which he meant that his belief was that the produce would be rank and taste of the manure. My reply was that particular plot will certainly not be so affected, for the only manure it had last year was soot, and since that was applied there has been a crop of Peas taken off the same ground, and the Cauliflowers were planted without even digging afresh, let alone manuring the ground. No; it is not so much the manure, but depth of culture that has given us such results, and, what is more, has proved a complete preventive of club, not only in regard to Cauliflowers, but every other description of Cabbage, so that every year deep digging or trenching is looked upon as indispensable, Peas, Beans, Onions, and Potatoes being the crops to occupy the ground when first trenched; and as soon as these are cleared, Cauliflowers &c., are planted without any preparation, except weeding the ground and drawing drills in which to plant. Depth of soil, yet firmness, the two essentials most needed for this class of vegetables, are thus assured. As to manuring, this cannot well be overdone, and that, too, without risk of the produce being tainted. I have never known this to happen in open-air culture, though I know there are some who think the contrary. Forced vegetables, such as French Beans, Carrots, Asparagus, Seakale, and Rhubarb, are often tainted with the manure, as might be expected when grown under such artificial conditions; but even in respect to these, by judicious management as to airing and a sparing use of manure water, there need be little to complain of.

Earthing up Broccoli, &c.—This we do, not that we think earthing up does any good, except as a protection against wind-waving; in that respect it is really needful and beneficial, in so far as it prevents the breaking of roots by the plants being blown out of the perpendicular. Dwarf varieties of Cauliflowers, Cabbages, and Coleworts, if planted in a deep drill, never need to be earthed except to fill in the drills in which they were first planted, and before doing this a sooting, or, if thought desirable, a watering with manure water should be given; then the soil serves as a mulching, and keeps the plants moist for a long time. It is necessary to complete all this kind of work, anticipatory of the high winds that may shortly be expected.

Winter storing of vegetables.—Too much haste is the prevalent error in regard to vegetable storing, the why of such haste no doubt being the cold, foggy nights that we are now experiencing, which make us fancy that winter is already begun. Onions are the only crop that as yet should be stored, or rather be pulled up to dry by full exposure to the sun. If the ground be not immediately required, let them lie on the ground till quite dry, and be turned over once or twice a week; then rain or damp nights will not hurt them. A very dry day should be chosen for housing, and when doing this all that are in the least decayed should have separate quarters and be used first, and from all remove every portion of decaying matter except the dry outer skins. We find that ours keep perfectly on the floors of the fruit rooms, and by leaving them out a long time

to dry their smell when housed is scarcely perceptible. Beet and Carrots we shall not think of pulling up for another month or more, these being best kept in the ground till there is risk of injury from frost. Parsnips are comparatively worthless by the time they have been dug a month, and, being harder than either of the preceding, they should always be wintered in the ground and be dug up as required for use. W. WILDSMITH.

HEATED WALLS.

WE have been informed (see p. 172) that heated walls for the purpose of growing tender fruit trees "have been abandoned, not because they have failed, but because glass has become so cheap and common." Before we accept this statement it would perhaps be well to endeavour to ascertain how far it is correct. No one is, perhaps, prepared to deny that a crop of fruit may, and has in casual instances, been saved on a warm wall heated by flues, and even on a wall heated by a cottage chimney, but these instances are somewhat rare, and scarcely afford sufficient reason why we should again adopt a system which has been thoroughly tried and found wanting, simply because of its great expense and inefficiency. In treating this subject, the arguments adduced appear to me to be very incomplete. It is said "the same reasons advanced for the use of unheated walls alone apply to heated walls also." Again, "if heated walls are useless, so are unheated ones"; and, again, "the difference between unheated and heated walls and glasshouses is only one of degree, the question being purely one of temperature;" also "a heated wall is warmer than one not heated, and a glasshouse is warmer than either, but none of them differ from each other in any other way, and those who condemn heated walls are bound to condemn warm walls of any kind to be consistent." To me these inferences seem strangely inaccurate and misleading. In the first place, garden walls were built quite as much as a means of security, as formidable breaks to the force of the wind, and also as supplying a convenient means for training the trees as for the purpose of securing a slight increase of temperature over that of the open garden. If this be so, the reasons advanced for the use of unheated walls were very cogent and correct; but the introduction of the flue to heat the wall artificially, while still unprotected by a glass covering, was a step in the wrong direction, which required but short experience to prove. In modern days the

BUILDING OF ORDINARY GARDEN WALLS is perhaps reasonably open to objection, but in ancient days, when our forefathers had not our appliances, nor perhaps the most scientific knowledge of using those they possessed, there was some excuse for building them. The first expense was undoubtedly great, but when built the subsequent outlay was comparatively small; not so, however, when the flue was introduced; from that time the annual expense in fuel and labour seriously increased, nor were the results which accrued from its introduction, at least as far as my experience goes, and as far as I have been able to glean from garden history, at all commensurate with the increased outlay. To the trees on an unflued wall the natural heat absorbed is nearly always acceptable, beneficial, and inexpensive; but in the case of the flued wall the artificial heat is irregular, inconvenient, imperfect, and expensive. A person need not, therefore, be necessarily inconsistent if he uphold the one and condemn the other. A flued wall is at times, and in particular parts of it, warmer than the unflued one, but the inequality and uncertainty of its heat at the proper time disqualify it as an efficient means in the cultivation of tender fruits.

"A HEATED WALL," we are informed, "is warmer than one that is not heated, and a glass house is warmer than either." From these conclusions few will venture to dissent; but when we are further instructed that "none of them differ from each other in any other way," we naturally feel that our previous education on these matters has been very imperfect. The solar heat against an exposed un-

heated (artificially) south wall on a clear day in spring and early summer will sometimes rise to 140° or even to 145° Fahr., but against a similar one covered with glass it will not at the same time rise higher than 125°; whereas, on the succeeding night the temperature may, and does sometimes, against the exposed wall descend to 30° and even 25°, but against the one protected with glass it would not at the same time descend lower than 40° or 35°. Perhaps it may be said that these figures only tend to corroborate the statement that the question is "simply one of temperature." True, but do they corroborate it in the same manner as implied? On the unprotected wall the trees are subjected to two extreme temperatures within a space of eighteen hours, and although the mean temperature is higher by 5° than that under the glass protection, in the first position the fruit is destroyed and the trees receive a severe check, while in the latter both the fruit and the trees are uninjured. The two extreme temperatures in this case are the cause of the evil, while the cooler and more even temperature under the glass protection is the safeguard. High and extreme temperatures against fruit walls in spring and early summer are much more to be feared than cooler and more equable ones; hence the advantage of a glass protection and the great disadvantage of a flued wall. We cannot quickly cool down its heat, and as the sun often shines with intense force after such frosts, the increased heat from the two sources combined becomes positively scorching. But there is another and even yet more potent element which deserves to be considered in connection with this subject, and which cannot possibly be said to be one of temperature only, although its presence is to a great extent dependent upon and regulated by the temperature. This is

THE MOISTURE IN THE ATMOSPHERE in contact with the trees. Daniell, in his invaluable essay on climate with regard to horticulture, says, "When trees are trained upon a wall with a southern aspect they have the advantage of a greatly exalted temperature, but this temperature in spring differs from the warmth of a more advanced period of the year, or of a more southern climate, in not being accompanied by an increase of moisture. It is no uncommon thing in the spring for the dew point to be more than 20° below the temperature of the atmosphere in the shade, and I have even seen the difference to amount to 30°. When accompanied by wind the enormous exhalation from the blossoms of tender fruit trees which may thus be induced cannot fail to be extremely detrimental, and the effect of shading trees from the direct rays of the sun should therefore be ascertained. This state of the weather often occurs in April, May, and June, but seldom lasts many hours; great mischief, however, may arise in a very small interval of time, and the disadvantage of a partial loss of light cannot be put in comparison with the probable injury which would otherwise be sustained by the trees." On reading these statements a few years ago, I was induced to make a few observations, not so much with a view to test their accuracy as to ascertain what were the actual differences in respect to the moisture in the air against a south wall protected with glass as against a similar one not so protected. Under the glass protection, as shown by a properly tested solar heat thermometer, the sun-heat temperature was 120°, and the amount of moisture present in the atmosphere, as shown by the hygrometer, was 38 per cent., while at the same time the solar heat against the exposed wall was 140°, and the amount of moisture only 15 per cent., thus showing an advantage of 23 per cent. of moisture in favour of the glass protection. This result was of course occasioned by the partially subdued rays of the sun after passing through the glass, but more particularly by the comparative freedom from wind afforded by the glass covering. On the exposed wall the trees, although moist at the root, showed unmistakable signs of exhaustion, and it is probable the young fruit, which at the time was in a very succulent state, suffered likewise. Under the glass protection, although the dryness of the air was

also excessive, yet the trees did not exhibit nearly so much distress as those on the exposed wall. Now if this extreme dryness of the air had on this occasion been augmented only a few degrees by even a moderately heated flue, the effect must have been even worse than it was. A flued wall may be of slight use in the autumn season to assist in ripening the wood, but when compared with a glass protection, even in this respect it falls very short in point of merit, for the simple reason that the air under a glass covering may, at this season, be kept uniformly warmer and dryer—two essential conditions—than against an exposed flued wall, but what is of even greater importance, the roots are at all times under perfect control, an advantage which is not sufficiently valued, and one which can scarcely be over-estimated in the cultivation of tender fruit trees. I have by me Harrison's book on fruit trees, published in 1825, but I have failed to find any details of the famous heated Peach wall said to have existed at Wortley a few years prior to that date. Perhaps these few years' experience sufficed to convince him that the flued wall was a failure; however that may be, history saith nothing; but wherever in his book flued walls are alluded to it is done with the greatest reticence and brevity. Great pains are taken, however, to describe most accurately every detail in respect to the formation of the borders and management of the roots, both of which were evidently considered by that renowned cultivator of olden times to be of the most vital importance. Some prominence is given by "J. S." in regard to the

DIFFICULTIES OF CULTIVATING TENDER FRUIT TREES AT HIGH ELEVATIONS in midland and northern counties. Having never yet had the pleasure of grappling with these at an elevation of 700 feet above the sea level, I can scarcely form a true estimate of their greatness, although I have done so for several years in those counties at rather more than half that elevation. It has also been my fate to grapple with other difficulties peculiar to the so-called Eden-like valleys of the southern counties, but after many years' experience I am frequently compelled to long for the presence of those sorely maligned, yet salubrious, northern hills, where, with a comfortable glass protection, I fancy tender fruits may be cultivated with even greater certainty than in the dense, foggy, cold valleys of the south. W. C. T.

TWO GLAMORGANSHIRE GARDENS.

The varied branches into which horticulture diverges finds its expression in the very differing kinds of gardens one meets with in various parts of the country, from the small lot where one flower is especially cherished to the palatial grounds where expense is never considered and all the useful and ornamental subjects are carried out under a standing army of gardeners. These are oftentimes determined by the conditions of climate and the character of the soil. In some Nature has done much to give interest to the scene; in others not only has Nature done nothing, but no attempt is made in the direction of true art if we accept the dictum *ars est celare artem*, for all is as rigidly formal as it can well be. Of these various kinds of gardens I have, in the course of my horticultural rambles, seen many specimens. I have seen the little back garden where the owner has some few frames of Auriculas, or it may be some choice beds of Tulips; the villa garden, where the Rose lover has filled it with specimens of his beloved favourite until no space is left for anything else; the vicarage or rectory garden, where the owner, circumscribed in means, has managed to grow several things successfully; the grand plantations of such a place as Inch Castle, where Conifers and Rhododendrons flourish to a degree we cannot emulate further south; the magnificent grounds of Drumlanrig, where lavish expenditure has created scenes of surpassing grandeur; the gardens where fruit is the main object, and where the houses are filled with Grapes, Nectarines, Peaches, and Figs; the grounds, where everything is subordinated to the bedding out, and hosts of gardeners are employed in producing the brilliant and gaudy

display with which geometric beds and carpeting astonish, but soon satisfy the eye; but the two gardens I have lately had the pleasure of visiting in Glamorganshire are so unlike anything that I have seen, that I feel sure a brief description of them must have an interest for the readers of THE GARDEN, even though the record is brief and, I feel, imperfectly told. They are gardens, too, not unknown to the horticultural world, for their productions have often been brought to our great metropolitan societies, and have there secured for their owners a share in the prizes for which they have competed, and the name of one of the owners is a familiar household word to many a lover of the garden. I allude to those of Penllergare, the residence of Mr. J. D. T. Llewellyn, and Singleton, of Mrs. Vivian, and which in my recent visit to Glamorganshire I had an opportunity of inspecting.

PENLLERGARE is situated about five miles from Swansea, and the drive thither is about the very last to give you an idea of the beauties that await you when you get inside the demesne gates, for you have to pass through the worst parts of the town, and when you get outside it, coal and iron works and their accompanying *débris* are no very great improvements on a landscape; but once inside the gates, which are a mile from the house, all is changed. You drive through dense plantations, in which the Brake Fern is most lovely, while at the bottom of the valley may be seen the two small lakes and the stream which flows from one to the other, preparing one for the view which meets you as the house is reached; the latter is a plain, substantial, and comfortable one, and as you stand on the terrace and look around, a scene of surpassing beauty meets the eye. You look upon miles and miles of woodland, while the distant hills are seen, and beyond them stretches a long line of moorland. As you look nearer home, the terrace is filled with bedding-out plants, carefully selected and quite in keeping with the character of the house. The beds are, after the bedding plants are finished, filled with dwarf evergreen and variegated shrubs, and so not left bare all the winter. Beyond it the lawn slopes down towards the lake, which is seen glistening through the trees, while beds of Stocks and Asters, borders of Hollyhocks and Sunflowers, Roses, and other plants fill up the middle foreground. You look over the trees, and, in the full glare of a September sun, with fleecy clouds floating in the sky and giving some beautiful shadows, the scene is one one could not tire of; and if there were other times of the year when it might be more beautiful—in the early summer, when all the varied hues of green afford so pleasant a sight, or a little later on, when the golden tints of autumn (saddening though they may be to us who are growing autumnal ourselves) are so wondrously beautiful—at all times it is a prospect which ever delights, and although I have never seen Lamorran, I should imagine, from the drawings which I have seen of it, that there is a great similarity in the view. And now for

THE GARDEN. It must be remembered that this portion of South Wales, like the southwest of Scotland and the west of Ireland, comes under the influence of the Gulf Stream, and that consequently many things may be attempted there that we could not manage in situations which are warmer indeed in summer, but are subject to greater cold, more frost and snow, and this has been eagerly seized upon both here and at Singleton to grow the Rhododendrons of Bhootan and the Himalayas and the more tender kinds of Conifers; the same cause, however, militates against the Rose; the climate lacks that amount of sunlight in the autumn months which is necessary for the ripening of the wood and the better development of the flowers, for although Roses, and especially Teas, grow well here, yet I think it would be very difficult to grow exhibition blooms. I have said that some gardens are noted for one kind of speciality and some for another, but there is hardly a branch of gardening in which you may be interested that you will not find your fancy met here. For instance, we

go now into this enclosure, fenced off with wire netting to keep out the rabbits; there are in it stages, frames, a small low-roofed greenhouse or pit, a large potting house, &c.; well, this is the florist's flower and herbaceous department. Here is a rockery through which flows a small stream of water, and here are placed some of the choicest alpine plants with Primulas and Lilies, such as *superbum*, which delight in marshy situations. This rockery is likely to be enlarged. Here, by-the-by, I saw *Primula minima*, very strong, evidently rejoicing in the shady position in which it was placed. Passing on, we come to herbaceous borders where many good things were in flower; the best varieties of Pentstemons were very gay; *Celsia cretica* was very showy; and there are veritable plantations of Primulas, such as *rosea*, *capitata*, *Munroi*, *obconica*, *cashmeriana*, *purpurea*, *luteola*, &c., this tribe being an especial favourite of Mr. Llewellyn. In this *sacred* enclosure, too, is contained one of the very best collections of Auriculas in the country, for he repudiates the idea which is often thrown as a taunt at florists that they can appreciate nothing that is not according to their rigid rules; and while he delights in all that is beautiful in a garden, he can still cherish his Auriculas. Here are to be found all the crack sorts—Lightbody's Prince of Greens, Hero, Acme, Smiling Beauty, &c., the whole collection showing most vigorous health. Alpines, too, in which he has been successful as a seed raiser, fill many frames, some both of these and Auriculas being planted out in frames, to be covered with lights as the winter comes on. The blooming house for Auriculas, into which they are removed in February, is about 20 feet long, and will presently be occupied with plants of the best varieties of Zonal Geraniums to bloom throughout the winter months. Here, too, is a large and varied collection of the *crème de la crème* of Carnations and Picotees, which are grown in pots, while several beds of seedlings show that Mr. Llewellyn is anxious to add some to the already numerous list of these fragrant flowers. Then, again, there is a collection of Pansies, all the best show and fancy kinds, raised by Hooper, of Bath, and Downie & Laird, Dicksons, &c., of Edinburgh, whole beds of seedlings on which many a bloom still lingered to tell how beautiful they must have been in spring. In this very lovely floral department of his garden it will be seen that Mr. Llewellyn is amongst the foremost amateurs of the day. Passing from this, we come to the

SHRUBBERIES AND PLANTATIONS. Here along the borders are most of the most valuable and showy of our herbaceous plants—*Hypericum patulum*, *Commelina coelestis*, *Cistus algavarensis*, and others were in bloom, while choice Conifers and Rhododendrons, especially the Sikkim species, are establishing themselves, which the mildness of the climate permits them to do. In a few years hence, when they have grown up, a most startling change will have been made in the shrubberies and plantations, but I shall have more to say of them when I come to write of Singleton, where they have been much longer established. I may, however, say that there is no attempt to make them separate from the usual trees and shrubs to be found in all ornamental grounds; but to mix them amongst them so as to give character to the foliage, together with abundance of gorgeous bloom in the spring months.

THE KITCHEN AND FRUIT GARDEN is, I found, situated on somewhat higher ground, and here the same thoroughness which characterises all Mr. Llewellyn's plans is to be seen; but in this garden flowers have also claimed a place, and the long rows of potted plants testify to the owner's love for them. Then in the houses there are large plants of Azaleas, Orchids in large masses, foliage plants, and all that one usually meets with in such places, and all under the care of a clever and intelligent gardener, who makes the best of the many appliances within his reach. It will thus be seen that, no matter what your taste in horticulture may be, you are sure to meet with what you wish here, while the manner in which everything is done will

give many a useful lesson to the most experienced grower. My own taste is omnivorous, and I could find in these gardens, especially in the floral department, matter in which one might find employment for many a day, and learn from Mr. Stafford, his floral gardener (whom many of your readers must have met at the London shows), many interesting facts connected with the flowers he so successfully manages. I found that Cocoa fibre was extensively used for striking cuttings, &c., and a high opinion was expressed of Clay's fertiliser when carefully used. Rippingille's patent apparatus for striking cuttings and raising seeds by means of a lamp was also highly commended.

Mr. Llewellyn, like a good many more of us who have taken to horticulture, is an ardent entomologist, and in a gardener's house in the grounds has two rooms in which his operations are carried on and where his collection is placed; here, too, Mr. Stafford is in his glory, for it was as an entomologist he first attracted Mr. Llewellyn's notice. Here there is not only a choice and complete collection of British insects, but in the case of the Lepidoptera large numbers of them have been bred here, and not only they, but also many of the more gorgeous insects of foreign climes, for through the zeal of collectors these are to be had now. Anyone passing by the Charing Cross Station will notice the cases of foreign insects at Mr. Watkins', and will read that cocoons and larvæ may be had there. Mr. Llewellyn's ideas on the subject of the rarer species ought, I think, to be those of all true entomologists who have it within their power. He says, "If I get a rare insect and stick a pin in it, I only make it rarer; but if I can breed it and make it more plentiful, I am conferring a boon on others;" and hence in various parts of the grounds you will see muslin bags suspended on the trees in which families of larvæ are feeding, while in a low part of the grounds, where the soil is bad, a large patch of Devil's-bit Scabious was left on which insects were disputing themselves in numbers. At a distance the patch shone out very prettily, while near at hand it was a sight to see the admirals, peacocks, painted ladies, &c., enjoying themselves; in another part you came on an American contrivance for catching moths by means of a light to which they were attracted and fell down into a frame, with pieces of wood placed across, where they became utterly helpless. The same principle had led him to take great pains in the seeding of various flowers and plants by which he is enabled to distribute them, and give others a share of the enjoyment he has had himself.

I had intended to have included a notice of Singleton in this paper, but my pen has run on in a congenial theme on which I might write more at length, and must leave it for another time. If my paper has done nothing else, I hope it has impressed your readers with the idea that Mr. Llewellyn has no small share of energy; and I may perhaps be permitted to add that this energy is not confined to his garden, for there is not a work of benevolence or kindness that touches the true interests of the people of the county (of which he is one of its most popular residents) that does not find him giving himself heartily to it. Such men are the salt of our country, and while many self-styled patriots are proclaiming themselves the true friends of the people, it is really such as he who are doing the real work of elevating and helping the masses, and endeavouring to make more tolerable what to many is a real battle of life. May such as he be multiplied throughout our land, so as to make her, if not merrie, at any rate happy England. DELTA.

New and rare!—We hear of a great many new introductions to our gardens, and have read an advertisement or two in our time, but few can equal that of "Wildflower" in THE GARDEN of last week, who offers the wild Succory (*Cichorium Intybus*) as "a new introduction for the greenhouse;" "strong plants, 1s. 6d. each." He also offers to supply the trade with this "pale blue flower" from the waysides and hedges. After this we may expect to see other wild flowers brought

to the notice of the trade, such as *Bellis perennis* and *Taraxacum dens Leonis*. I do not say that the advertisement here referred to is misleading, since the botanical name of the plant offered is clearly given, but both amateurs and the trade will find the price asked rather too much to pay for a plant of this wild weed, beautiful as its blue Marguerite-like flowers may be. This curious advertisement is a good instance of how Latin names may confuse rather than inform.—WILD CHICORY.

ORCHIDS.

VANDA SANDERIANA IN FLOWER.

ORCHID lovers will be glad to hear that this wonderful new Orchid is now in flower for the first time in Europe in Mr. Lee's collection at Downside, Leatherhead; its beauty surpasses even the accounts given of it by its discoverers. It is indeed a grand Orchid, wholly distinct from any other Vanda in cultivation, and it rivals in size of flowers all other Orchids, except a few *Cattleyas*, *Lycastes*, and *Angræcums*. At first sight the flowers strongly remind one of those of *Odontoglossum vexillarium*, being quite flat and of similar outline. They measure $4\frac{1}{2}$ inches in length and the same in breadth. The three outer sepals are the smallest, and are placed at the upper part of the flower, and are so wide as to overlap each other. The two inner sepals are also very large; they are oblong, and overlap each other, so as to form an oval outline. The ground colour of these inner sepals is a lemon-yellow, inclining to green, traversed by heavy longitudinal pencillings of purplish brown, connected by a network of the same colour, but fainter, while the margin is pale pink. The colour of the three upper sepals is a beautiful rose-pink, exactly similar to that of a delicate variety of *Odontoglossum vexillarium*. The labellum is short and thick in texture, and projects horizontally from the flat sepals. Its colour is a deep vinous red, with a crest or ridge of bright claret. The flowers are produced in dense spikes proceeding from the axils of the leaves, as in other Vandas, and stand up boldly. Mr. Lee's plant is a very fine one, probably the largest ever imported, consisting as it does of six strong breaks. There are three flower-spikes on this plant, two of which are expanded, one carrying twelve the other eight flowers. The plant is growing in a wooden cylinder without soil, suspended in the warm and moist intermediate house, which seems to suit it admirably. Such is the description of one of the most remarkable Orchids that has ever reached us from the Tropics. Its grand flowers afforded a pleasing surprise to Mr. Lee and other orchidists who have seen them, though something extraordinary was expected.

Phalus tuberculosus.—Can any Orchid grower give me any information respecting the culture of this lovely plant, which I believe Sir Trevor Lawrence succeeded in flowering some time ago? It is a very "miffy" subject, and refuses to be coaxed into free growth under all sorts of treatment—at least this is my experience. I should be glad to overcome the difficulty experienced in growing and flowering such a beautiful plant.—SOUTHPORT.

Cattleya Dowiana and C. aurea.—Are these distinct species? or are they but varieties, or rather geographical forms of one species? The study of Orchids is becoming somewhat bewildering, so many names being applied to one and the same plant. The authorities, too, seem to be splitting hairs when they name as distinct species plants which to ordinary mortals seem to be but slight varieties—a distinction without a difference. There is a like confusion with regard to the various forms of *Cattleya gigas* and *labiata*. Where does one begin and the other end? What is wanted is a thorough working-out of the genus *Cattleya*.—ORCHIDIST.

Cypripedium purpuratum.—There is a good deal of difference between the true Lady's Slipper of this name from Hong Kong and the

kind that often passes under the name of *C. purpuratum*. The latter is but a form of *C. barbatum*, but the true plant is quite distinct and much superior in point of beauty. The flowers are about the size of those of *C. barbatum*; the dorsal or upper sepal is heart-shaped, pure white lined with purple; the lateral sepals stand out stiffly at right angles, and are of a rich vinous purple spotted with black; the pouch is also of the same colour. It is not at all a common plant, but we have seen it twice in flower this week, viz., in Mr. Bull's nursery at Chelsea and in Mr. Lee's collection at Leatherhead, and at both places the plant is represented by the best form of the species.

Spathoglottis Lobbi.—This is an elegant Orchid, and pretty too as regards the colour of the flowers, the latter being a clear canary-yellow, which for an Orchid is distinct and pleasing. Its flower-spikes are tall and slender, and the foliage narrow and ribbed. It is semi-terrestrial, and much resembles the *Bletias* of the *hyacinthina* type as regards the bulb. It seems to like warm and moist treatment. We saw it beautifully in bloom the other day in Mr. William Bull's nursery.

Select Orchids.—What a boon it would be to beginners in Orchid culture if some one would give in THE GARDEN a list of Orchids that are really worth growing, excluding those that require the eyes of an enthusiast to see their beauties. I for one should be glad, for, situated as I am at a distance from London, I have not the opportunity to select Orchids for myself at the nurseries and sale rooms when in bloom; I therefore have to rely on the descriptions given in the catalogues of nurserymen and auctioneers. The catalogues of the latter I find to be very misleading; every plant enumerated therein seems to receive indiscriminate praise, whether worth it or not. Hence the disappointment amateurs often feel when the plants come into flower.—A. D. C., Birmingham.

PLANTS IN FLOWER.

Philesia buxifolia.—I saw a good plant of this at Penllergare, near Swansea, the other day. It was about 3 feet high and as much in diameter, and the beautiful blooms which it was producing were more like those of *Lapageria rosea* than anything else with which I can compare them. As a rule it grows in the greenhouse, but when I saw it it was placed over a water tank in the open air—treatment with which it seemed to agree.—CAMBRIAN.

Bird's-foot Violet (*Viola pedata*).—This pretty North American Violet is flowering a second time this year in the garden at Munstead, Godalming. A group consisting of fine healthy tufts of it is just now profusely furnished with large blossoms of a beautiful lilac-purple. It is situated in a partially shaded spot in a copse of under-wood, where in deep light soil the plant thrives to perfection. The rare bicolor variety considered so difficult to manage would doubtless flourish under the same conditions.

Grevillea Preissii.—This as an autumn and winter-flowering plant is indispensable for the greenhouse, being, when well grown, both elegant and pretty. It is shrubby and very twiggy; the foliage is finely cut and feathery; the flowers, which are of singular form, as those of all the *Grevilleas*, are bright red, and produced in dense clusters at the tips of almost every shoot. It may be grown in quite a cool house in pots. It has now commenced to flower, and will continue to bloom throughout the winter. A specimen of it has been sent to us by Mr. Kirsten, Bridlington.

Pancratium fragrans.—There are few more beautiful objects among stove plants than a well-grown and finely-flowered specimen of this West Indian bulbous plant such as we saw the other day in Mrs. Tredwell's garden at Leigham Court, Streatham. The plant in question consisted of a huge bulb and a tall, stout spike carrying an umbel of a dozen flowers, each 9 inches across, of snowy whiteness, and sweetly scented.

The long, narrow sepals and petals of the flower and the exquisite transparency of the membrane-like corona contribute greatly to the beauty of this plant. This showy bed of bloom was set off to advantage by handsome broad foliage of a deep shade of green. Mr. Butts, the gardener, grows this *Pancreatium* in an ordinary stove, and treats it liberally. When in bloom he removes it to a cool fernery, which conduces to the preservation of the flowers. This fine *Amaryllid* is grown by comparatively few, considering what an easy plant it is to manage and how useful it is for cutting from.

September Anemones.—"St. Brigid" sends to us from the Hill of Howth a gathering of her late double crown Anemones, which appear to be even finer than those sent in early summer. Such fine blooms and such varied and brilliant colours show admirably what may be done with the Anemone in regard to prolonging its flowering season by sowing seeds at various seasons. The plants from which these blooms were picked were sown, we presume, in spring.

Silene pennsylvanica.—This is really a showy plant when well grown and flowered, as it is now at Munstead, where Miss Jekyll has numbers of it in a semi-shady spot growing admirably. The usual flowering time of this species is from April to June, but it is now in full bloom a second time this year. It forms a dense compact tuft, and the flowers, each about the size of a shilling, are of a pleasing rose-pink colour. Generally this *Silene* is planted on a fully exposed rockery, but it is evident that shade is conducive to its welfare, since we have never met with it so finely grown before.

White Cactus Dahlia.—Some blooms of a white Dahlia bearing this name have been sent to us by Messrs. Cannell, Swanley. It is really a beautiful variety, though not the counterpart of the true Cactus Dahlia (Juarezii). The flowers of this white sort have loosely arranged florets, thus making a somewhat informal flower admirable in a cut state, particularly for forming wreaths, crosses, bouquets, &c. It is said to be very floriferous and an excellent grower. It is also known by the names of Constance and Ariel. Messrs. Cannell likewise send blooms of the true Cactus Dahlia and an improved form of Constance having fringed florets, thus giving the blooms a singularly pretty appearance.

French Marigolds.—Flowers of a very fine strain of these have been sent to us by Mr. R. Dean, Ranelagh Road, Ealing. Amongst them was one called *aurea floribunda*, the most beautiful double yellow we have seen. Its flowers are of medium size, but extremely double, the densely packed florets forming quite a globular mass. There are two shades of yellow—one a deep orange, the other much paler, almost a lemon. The habit of growth is said to be dwarf and very floriferous. The other flowers represent the best dwarf-striped strain. The value of these Marigolds in autumn cannot be overrated. They are persistent bloomers, and last till cut down by frosts.

Amaryllis Mrs. Garfield.—The finest flowered specimen which we have seen of this beautiful new variety we saw the other day in Mr. Lee's garden, Downside, Leatherhead. It bore on one tall, stout spike no fewer than five very large blossoms, which for delicate colouring and exquisite markings surpass all others with which we are acquainted. They measure some 5 inches across; the ground colour is a pale pink, striped and netted with deep rose-pink. The great value, however, of this plant lies in the fact that it habitually flowers in autumn and winter, when all other *Amaryllises* are out of flower. This late flowering character it inherits from one of its parents, *A. reticulata*, whose peculiarities the hybrid further shows in the leaves, which have a distinct creamy white band down the centre. Mr. Lee's gardener (Mr. Woolford) certainly knows exactly the treatment which this plant requires to get it to flower finely, and in order to preserve the blossoms as long as possible he places it in a cool, shaded Orchid house, where, in a subdued light,

their delicate tints seem more lovely than elsewhere. This plant was figured in *THE GARDEN* at p. 312 of the last volume.

Phygellus capensis.—Now that this showy South African plant has proved to be quite hardy unprotected in the open border, at least about London, it ought not to be so uncommon as it hitherto has been; it is really a valuable autumn blooming plant—in fact it flowers from early summer till the beginning of winter. It is of shrubby growth, some 3 feet or 4 feet high, and rather spreading. Each shoot is terminated by a loose cluster of bright scarlet flowers, somewhat resembling those of the old *Chelone barbata*. Mr. Stevens has sent us a fine specimen of it, and remarks that it succeeds admirably in the light soil of his garden at Byfleet.

Hardy flowers in September.—The remarks made by "Delta" about the respective merits of herbaceous borders and bedding out will be endorsed by all who have charge of large places much frequented by the public, and by all who have to cater for a variety of tastes. A little bedding out gives variety and is certainly much admired by many. Nevertheless, a collection of hardy plants has a charm which bedding out never could possess, and the number of people to be seen daily with note-book in hand assiduously noting the names, &c., of the best hardy plants in flower at the different seasons proves conclusively that there is a growing taste for this class of plants. It is a common fallacy to suppose that herbaceous borders are dull in the autumn. I consider the end of July to be the duller period, and from that to the end of September a variety of plants keep constantly coming into flower and make the borders bright and gay. "Delta's" list of plants in flower is also interesting and useful, and I venture to supplement it with a list of some other really good plants now in flower at Glasnevin. Mr. Baylor Hartland, in the same number, draws attention to a very useful group of plants, namely, the species of *Coreopsis*. The following is the list to which I have just referred:—

<i>Aconitum album</i>	<i>Helianthus orgyalis</i>
<i>japonicum</i>	<i>Helenium autumnale</i>
<i>Aster sibiricus</i>	<i>pumilus</i>
<i>bessarabicus</i>	<i>Lobelia fulgens</i>
<i>Achillea</i>	<i>Lathyrus latifolius albus</i>
<i>Chelone barbata</i>	<i>Monarda Kalmiana</i>
<i>Chrysanthemum l. cistroides</i>	<i>didyma</i>
<i>coronarum (annual)</i>	<i>purpurea</i>
<i>Colchicum autumnale</i>	<i>Montbretia Pottsi</i>
<i>byzantium</i>	<i>Pentstemon Cobaea</i>
<i>speciosum</i>	<i>Phygellus capensis</i>
<i>Fuchsias</i>	<i>Solidago squarrosa</i>
<i>Gallardias</i>	<i>Silphium doricicifolium</i>
<i>Gentiana adscendens</i>	<i>Sedum Braunii</i>
<i>asclepiadea</i>	<i>Tritonia aurea</i>
<i>Hydrangea paniculata</i>	<i>Tritoma Burchelli</i>
<i>Harpallium rigidum</i>	<i>nobilis</i>
<i>Hypericum oblongifolium</i>	<i>Uvaria</i>
<i>Helianthus multiflorus fl. pl.</i>	<i>Yucca flaccida</i>
<i>decapetalus</i>	<i>Zauschneria californica</i>

—F. W. M.

Isoloma hirsuta.—This pretty Gesneraceous plant is now in full flower. In general aspect it resembles a *Tydeæa*, and requires the same kind of treatment; for flowering now it should be kept cool throughout the summer, and if now given an increased temperature, blossoms are produced in great profusion. They are tubular, bright orange-scarlet, and, in common with both leaves and stems, are covered with brownish hairs, from which the specific name is derived. It is a native of the United States of Colombia, whence it was introduced by Mr. W. Bull some two or three years ago. It is readily propagated by cuttings taken during the growing season or by division of the caterpillar-like rhizomes before growth commences in spring.—H. P.

Single Crown Daisy.—Now that single flowers are finding so much favour, it is somewhat singular that such a beautiful flower as the single form of the Crown Daisy is should be so seldom seen; indeed, it is not even mentioned in the catalogues of the largest seedsmen. The double forms of it are common enough, as are also the numerous varieties of *Chrysanthemum carinatum* (tricolor), and the typical Crown Daisy, *C. coronarium*, ought to be easily obtained. Its flower is really lovely. It is some 2 inches across, and has broad florets toothed at

the tips. The colour is a pale lemon in the outer half, then there is a broad ring of orange-yellow, a colour which extends also to the raised disk. Mr. R. Dean has sent us some flowers of it, and justly remarks that it is a much neglected plant. As an instance of its rarity, a representative of one of the largest seed firms in London saw these blooms in our office, and did not know what they were, though he knew well the double forms of it.

Dahlias.—A very fine and full assortment of Dahlias has been sent to us by Mr. J. Green from his nursery at Thorpe, Norwich. Every section is represented from the prime show and fancy kinds to the popular single and Pomponé varieties, while out of the common way is the so-called Black Dahlia *Zimapani* (which is really *Bidens atrosanguinea*), the Cactus Dahlia, *D. Juarezii* (fine specimens), and the pretty little *D. glabrata* and *Mercki*, both with small flowers; the former white the latter deep mauve. Among the single varieties are some of the excellent new sorts that have been certificated in London during the past few seasons. The Pomponés, also, are particularly fine, and among none equals White Aster for usefulness or for cutting.

Desmodium penduliflorum.—This is one of the latest of flowering shrubs, its rosy purple, pea-shaped blossoms generally continuing attractive till cut off by frost. It has long slender shoots, the stoutest of which reach a height of about 6 feet; and if a few of the principal have slight supports afforded them, the others droop outwards in a very graceful manner and form an elegant mass. The shoots, which are clothed with trifoliate leaves, are terminated by large crowded racemes of blossoms. As the plant dies nearly to the ground nearly every winter, and the young shoots reach their limit and flower in one season, it may be said to possess a half-shrubby character. It is a native of Japan, and is quite hardy, at least in the neighbourhood of London. It is now finely in bloom in London gardens, notably in Battersea Park.—A.

TREES AND SHRUBS.

CLADRASTIS AMURENSIS.*

THE accompanying illustration represents a flowering spray of *Cladrastis amurensis*, a comparatively recent addition to the list of ornamental trees or shrubs which are perfectly hardy in the climate of Great Britain. Although, perhaps, mostly by reason of its rarity, I have no knowledge of the behaviour of the tree in this country elsewhere than at Kew, where it has been cultivated for several years, I have little doubt of its proving hardy throughout the British Isles, except under very unfavourable conditions. In its native country, Amoorland, where it occurs from lat. 50° 15' to 52° 20' north, the truly "continental" climate which obtains is widely different from the thoroughly "insular" climate of Britain. The intense cold of the winters there, however (upwards of 40° below the zero of Fahrenheit's thermometer having been recorded), is compensated by the warmth of the summers and the well-marked, sudden transitions of the seasons—conditions which in very many cases are less unfavourable to plant life than the uncertain character of our springs. In Amoorland, after spring has fairly set in, night frosts are of unfrequent occurrence. The above reasons account for the fact that a highly ornamental deciduous tree from that botanical region, a species of Lime (*Tilia mandschurica*), cannot claim to be truly hardy with us,

* IDENTIFICATION.—*Cladrastis amurensis*, Benth. in Gen. Plant., vol. i., p. 554; Koch, "Dendrologie," theil. i., p. 7; Hemsley, "Handbook of Trees, Shrubs, &c.," p. 135; Hooker, *Botanical Magazine*, t. 6551. *Maackia amurensis*, Rupr. in Bull. Acad. St. Petersb., vol. xv., p. 143, t. 1, f. 2; Moiren, *Belgique Horticole*, 1870, p. 301, t. 18.

its habit of starting into growth before wintry weather has definitely ceased thus exposing its young tender shoots to constant injury, the cold

of *Tilia mandschurica*; at any rate it has never been injured at Kew. *Dimorphanthus mandschuricus*, *Berberis amurensis*, *Juglans mand-*

plora that part of the world where they occur in a wild state. *Cladrastis amurensis* freely produces its racemes of white flowers (even in a young



Flower branch of Cladrastis amurensis. Drawn in the Royal Gardens, Kew, in August last.

springs proving infinitely more destructive to it than the coldest winters. *Cladrastis amurensis*, in common with several other recently introduced trees and shrubs of the first rank from an "ornamental" point of view, does not share in the fault

of *Tilia mandschurica*, *Phellodendron amurense*, and *Vitis amurensis* are a few of the other plants for the discovery and introduction of which to cultivation the gardening public is indebted to the energy of the Russian botanists who have so carefully ex-

plained that part of the world where they occur in a wild state. *Cladrastis amurensis* freely produces its racemes of white flowers (even in a young

Royal Gardens, Kew.

GEORGE NICHOLSON.

Hibiscus syriacus.—This is one of the most valuable shrubs one can have in a garden, flowering as it does when there is scarcely another shrub in bloom. It is just now in full flower, and we are reminded of its beauty by some branches brought to us by Mr. Stevens from his garden at Byfleet, which contains a good collection of varieties of this shrub numbering some dozens. All are beautiful, particularly the pure white and some of the double kinds.

Lespedeza bicolor.—There is no brighter or more cheerful subject among flowering shrubs at this season than this *Lespedeza*, which would, however, perhaps be more correctly described as a shrubby perennial, for the flowering shoots are produced from the base each year, and the best display of bloom is produced by plants cut down to the ground after flowering. It forms a compact bush a yard or more in height, with trifoliate leaves, and bears panicles of rosy purple pea-shaped blossoms. It is a native of China, and though very desirable, seldom seen in gardens.—ALPHA.

Tropical deciduous trees in the Isle of Man.—About twelve years ago I received a collection of Orchids from Assam, and among the roots of one of them a wild Fig tree came up, which soon grew too tall for my house, and I planted it out-of-doors, thinking it would die, but to my surprise it withstood the winter well, and is now a fine tree. My belief is that all trees and shrubs, either from tropical climates or any other climate, provided they are deciduous and go to rest at the same time as our own forest trees, will stand our climate equally well. The wild Fig tree alluded to, so far from having been coddled, has been twice removed, owing to my change of residence, but it is growing vigorously, and stands the climate quite as well as any of our own indigenous trees or shrubs.—A. C., Douglas, Isle of Man.

Magnolia pumila.—Besides *M. fuscata*, alluded to recently in THE GARDEN as producing extremely fragrant blossoms, there is another kind but rarely met with, viz., *M. pumila*, the scent of which is also delicious. It is not so hardy as *M. fuscata*, the temperature of an intermediate house better suiting its requirements than that of a greenhouse or a south wall in the west of England, where *M. fuscata* thrives and flowers well. In *M. pumila* the leaves are from 6 inches to 8 inches long, deep green on the upper side, and somewhat glaucous beneath. In texture they bear more resemblance to that of the deciduous kinds than the evergreen sorts, such as *M. grandiflora* and *fuscata*. The blossoms being of rather a greenish white are in no way conspicuous, but so fragrant, that a single bloom will suffice to scent a moderate-sized house, especially when the sun shines. They are about a couple of inches in diameter, but generally almost hid by the foliage, so that they play but an unimportant part in the embellishment of the plant. I have some small specimens or this *Magnolia* about a foot high which every spring and early summer bear several flowers, and occasionally some later in the season. The name *pumila* would seem to indicate that this variety is always small in stature. The soil best suited for it is a good fibrous loam with a fair admixture of sand, and, like most other *Magnolias*, it dislikes having its roots disturbed. I have not been successful in striking it from cuttings, but layers root without difficulty.—H. P.

SHORT NOTES.—TREES AND SHRUBS.

The Golden Elder, planted in a sunny situation and in a rather light soil, makes a conspicuous plant in the front of large shrubberies. It is most suitable, perhaps, for large places, but it may also be advantageously used in small gardens, but in order to have it as it should be, of a golden colour, it must be exposed to full sunshine.—J. C. C.

Tree of Heaven.—This tree (*Ailanthus glandulosa*) is not grown often enough for so-called sub-tropical planting. The effect, when grown from a single eye, is very fine, and the following measurements of one of my plants may be interesting. This year's growth is so far 5 feet 3 inches (not including the old stem, which is 4 feet); leaves, 4 feet 3 inches by 1 foot 3 inches at centre.—A. KINGSMILL, Eastcott, Pinner.

Rubus fruticosus dentatus.—This is very distinct from all the Brambles that we are acquainted with, and one well adapted for planting on exposed parts of rockwork and in similar places, for it is not of that strong rambling growth common to many, which unfits them for association with delicate plants, as they would soon overgrow any less vigorous than themselves. This Bramble, as we lately saw it in Mr. W. Bull's nursery, at Chelsea, forms a low-spreading mass, extending for a yard or so in a horizontal direction. The branches are slender, and the leaves composed of three leaflets, each deeply toothed.

Sophora japonica pendula.—With all that Mr. Nicholson says (p. 211) respecting the beauty of this tree I quite agree; there is no weeping tree with which I am acquainted that can equal it in beauty, but unfortunately it is of slow growth. Ten years ago I planted here a tree of this variety in a soil in which all kinds of Conifers and deciduous trees grow in the most luxuriant manner, but the *Sophora* makes but very indifferent growth. It would, therefore, be interesting to hear if there are any trees in the country that are making satisfactory progress; possibly our soil, which rests on red sandstone, is not quite suitable for the requirements of this tree, but all other Leguminous trees grow here freely.—J. C. C.

Diseased Portugal Laurel.—I send a sample of Portugal Laurel branches all more or less diseased. The plants infected are from 6 feet to 10 feet high. Some are growing in rather light sandy soil, others in a mixture that has been made for *Rhododendrons*, viz., bog and leaf soil, but both are equally infected, while other shrubs of various sorts do remarkably well.—R. C.

. We cannot explain the cause of disease in this case. In the brown places on the leaves, leaf-stalks, and stems the tissues are dead; in some places the cuticle is loose; fungus threads of different sorts are on the leaves, and the sooty-looking deposits belong to a fungus known as *Capnodium Footii*. This fungus frequently follows insect attacks, but it often grows on apparently healthy plants, notably on the weed called *Dog's Mercury*. The diseased condition is possibly brought about by some defect under ground.—W. G. S.

Clerodendron trichotomum.—The name *Clerodendron* is more suggestive of a stove or greenhouse plant than a hardy shrub, but as the one under notice has stood without injury around London the severe winters of the last three or four years, it may, I think, lay claim to being at least perfectly hardy. It forms a stout open bush 6 feet or 8 feet in height, thickly furnished with large heart-shaped leaves, the stalks of which are covered with short purplish hairs. Its principal merit consists in its flowers being produced towards the end of August and beginning of September, when there are but few such subjects in bloom. The flowers, which are produced in large open panicles, are pure white, but the calyx from which they protrude is reddish, and, in common with some of the tender kinds, forms quite an attractive feature. This *Clerodendron* will grow almost anywhere, but it requires moderately good soil and not too dry a situation to be seen at its best. If roughly handled or bruised in any way, the leaves have then a very disagreeable smell. There is no difficulty in its propagation. Having occasion to remove a bush of this kind, I was astonished during the following summer at the quantity of young plants that made their appearance, the produce of small severed portions of the roots.—ALPHA.

Euonymus latifolius.—Among deciduous kinds of *Euonymus* the palm must undoubtedly be awarded to this, which at present is in full beauty. The leaves are much larger and the whole plant more vigorous than the common Spindle Tree (*Euonymus europæus*), but the principal superiority of this broad-leaved kind lies in its large showy fruits. It is a native of Southern Europe, and, according to Loudon, was introduced in 1730, but it is only within the last few years that special attention has been directed towards it—caused by the beauty of its fruits in autumn.

When planted thickly with other shrubs, as is often done, this *Euonymus* will run up weak and straggling, and except in the case of a few strong shoots that overtop their associates, and are thus well supplied with light and air, but few capsules will be produced and its beauty is lost. If treated as an isolated specimen in a situation not too hot and dry, this broad-leaved Spindle Tree forms an upright shrub of regular outline, varying from 12 feet to 15 feet in height. In this state its beauty can be readily appreciated, especially if it happens to be not far removed from a deep green background of foliage, which seems to set off the brilliantly coloured fruits to advantage. These capsules are bright red, and when open the orange coloured seeds hang suspended therefrom by slender filaments. This is one of the many trees and shrubs which might be often employed in a cut state, as branches of it are very effective for decorative purposes at a time when there are but few flowers to be had.—H. P.

NOTES.

Pyramidal Bellflowers.—The old chimney Campanula, the steeple milky Bellflower of Gerard, is a grand ornament to the garden in all mild localities and on soils where it is thoroughly hardy. Grown by the hundred from seeds they are now very showy, especially in groups where the white and blue varieties blend together in a pretty way. Planted among shrubs and low trees, they give us the most pleasing of effects. Here they spear up through the branches of dwarf Willows or through the dangling drapery of the blue Passion Flower; there the long stems lie prostrate among Phloxes or dwarf Sunflowers, or among dark crimson single Dahlias. They are so numerous that we cannot afford the time to stake them all, and so, as Mrs. Glasse would say, we treat them in another way. During the early summer months, when the incipient spikes of Campanula pyramidalis, of Hollyhocks, or of Foxgloves are pushing upwards, say at a foot in height, we lop off their tops with a knife, and the result is a bushy development of side shoots, the plants thus treated becoming dwarf and sturdy, quite as floriferous as if allowed to grow 6 feet or 8 feet in height, and no staking is necessary.

Hardy Heaths.—We do not make as much as we might do, I am afraid, of our hardy Ericas, and yet no class of flowering shrubs is better worth a little thoughtful attention. During winter and spring *E. carnea* is most lovely and useful for bouquets, or for indoor decoration of all kinds, and just now the tall-growing *E. ramulosa* is covered with its plume-like clusters of bright pink bells. On deep sandy soils near the sea all the hardy Ericas are, at home, so also on all soils in mountain districts where wild Heaths are naturally found. Not only do they grow well in such positions, but they harmonise nicely with their surroundings, or, as we more commonly put it, are in keeping with the place. Now and then we find these hardy shrubs tastefully planted. At Lord Ardilaun's place, St. Ann's, Clontarf, near Dublin, these tall-growing Heaths are used most effectively, being quite a feature of the grounds. In the distance the Wicklow Mountains tower skyward, and in front the Hill of Howth, here purple with wild Heather, there golden with Corn or green with meadow, is seen, and the bond of harmony between the breezy hill and the distant blue of the mountain peaks are these purplish Ericas, which fringe the tree masses, and groups of shrubs in the foreground, uniting distant views with the closely shaven lawn in a most natural and pleasing way.

Acanthus spinosus.—All the species of *Acanthus* are valuable as fine-leaved plants in our gardens, near ruins, or as seen among the natural outcrop of rocks they are especially beautiful. Just now the stout spikes of lilac flowers stand erect and vigorous above the glossy masses of arching leaves, but even in localities where the plants seldom or never bloom they are well worth the shelter of a wall or fence for the sake of their

noble leafage alone. In Paris, indeed, the most careful of pot culture is ungrudgingly accorded to them, a good specimen of *Acanthus mollis* being one of the very finest and freshest of all plants for indoor decoration. In warm, light sandy soils, however, they are perfectly hardy, and afford us foliage effects which no other plant can give so well. The Grecian architect long ago taught us how harmoniously the *Acanthus* leafage could be made to blend with artistic stone-work, and so we gardeners of to-day find few plants better suited for fringing low terrace walls, the bases of columns, or for vases. A plant of *Acanthus* planted or arranged near the pedestal of a statue, or at the foot of a column or porch, seems to lend a grace to the architectural detail which no other hardy plant can give. But whether alone or grouped near masonry or stone-work, the *Acanthus* is always ever beautiful.

Arundo conspicua.—At this season, long before the Pampas Grass throws up its silvery plumes, this graceful *Arundo* is most effective. It is to all intents and purposes an early, graceful, and small kind of Pampas Grass, and, blooming as it does along with the brilliant Flame Flowers, it is well deserving of a place in all good gardens. We are rather neglectful of really good and distinct ornamental Grasses; even those most graceful of all grassy shrubs, the Bamboos, are tolerated rather than really welcomed and well grown in our gardens. So is it also with the *Eulalias*—graceful Japanese Grasses, of which there are green, barred, and striped forms, all hardy, all graceful, all beautiful. The Siberian Melic Grass, again, is a noble plant, stately, and fine in colour during the late autumn months, but as yet but rarely seen in the best of gardens. We may say the same of the Pheasant's-tail Grass (*Apera arundinaria*), which Mr. Smith sent us some time ago, one of the best of all Grasses for cutting, but it requires a warm sandy border or a sheltered position near a wall. The *Arundo*, the *Eulalias*, and the Bamboos, however, well repay care and culture.

Beautiful bog weeds.—All the way from Oughterard, in the beautiful wild west of Ireland (Galway), I have just received one or two of the prettiest and most interesting of all our native plants. Of the greater Sundew (*Drosera anglica*) I never saw more robust growth, and with it came a near relative, the Grass of Parnassus (*Parnassia palustris*) laden with green-veined Anemone-like white flowers. These two plants, with the addition of *Drosera intermedia* and *rotundifolia* and the Killarney Butterwort (*Pinguicula grandiflora*), the blue fairy Hairbell (*Campanula hederacea*), and the pink Bog Pimpernel (*Anagallis tenella*) are all very beautiful and readily grown in pans or pots of coarse peat earth, surfaced with living Sphagnum Moss. These little bog weeds, like the Date Palm of the desert, like to have their feet in the water and their heads in the sunshine, and so treated they luxuriate in a cold house or ordinary garden frame. I always failed to grow *Droseras*, *Dionæas*, *Pinguiculas*, *Parnassias*, and many other beautiful little bog weeds until I tried planting them in shallow pans of living Sphagnum and ensuring constant moisture by plunging the base of the pan into another pan containing a supply of water. Now we have no difficulty, and our little collection of these native plants is much admired.

Shrubby St. John's Worts.—The best of these are *Hypericum oblongifolium*, *H. patulum*, *H. triflorum*, *H. nepalense*, *H. reptans*, *H. Coris*, *H. empetrifolium*, *H. Kalmianum*, *H. ægyptiacum*, and last, but by no means least, *H. calycinum*. All are well worth culture, but unfortunately all are not hardy on all soils, nor in very cold, exposed situations. In sheltered positions near the sea, in England or Ireland, they grow well out of doors and bloom freely, but it is necessary to preserve duplicates in a cool greenhouse in order to be quite independent of the savage vagaries of our modern winters. Even in cold places, where they will not live through the winter unscathed, they

are so distinct and pleasing that it is well worth while to grow them in pots for plunging out in the borders during the summer months while in flower, as they are thus easily lifted and taken indoors for shelter when the frost comes. *H. monogynum* (*H. chinense*) is essentially a greenhouse subject, and as such a very desirable plant, evergreen, and of bushy floriferous habit, the individual blossoms resembling those of the perfectly hardy *H. calycinum*, but somewhat smaller. Their degree of hardiness with me is in the following order: *H. calycinum*, *H. oblongifolium*, *H. patulum*, *H. nepalense* (*H. uralum*), *H. Kalmianum*, *H. reptans*, *H. empetrifolium*, *H. Coris*, *H. ægyptiacum*, *H. triflorum*, and *H. chinense*.

Hypericum reptans.—Of all the shrubby St. John's Worts none are more distinct in habit or more floriferous than is this pretty little species. On a moist rockery it is quite at home, hanging its red threads over the stones in a most graceful way. Each thread is leafy its entire length,



Hypericum reptans (natural size).

and at the apex bears a golden blossom nearly as big as that of *H. patulum*, but drooping with its face towards the ground—not erect, as in nearly all the other shrubby kinds. As a pot plant it is very pretty, and well suited for hanging baskets in a cool greenhouse, as when suspended above the line of sight its pendent blossoms show to the best advantage. It is perfectly hardy, and easily increased by cuttings of the young shoots in spring or by dividing up old plants. Its worst enemies are the slugs, which seem particularly fond of its succulent flowers. This species, *H. empetrifolium*, and the true *H. Coris* form a very pretty trio of dwarf kinds, but, while we find *H. reptans* perfectly hardy, both the others require the protection of a greenhouse with us during the winter months.

VERONICA.

Fungus on Pear leaves (from a garden in Tonbridge, Kent).—What is its name? Ought any steps to be taken to prevent its recurrence?—W. T.

* * The fungus on your Pear leaves is named *Roestelia cancellata*. The only means at present known for getting rid of it is to gather the infected leaves and burn them. Some botanists believe this fungus to be another condition of the larger reddish brown fungus found on *Juniperus Sabina*, and named *Podisoma Sabina*. Other observers, equally well informed, reject the idea of this connection. The spawn of the *Podisoma* of Savin is perennial, and causes swollen places beneath the bark. We have seen the latter abundant in gardens where Pear trees abound and where the *Roestelia* of the Pear is unknown. Where Pears are so terribly affected as yours, you should have *Juniperus Sabina* diseased to an equal extent. Is this your experience?—W. G. S.

INDOOR GARDEN.

MACKAYA BELLA.

THERE are few plants which have been introduced to this country in recent years that produce such lovely flowers as this *Acanthad*. It is a native of South Africa, and has so far been found a somewhat shy bloomer, but this most likely is owing to its requirements as to temperature not being sufficiently understood, as it evidently is one of a number of beautiful flowering species we possess that will either only bloom meagrely or not at all if grown in a stove temperature, and yet do not succeed well with the warmth of a greenhouse. It is propagated by cuttings of the young shoots produced after flowering. These can be obtained about midsummer. They should be put singly in small pots in sand under a bell-glass in a temperature of 70°, keeping them moist, close, and shaded. They will soon root, and then should be gradually allowed more air; keep them close to the light, and directly they are well furnished with roots, move them into 6-inch pots in turfy loam, with some sand; pinch the points out to induce bushy growth. The heat of a cool stove or intermediate house is what is required, with more air than stove plants generally like, and no more shade than is found needful to keep the leaves from scorching; syringe daily until autumn; then keep the atmosphere drier and allow the soil to get a little drier also. A night temperature of 45° to 50° will suit the plants through the winter, with a rise in the daytime, more or less, as the weather varies; from 55° to 58° will be right.

In March increase the warmth 5° in the night and to 60° or 65° by day, moving them into 10-inch pots; raise the temperature as the weather gets warmer, giving air and syringing as in the preceding summer; again pinch the points of any shoots that are out-growing the others. By July the pots should be so far filled with roots as to necessitate another shift, that is if pot culture is to be the course followed; if not, they should be planted out in a prepared border of limited extent, so as not to give the roots too much room to run, well drained, and filled with good free loam; in either case encourage all the growth possible until the end of September, after which time give no more water than is requisite to keep the leaves from flagging, and winter as before. In the matter of heat, early in March increase the temperature to 50° or 55°, giving a good watering; this will have the effect of inducing the flowers to push. As the bloom-buds begin to swell increase the heat a few degrees more, which maintain until the blooming is over; then shorten the shoots in moderately, and if the plants have been in pots they will require more room, giving a 5-inch or 6-inch shift; treat in every way as advised for the preceding summer, and again similarly in winter.

The spring following the plants should make a fine display. They will last for years provided the soil, if they are in pots, is partially renewed, and growth is still further assisted by manure water; if planted out, give soil to the surface of the bed when required, with a good soaking of manure water when the summer growth is making progress.

INSECTS.—If red spider or aphides make their appearance, fumigate with Tobacco or syringe with insecticide. Should mealy bug or scale attack the plants they must be removed by syringing with insecticide.

T. BAINES.

Milla biflora and Bessera elegans.—I am very glad to report that *Milla biflora* is succeeding perfectly in the open ground with me in sandy soil, and even promises to ripen seed. In short, it appears to be of the easiest possible cultivation. *Bessera elegans* has succeeded almost equally well, and is about to expand its vermilion tubes side by side with the *Milla*. In pots the *Bessera* shows signs of becoming drawn. I am inclined to think, therefore, that the open border is the most suitable position for it if the long fistular foliage is tied up and secured from damage

by worms. It is worthy of note that the bulbs planted in the open ground are more advanced in their growth than those potted and kept in a cool winery.—W. T., Ipswich.

BILLBERGIAS.

AMONGST these South American Bromeliaceous plants are some very fine flowering subjects, which in general habit partakes somewhat of the character of the Pine-apple; and, as in the Pine, their flower-spikes are emitted from the centre of the plant, but they differ considerably in the forms which they assume, some being quite erect, as in the Thyrsoid-like *Billbergia* (*B. thyrsoides*), in which the flowers open almost on a level with the intense crimson bracts from which they spring, forming a dense head of splendidly coloured inflorescence. In others, like the Morel *Billbergia* (*B. Moreliana*), the flower-spikes are loose and open in character, and droop elegantly from the centre. Others, again, like *B. polystachya* (the many-spiked *Billbergia*), have erect spikes, but somewhat branched. All the *Billbergias* are easily grown, being sufficiently similar in their requirements generally to succeed under the same treatment. After they have flowered they throw up suckers from the base. These should not be taken off too soon, as, although they will root when removed in a small state, they nevertheless make much quicker progress upon the plant which has produced them until they get to a moderate size, say, one-fourth or fifth of that of the parent plant. When taken off at that stage they root quickly and suffer little or no check. They will throw out roots at any time of the year, but it is generally best to take them off early in the spring, say about the beginning of March, as in that case they have plenty of time to get established before autumn; they should be slipped off from the stools that have produced them just at the point from which they spring, and any that are near the soil will most likely have some roots attached, in which case they may at once be placed in pots just large enough to hold them. Others that have not made any roots should have a few of the bottom leaves stripped off and be put in pots, one-fourth filled with drainage.

THE SOIL in which they are grown should be good tough loam, sand being added to keep it porous; insert the suckers well up to the leaves, pressing the soil down firmly, and do not give any water for some days, or it will make the soil too wet. Place them in a house or pit in which there is a night temperature of 60° and 6° or 8° higher in the day; if they can be accommodated with a bottom heat of 80°, they will root quicker than they otherwise would do, but do not confine them in a propagating frame or under glasses, as is done in the case of cuttings, for if too humid, they are liable to rot. In the course of a month or so they will make roots, when the temperature may be about 70° in the night and 10° higher by day, air being given when required. By midsummer they should be in a fit condition for shifting into pots a size larger than those they are in, but none of the family should be overpotted, as they do not like more soil than the roots can fully occupy. Let them have a light situation, but during summer they will require a thin shade in sunny weather. Supply them regularly with water as it is required, and syringe overhead in the afternoons during the season of active growth. Continue this treatment until the beginning of September, when they will not need further shading, and syringing may be also discontinued. The temperature may now be reduced 5° day and night, and by the middle of October it may be allowed to fall to 60° at night, a point at which it may be kept throughout the winter, during which they will want less water, but should never be allowed to get too dry. In spring as the days lengthen raise the temperature a few degrees. By the beginning of May the roots will be in an active condition, and the plants should be moved into pots a size larger than those they are in, using the soil in a similar state to the last potting. If a few bits of

crocks or charcoal are added it will insure the roots keeping healthy, as they dislike anything of a sodden, impervious character. As the season advances increase the temperature to the same height as it was during the previous summer, and give air as before, shading when requisite. This season the plants will, if all goes on well, make strong growth, and some of them may need a

SECOND SHIFT in July if the pots are well filled with roots, but unless that is the case do not move them. To such as evidently require more room give pots 2 inches larger than those they were in, after which encourage them to make all the growth possible by giving plenty of heat and light, as the stronger the plants the finer will the flowers be. In autumn reduce the temperature, and treat them through the winter as during the preceding one. They will not require re-potting in spring, but in everything else they should be managed as already recommended, and they will throw up their bloom-spikes during the spring and summer. When in flower, move them to the coolest end of the stove or to an intermediate house, if such is available, in which a drier atmosphere is maintained. Thus situated, the flowers will last longer than they otherwise would do. When the blooming is over they should be kept in the stove and treated in every way as hitherto, for upon the attention which they get will depend their ability to produce suckers quickly and in such condition as will grow up to a flowering size in the least time. After the first suckers are removed, the old plants, if well cared for, will throw up more, which may either be taken off and rooted singly, as already described, or they can, if large specimens are wanted, be allowed to remain on the old plants. These, if shifted into larger pots and grown on, will make flowering crowns in one season.

SPECIES.—The following are a few of the best kinds which will form an acceptable addition to any collection of stove plants, as even when not in flower they have a distinct and handsome appearance:—

B. MORELIANA is not only one of the best *Billbergias*, but also one of the most beautiful of the whole of the Bromeliaceous Order. It is a native of Brazil. Its leaves, which grow to a considerable length, have a lively green ground colour, banded with white; its flower-spikes are drooping and very graceful; the flowers are crimson-purple.

B. SAUNDERSI.—This is a stout-growing species, with strap-shaped leaves 10 inches or 12 inches in length, spined on the margin, the under-surface being of a purplish colour, and covered with light coloured blotches. The flowers are produced in half-drooping racemes about 12 inches in length, furnished with long crimson bracts. The calyx is crimson, the corolla deep blue, and the anthers orange. It has been recently introduced from Bahia.

B. THYRSOIDEA has bright green leaves, with small spines on their edges, blunt at the point, and slightly reflexed. Bracts rich crimson, forming an oblong, obtuse cone; flowers similar in colour to the bracts, close and erect. From Brazil.

B. POLYSTACHYA has leaves furnished with strong spines. The spike is erect, the bracts are small and reddish crimson, the flowers purple. A native of Brazil.

B. IRIDIFOLIA, the Iris-leaved *Billbergia*, is a handsome species, with scarlet and yellow flowers. It comes from Rio Janeiro.

B. CHANTINI.—A fine species, with bright red bracts. The flowers, borne on a stem a foot high, are yellow and red.

B. ROSEO-MARGINATA.—A strong growing kind, with long leaves banded with white; the bracts are rose coloured, the flowers light purple.

B. VITTATA AMABILIS is of medium growth, the leaves stout and banded, flowers pale purple. Brazil.

INSECTS.—*Billbergias* suffer little from red spider, thrips, or aphides, inasmuch as the hard texture of the leaves does not suit their tastes; but scale, both white and brown, thrive upon them, and must be removed by means of the

sponge. Mealy bug will also live on them, and should be destroyed by laying the plants on their sides and syringing them with sufficient force to dislodge the insects. T. BAINES.

TREATMENT OF CROTONS.

IN reply to your correspondent (p. 257), allow me to say that when *Crotons* are required for table decoration, or for any purpose other than being grown into specimen plants, select cuttings with single growths only. In doing this, choose shoots that have perfectly developed foliage, and that, too, of good colour for its respective kind. If required to be grown into specimen plants, select growths that have three, four, or more shoots on them, say, for example, one central growth and three smaller ones surrounding it. These will form a good foundation for the future specimen. For single shoots 3-inch pots should be used; for the others, 5-inch ones will be a convenient size, using soil with an extra amount of silver sand added thereto. Press the cuttings firmly down, and, if necessary, secure them with small sticks. In order to strike them quickly (an essential point in order to secure the retention of the foliage taken off with the cutting from the parent plant), bottom heat is necessary. We place two square hand-lights (one on the other with one top) in our propagating pit, taking away the glass frame properly belonging to the same, and use a bed of Coconut fibre as plunging material. In this we get a bottom heat of about 85°, maintained by pipes running through the entire length of the pit. Cuttings in such a position, with plenty of atmospheric moisture, are struck and fit to be taken out in from four to six weeks. By that time the rootlets oftentimes make their way through the bottoms of the pots. In order to preserve these, the young plants will do best set on a bed of fibre or other material that can be kept moist.

AFTER TREATMENT.—When somewhat inured to the house in which they are to be grown, and before they become too much pot-bound, give them a shift into one size larger pot—a size in which those intended for dinner-table plants can be advantageously kept, but on no account restrict any that are selected for growing into specimens. These latter should be pinched, so as to regulate the growth and to produce a well-furnished bottom for the future specimen. Some like a dense bush with a rather flat top, and this looks well enough when one can look down upon the plant, but that is not always practicable; therefore, I prefer the pyramidal form for such plants. In training many sticks are not needed, one good stout central stake and some few others, chiefly around the base, being all that are required. The tying should be done with tar yarn, as other material soon decays in a moist atmosphere. The future potting of young specimens must be seen to as required. In the case of healthy, vigorous plants, this operation should be performed before they become too tightly rooted, the wood consequently hardened, and the young growths stunted. Give them the moistest end of the stove and ply the syringe freely into and around them daily; this greatly aids their growth and likewise tends to keep down insects. Ours are syringed about four times a day during summer, which is not too much, for *Crotons* revel in abundance of moisture. In winter syringing once or twice during the day, according to the atmospheric condition of the house, will be sufficient. But little shading is needed, and that only on very bright sunny days when the plants happen to show signs of distress. The brilliant colouration of *Crotons* is best brought out when grown under a maximum amount of exposure to light. They should, therefore, be as near the glass as possible, which also prevents them becoming long-jointed.

SOIL.—Cuttings and young stock will be found to do best in a soil somewhat lighter than that used for specimen plants. For cuttings we use soil consisting of nearly all peat and sand, just a little loam being added and some leaf soil when of good quality. In the first shift more loam should be used, and for specimens about half each

of sound fibrous peat and turfy loam, with a good amount of silver sand and some knobs of charcoal if the loam is of a retentive character. Always pot firmly, and allow a liberal quantity of drainage. When well established stimulants may be used, farmyard manure being about the best.

INSECTS.—Mealy bug, thrips, brown and white scale, and red spider, all infest Crotons. The bug, by means of unremitting attention and the use of the "Chelsea Blight Composition," we have eradicated some years ago. For mealy bug and white scale we use this liquid composition 50 per cent. beyond the printed directions, repeating the dose two or three times at intervals of a few days, and by this means our Crotons have been cleared. The printed instructions may safely be followed in the case of black scale and thrips, whilst for red spider and an insect smaller than that, but somewhat similar, except that it is white, and which we have found troublesome, we find nothing to surpass a bag of soot constantly kept in the water tank. In order to economise the insecticide we have a large trough, about 6 feet long by 4 feet wide and 4 inches deep, to place under the plants. In this the liquid can be caught and used over and over again until it becomes too dirty for the purpose. Sponging with a weak solution of this composition is the best way to keep small decorative plants clean and healthy.

VARIETIES.—For specimens the best are *C. Andreanus*, *Hendersoni*, *Williamsi*, and *pictus* amongst broad-leaved kinds; *C. undulatus*, *Queen Victoria* and *Sunset*, with longer foliage, are also excellent and brilliant in colour when well grown. Of kinds with narrow pendulous leaves, the best are *C. angustifolius*, *Johannis*, *Weismanni*, *majesticus*, and *Warreni*. When better known this latter kind will be much sought after. *C. Disraeli* and *Earl of Derby*, with trilobate foliage, are both excellent; so also is *C. Hawkeri*, a most distinct kind. With the exception of the broader leaved sorts first named, this selection also will be suitable for table plants. Broad-leaved kinds should, however, be included for other decorative uses where plants with dense foliage can be advantageously used.

JAMES HUDSON.

Gunnelsbury House.

POT CULTURE OF LILIUM SPECIOSUM.

THIS Lily, better known formerly as *L. lancifolium*, is a well-known favourite pot plant for the greenhouse or conservatory, and certainly large masses of it produce a fine effect when in bloom. Its value, too, is greatly enhanced by the lateness of the flowering season. By the middle of August many greenhouse plants are getting past their best, and then this Lily begins to flower, and will continue to bloom for a month or six weeks if well managed. Bulbs of a number of varieties of it are imported yearly from Holland, and can be bought very cheaply anywhere during the autumn and winter. As in the case of all Lilies, the bulbs should be obtained as early in the season as possible, for the stout, vigorous roots at the base of the bulb have then plenty of time to commence work before the upward growth begins.

SOIL.—A good loamy soil suits this Lily well, provided it is not of too heavy a nature, as though a gross feeder, stagnant moisture is very hurtful to it. The soil used by us, with great success, is composed of two parts fibrous loam to one of thoroughly decayed cow manure with a fair mixture of sand. If large plants are required several bulbs should be put in one pot, keeping about an inch clear space between each, but for 5-inch or 6-inch pots only one is used; indeed, a large bulb will almost fill even a 6-inch pot. In either case thorough drainage must be secured, and the pot must not at first be filled more than one-half full of soil. In our case we pot those intended for early flowering about the middle of October, and when doing so leave just the top part of the bulb exposed. They are then stood underneath the stage in a greenhouse temperature till growth commences, when those that have started are shifted into a frame, the temperature of which is just sufficient

to keep out the frost and nothing more. As the stems lengthen and the roots at the base make their appearance, the first top-dressing is given, about equal proportions of manure and loam being now used. The first time the pots are not filled up with soil, but when stem roots begin to make their appearance above the last top-dressing, the soil of each pot is then brought up to the requisite height. Plenty of air is given during warm weather, the lights being taken off when possible, in order to ensure a short, sturdy growth, and when all danger from spring frosts is over, the plants are plunged in a bed of Cocoa-nut fibre in the open ground. So treated, the growth is stouter and the flowers are both brighter in colour and of greater substance than when grown under glass.

DURING SUMMER weak manure water may be given occasionally with advantage when the pots are full of roots. If any aphides make their appearance during this time, the plants must be dipped or syringed with Tobacco water, as they will very soon injure the young buds sufficiently to cause the flowers to be deformed. When the buds are ready to open, the plants, if out of doors up to that time, should be removed under glass, as the colour of the flowers is purer than if they expand in the open, and thus exposed to sun and rain. By keeping the plants in heat, this Lily can be had in bloom much earlier, but there are then a great number of other kinds in full beauty, besides a much larger number of flowering plants of all kinds than is the case in August and September. As an instance of the time that it is possible to obtain this Lily in flower, I may mention that having a particular reason to get some in bloom as early as possible, we kept some in the greenhouse till the middle of May, at which time their buds were prominent when they were shifted into a light position in the stove, with the result that the first blooms opened on June 26 and the next year on June 30. Of course the plants were somewhat taller than if they had been in the open ground, while the colours were paler, a certain share of beauty being lost by this early flowering, which is certainly not desirable. In trade catalogues there are a great number of varieties quoted, but there seems to be a deal of confusion, the two kinds, *rubrum* and *roseum*, being generally indistinguishable the one from the other. A good Lily of this class is frequently sold as *L. Schrymakeri*. The flowers are large and well coloured, but it has the green stems of *roseum* rather than the purplish ones, which seem to be the characteristic of *rubrum*. For general decorative purposes three kinds will be sufficient. They are, first, the deep-coloured, free-growing variety, under whatever name it may be called; secondly, a white flower with pink spots known as *punctatum*; and lastly, *Kratzeri*, a beautifully shaped flower with pure white petals, except a greenish stripe down the centre of each, and a marking of the same colour at the base. This is much superior to the variety known as *album*, which in the flower does not differ very widely from *punctatum*. The fasciated stemmed varieties frequently fail to open satisfactorily, and even when they do they have not the graceful appearance of the others.

H. P.

Winter-flowering Violets.—The time has now arrived for getting these into their winter quarters. Young plants grown from runners planted out in April will now be fine clumps showing bloom. The best position I have found for them is a Cucumber frame, which by this time is mostly vacant. For Violets it should be set in the sunniest position at command, and raised well up at the back by means of temporary brick piers, so that it may catch every ray of sunlight; for, although it is advisable to screen Violets from the scorching rays of a summer's sun, it is of the highest importance to utilise every ray in winter, so as to tempt the blossoms to expand during the dark, short days. When the frame is fixed in position, fill it three parts full of dry leaves and stable litter, trodden firmly, to give a gentle lasting warmth; on this put 6 inches of good soil, then lift the plants with good balls of

earth, and plant them about 1 foot apart, giving a good soaking of water to settle the soil about their roots. The glass lights will only be needed to ward off heavy rains, and should be tilted up at the back, to allow a free circulation of air night and day, until danger from sharp frost compels their being closed and well covered with mats and dry litter. I find *Marie Louise* the earliest flowering sort, and a decided improvement on the older *Neapolitan*, having longer flower-stalks and being of a darker shade of blue, or rather lavender. Let the blooms be fully expanded before they are gathered, as it is a great waste to gather half-expanded flowers, and a dozen blooms as large as a shilling make a good bunch. Violets garnished with Violet leaves look better than in any other way, but the foliage of hardy single kinds may be utilised for this purpose.—J. GROOM.

THYRSACANTHUS RUTILANS.

THIS plant belongs to a limited section of *Acanthads*, and is much the best of the *Thyrsacanthi*. It is not only deserving of cultivation on account of its elegant habit, but its merits are still further enhanced by the singular, long, drooping panicles of red tube-shaped flowers which appear in the winter season, when bright flowers are doubly acceptable. The *Thyrsacanthi* are nearly allied to *Justicias*, and, like some of them, the present plant possesses an upright habit of growth. It is a native of South America, from whence it was introduced about thirty years ago. It is easily grown, but requires a moderate stove or intermediate temperature. Cuttings made of the young shoots, which are produced early in the spring after the plants have done flowering, if taken off when about 3 inches or 4 inches long, will root readily inserted in small pots filled with sandy soil, kept moist, shaded and covered with propagating glasses in a temperature of 68° or 70°. When well rooted remove the glasses, and let them have a fortnight to get hardened a little before moving them into 4-inch or 5-inch pots; pinch off the points at the same time, keep them in a temperature similar to that in which they have been struck, and allow the heat to rise in the daytime correspondingly with the weather; they need to be well supplied with moisture at the roots as well as in the atmosphere; syringe them overhead in the afternoon; a little shade may be required when the weather is sunny.

I have already intimated that the plant has a persistent erect habit of growth, and it is not well to attempt to alter this by training further than stopping the young shoots to cause them to break out several branches; to effect this, a second stopping will be required in June, after which they may want a single stick putting to each to support them, which will generally be found sufficient, as their erect cylindrical form, when preserved, fits them for associating with other subjects of a more bushy shape. By June, too, they will need moving into the pots in which from this time they are to be grown and flowered; these may be from 8 inches to 12 inches in diameter according to the strength of the plants and the size they are required to attain. After they have had a week or two to get established, they will do better in a low, light pit if such is at hand, where they can be stood with their heads close to the glass, admitting a moderate amount of air in the daytime, and encouraging growth by closing early; give as much shade as will keep the leaves from being injured when the sun is powerful, but not more, otherwise the plants will become drawn and be deficient in the solidity of growth which is so necessary to ensure the full complement of bloom.

Towards the end of August give more air and less shade, and do not syringe overhead so often. From the time the pots are fairly filled with roots manure water, not too strong, will be an assistance. The temperature through the summer may be such as ordinary soft quick-growing subjects of a like character require, regulating it according to the weather from 60° to 65° in the night, and proportionately more in the day, reducing the warmth given as the autumn comes

on, but they must not even then be kept too cool, or their roots, as well as the heads of the plants, will get checked in a way that will interfere with their blooming; 60° by night with 6° or 8° higher in the day will suit them through the later months of the year when they will be in flower. After the blooming is over as many of the plants may be saved as are required to produce enough cuttings for another year, and the remainder may be thrown away, as young examples will usually be more useful. The old plants for stock should be kept during the winter at about 60° in the night and the soil slightly moist, but not so as to encourage much growth until towards spring.

INSECTS.—Aphides and red spider sometimes attack this *Thyracanthus*, to keep down which syringe and fumigate. If any of the worse description of insects make their appearance they must be removed by sponging, as soft-leaved plants of this description have not enough substance in their leaves generally to bear dressing with insecticide strong enough to kill the insects. T. BAINES.

Pellionia pulchra.—For covering blank spaces on the stage, or forming a fringe to the edge of it, this *Pellionia*, with the now better known *P. Daveaueana*, is a very desirable plant. Being a surface-rooting subject, it will grow and thrive with but a thin layer of material in which to root; indeed, it needs but little more than the moisture of the stove to keep it in good condition. The ground colour of the leaf is a deep metallic green, marked in an irregular manner with a lighter tint, the whole having a velvety appearance.—C.

Libonia floribunda.—This is too rarely found in good condition in small gardens, but it is so useful as a winter flowerer as to deserve much cultural care. In the case of young plants the great point is to propagate early, so that they may get a long season of growth, and have time to become thoroughly hardened by the beginning of winter. Upon this depends their ability to produce good flowers and to retain their foliage through the winter months. Badly grown plants are sure to cast their leaves.—J. C. B.

Planting out Calla æthiopica in summer needs only one trial to prove its superiority over keeping it in pots, for even the smallest single crowns put out in May or June develop into fine sturdy plants by September. It is such a strong rooting plant that it will succeed in any fairly good soil, and good plants even when out of flower are ornamental. For general purposes single crowns are best, but large specimens for entrance halls or conservatory decoration are desirable, and few plants last longer in good condition in unfavourable positions than this *Calla*.—J. G., *Hants*.

Sparmannia africana.—This useful winter flowering plant has of late years become very popular; its flowers being of a rich satin-like appearance, make good button-hole bouquets, and in a temperature of from 50° to 55° keep opening in succession for a long time. It is a plant of easy culture, striking readily from cuttings, which, if struck early in spring, make good flowering plants by the following winter, and where anyone has a warm greenhouse or conservatory at command and requires flowers for cutting in winter, I do not know of any plant that will yield a better return than this.—J. G.

Pitcher Plants.—How would a good plant of *Nepenthes* tell in a collection of stove plants at an exhibition? Perhaps Mr. Baines will give me his opinion on this matter. I have a very fine plant of *Laurenceana*, but am afraid to show it in case it may "weaken me." Would *Gleichenias* be effective in a collection of stove and greenhouse plants?—NEPENTHES.

** In a collection of fine-leaved plants or mixed flowering and foliage plants, a good specimen of *Nepenthes* well furnished with full-sized pitchers would be a strong point, provided the judges understand the weight that such a plant should carry; and in the case of a collection of

mixed flowering and foliage plants, unless extremely strong with other things of large size, I should think your correspondent would do well to use his *Nepenthes*, hanging it up well in the group so as to show its character. *Gleichenias* tell well if large and in good condition, as is evident from the fact that the best mixed collections, as well as groups of foliage plants, almost always contain them.—T. BAINES.

GARDEN FLORA.

PLATE 407.

PHALÆNOPSIS SANDERIANA.*

THE late Mr. McNab, of the Edinburgh Botanic Gardens, was always firmly of opinion that the climate of Scotland had changed, and that the difference of temperature and its effects upon vegetation had palpably altered even during the comparatively short space of a generation or so. Whether this be true of Scotland may be to some extent open to doubt, but that changes must be going on in the tropics is evident by the enormous influx of new varieties of old and well-known species of Orchids now brought to our collections. No one could compare Mr. Sander's lovely *Phalænopsis* with the old type of *P. amabilis* without acknowledging that they were varieties of the same species; but how comes it that collectors visited the Philippine Islands for years, and yet never met with this lovely rosy form? Rumph figured and described *P. amabilis* (*P. Aphrodite* of Reichenbach fils) in 1750, and, singularly enough, mentions that there existed in Amboyna a variety of it which had petals suffused with purple, and yet from 1837, the year in which Mr. Cumming sent *P. amabilis* to Messrs. Rollisson, until to-day, no one seems to have seen that variety again. True, one ill-fated collector (whom I need not now name) seems to have come pretty near the locality of *P. Sanderiana* some years ago, for we must not forget those other rose-tinted Moth Orchids, *P. casta* and *P. leucorrhoda*, which, although quite different in minor structure, yet came suspiciously near our present plant—too near to be left entirely out of the question. It is abundantly evident that there have been some "happy marriages" between *P. Schilleriana* and *P. amabilis*, *P. leucorrhoda* being a true intermediate, having *amabilis*-like tendrils to the lip and *Schilleriana*-like leaves.

Again, I have now before me a coloured sketch of a *P. casta*, made some years ago in the Heriott collection at Highgate, which had leaves of typical *P. amabilis*, and the flowers very like those of *P. amabilis* also, but with a rosy suffusion over the sepals and petals, and it was especially deep in tint towards the base where the petals are joined to the column, the column itself being white and not deep rose or magenta coloured, as is the case in *P. Schilleriana* and *P. leucorrhoda*. No Orchid lover can look at our coloured plate without thinking of *P. amabilis* first, and then a suggestion of *P. Schilleriana* ensues, and the conclusion must of necessity follow that *P. Sanderiana* is a natural hybrid between these two species. The very fact of its really being a hybrid plant may account in a way for its not having been before discovered by previous collectors in the same field, for, without a doubt, very many wild hybrids are produced in nature, but do not reproduce themselves, so that, "born to blush unseen," they live and die neglected because unknown to the botanist at home. Indeed, it is pos-

* Drawn in April last in Sir Nathaniel Rothschild's garden at Tring Park.

sible that many of these lovely hybrid Orchids are the natural products of the last few years; indeed, geologists tell us all Orchids are of modern birth when compared with the *Cycads* abroad and the *Equisetums* at home. So be it. The main point for us to consider is that, modern or not, they are here with us to-day, fresh and beautiful, and it is for us to make the best of their sweetness and beauty. There was a time when to have said that a plant was of hybrid origin would have lowered its value materially. To-day the reverse of this is the case, and after all the real beauty of a plant is the same, be it a species or hybrid, and nowadays the genealogy or pedigree of a garden plant adds so much the more of interest to it. So much is gained apart from the beauty of the plant altogether. When we try to say how lovely Mr. Sander's *Phalænopsis* really is, words fail us; verily the pencil becomes mightier than the pen, and a glance at the illustration will tell far more than I can hope to say in words. And yet, lovely as the figure shows it to be, it does not tell us of all the loveliness this plant possesses, since, as so often happens where hybrid plants are concerned, scarcely two plants of it are precisely alike, each having some subtle charm, some little difference in form and depth of rosiness. It has bloomed with Mr. Sander, with Sir Trevor Lawrence, with Sir N. Rothschild, and with Mr. W. Lee, and Mr. Harry Veitch thought so much of it when first seen that he regretted much that it was not certificated at the time the first flowers appeared at South Kensington. At a later date, however, full justice was done to the new beauty, both Sir Trevor Lawrence and Mr. William Lee having received first-class certificates for flowering plants of it. After all, when we see a plant like this, intermediate between two so-called species, and more lovely than either, are we justified in assuming it to be a natural hybrid? It is as well to ask ourselves this question, seeing that however complete our material for study may be the results in this and similar cases are simply "guesses at truth." True, there is a way of proving these guesses as to which are natural hybrids and which are not, viz., by hybridisation at home. But unfortunately *Phalænopsids* have ever resented hybridism in our gardens, but now, seeing that *Masdevallias* and *Odontoglossums* have both succumbed to patience and skill, we may appeal with all the more confidence to Mr. Seden and ask him to prove for us that *P. Sanderiana* is really the result of a union of *P. Schilleriana* and *P. amabilis*, just as *P. intermedia* Portei is supposed to be the result of a union between *P. amabilis* and *P. rosea* (*P. equestris*).

Some may be inclined to ask in what way this plant (*P. Schilleriana*-*amabilis* var. *Sanderiana*) really differs from its parents and its beautiful step-sisters (*P. casta* and *P. leucorrhoda*). From typical *P. amabilis* the colour separates it at a glance; from *P. Schilleriana* it is distinguished by the slender tendrils and the leaves are *amabilis* like, or but very sparsely marbled. When we come to *P. casta* the difference is less striking. I should be sorry to say that *P. casta* is less beautiful than *P. Sanderiana*, and the only real mark of distinction is in the callus, a fleshy growth which lies at the base of the lip. *P. casta* has a callus very similar to that of *P. amabilis*, while *P. Sanderiana* has a callus which in form reminds one of an ass's shoe, that is, it would be horse-shoe shaped, but the sinus is narrower, and at the toe it terminates in a sharp



PHALÆNOPSIS SANDERIANA

point. Your artist did not recognise the importance of this little portion of the flower, and yet the right-hand blossom will show what I mean (the callus being the little heart-shaped process coloured yellow with brownish dots). Enough, however. It needs no great prophetic instinct to foresee a day when, in the absence of good portraits, these Phalenopsids will become very troublesome to a conscientious botanist who endeavours to put them in order. *Odontoglossum Alexandræ* as a species is as variable as the Chinese Primrose; there are several *Cattleyas* in the same condition. A specific name nowadays does not mean individual constancy, but is rather the general appellation for quite a group, or a collection of individuals, one worth, say, a £50 note, another not worth fifty pence, but this question of popularity or of value is nothing to the botanist proper; hence there is a new science of botany being especially written for the nursery garden and for the auction room.

F. W. BURBRIDGE.

SEASONABLE WORK.

FLOWER GARDEN.

RETROSPECTIVE NOTES.—As the end of the bedding-out season for this year is at hand, notes of such plants and arrangements as have afforded the greatest satisfaction, owing to their rarity, novelty, or effectiveness, may be of assistance to some who are bent on making changes in their flower-garden arrangements next year. The notes in question must necessarily be taken as from our point of view only, readers for themselves deciding as to whether the plants and arrangements named are likely to meet their respective tastes and requirements. The flower of the season with us has undoubtedly been the *Marguerites*, golden and white. We have them in large basket-vases, intermixed with various kinds of plants, such as *Heliotropes*, *Fuchsias*, scented *Pelargoniums* and *Petunias*, and also arranged in a long border as a back line, alternated with the Cactus and other single *Dahlias*, and the effect is strikingly pretty, so much so, that it begets praise from even the "don't-care-for-anything-in-particular" amongst garden visitors. The white *Marguerite* and deep purple-crimson *Petunia* *Spitfire* intermixed is another excellent hit, and so is the yellow *Marguerites* and single *Dahlia* *coccinea*, raised from seed in February, and the *Marguerites* from cuttings at the same time. Next to the *Marguerites* come the single *Dahlias*; the ease with which they can be raised and the great variety of colours aid in making them immensely popular for flower garden decoration. We have circular beds of them, arranged as follows: In the centre, *Paragon*, deep maroon-crimson, with light purple stripes on each side of the petal; next, the Cactus *Dahlia* (*Juarez*), the outer line being alba, pure white, and *coccinea*, bright scarlet, the undergrowth *Harrison's Musk*, and the edging silver variegated *Thyme*. The yellow or lutea types of single *Dahlias* look charming alternated with *Ricinus* *Gibsoni*, kept at a proportionate height for the *Dahlias* by an occasional stopping of the leading shoots. Another noteworthy bed—but only pretty in the eyes of enthusiastic disciples of the æsthetic school—is composed of tall *Sunflowers* and *Giant Hemp*, the greenery of this latter plant setting off to advantage the gaudy *Sunflower*. For a sheltered nook in a distant part of the sub-tropical garden, or rather as seen from a distance, this combination is really excellent, but a far more pleasing arrangement for the same kind of garden we have in the form of an oval-shaped bed, planted in a mixed way with tall, variegated *Abutilons* and *Grevillea robusta*, the edging being *Salvia argentea*. Amongst dwarfier plants really acquisitions are the new *Violas*, *Mrs. Grey*, almost pure white, and another variety named *Yellow Dwarf*; both

have flowered continuously on our dry soil without more than the ordinary amount of watering all summer, and are still covered with flowers. *Tuberous Begonias* are also amongst our best flowering bedding plants of the year; at the present moment they quite excel the *Pelargoniums* in brilliancy, and no rain storms hurt them. We have beds of them intermixed with the variety *castanifolia*, which is one of the best of the non-tuberous bedding kinds there is. These *Begonia* beds have an outer margin or narrow border planted with succulents and hardy *Sedums* in formal pattern, types of plants that harmonise most perfectly with the inmates of the beds. We have also used them as central plants in small panels or rings, some of which are carpeted with *Sedum* *acre elegans*, others with *Sedum* *glauca* and *Herniaria glabra*, and the effect is quite unique, there being such a natural look about the arrangement, and what in our case is of great importance, the groundwork being hardy, there is so much the less to do at the season when we have to turn our summer into a winter garden. In such borders we have simply to lift the *Begonias* and replace them with small shrubs. These are a few of the most noteworthy arrangements, and plants that have come under our observation this season, our experience of them being such that we shall not only hope to repeat them another year, but extend them.

GENERAL WORK.—Till the leaves are all down and cold weather has set in, which will keep worms from coming to the surface, daily sweeping up and rolling of turf and walks will be needed. Edgings should have their final clipping for the season, and if the walks are now well cleared of weeds, they will entail no further trouble in that respect till spring. Still keep beds and borders in neat condition by repeatedly picking them over, and when all hope of further effectiveness is ended for this year, let them be at once re-occupied with plants to stand the winter, or, in the case of herbaceous plants, clear away the unsightly stems, mulch the borders with *Cocœa* fibre, and fill up vacancies by planting out from the seed beds such biennials as *Canterbury Bells*, *Sweet Williams*, *Wallflowers*, *Snappedragons*, and spring-flowering bulbs, such as *Hyacinths*, *Narcissi*, and *Tulips*. *Roses* are still flowering profusely, the late heavy rains having given them a fresh start; old blossoms should be kept picked off, the beds freed from weeds, and standards secured to stakes. The ties of all that were budded this season ought now to be removed and all *Brier* shoots and suckers rubbed off. Secure all bedding plants that have been propagated in the open border by potting them up and placing them in frames; also mark, by tying on them pieces of matting or labels, all *Dahlias* and other plants that are to be saved, and which the first sharp frost would cripple beyond recognition.

FRUIT.

HARDY FRUITS.—Take advantage of fine dry days for gathering Apples and Pears as they become fit for removal from the trees. Choice Pears that are to be kept for a long time should be handled with the greatest care, and none but those which are of full size and sound should be placed on the shelves where they are intended to remain until fit for use. As many of the trees, owing to the lightness of the crop, have made strong growth, and the ground is now in good order, immediate attention must be directed to root-pruning, otherwise the full advantage which may be derived from the judicious performance of this operation will be lost. Wall trees of all kinds, commencing with *Apricots*, early kinds of *Peaches* and *Nectarines*, if root pruned with care now, will fruit abundantly next year, and the fruit will attain its full size and quality, as the new roots will have time to take a hold of the fresh soil before the leaves fall and the earth loses the warmth so essential to the formation of fresh rootlets. But amateurs and others who have not seen this operation skilfully performed must not suppose that root pruning means a general cutting away of all the roots which extend beyond a certain line and

then filling the trench in again. The proper way is to open out a trench at the extremity of the principal roots, and then with steel forks to work inwards until a goodly number of the strongest roots have been traced to within a reasonable distance below the surface of the border. These will then require slightly cutting back with a sharp knife, and the work of relaying in fresh loam, which must be made very firm by ramming, will follow as the trench is filled in again. If the old compost is really good, a small quantity of fresh loam will suffice, and the addition of manure, as a mulching only, will complete the operation. Where the formation of new orchards is contemplated, thorough draining must precede all other operations. Trenching as deep as the soil will allow will then follow, and the time of planting will be regulated by the soil. Free, friable loams may be planted at once; but cold, heavy soils often require turning over a second time, and full exposure to the action of frost before they are fit for the reception of the trees. Soils of this description may be greatly improved by the addition of burnt earth or garden refuse, road scrapings, or old lime rubble, and in some cases it may be necessary to crop with *Potatoes* or other vegetables for a year before the trees are permanently planted. The latter may, however, be bought in and grown on in nursery lines, when all doubtful or defective trees will be detected before the final arrangement takes place.

MELONS.—Now is the time to apply artificial bottom-heat to the late Melons (if in pots) by means of fermenting material and hot-water pipes combined; but, if planted out on hills, fire-heat only can be used, and more water and atmospheric moisture will, as a matter of course, be required to counteract its drying influence. Early morning, after this time, should always be devoted to watering, for, much as the Melon rejoices in plentiful supplies of warm, stimulating liquid, it is impatient of stagnant moisture about its stems and leaves after the house is closed for the night. Regulate the foliage, and keep it thinly placed to admit of a free circulation of dry, warm air when solar influences favour ventilation, and, most important of all, wage incessant war with insect pests before they have time to gain a footing, as good quality cannot be expected where the leaves ripen in advance of the fruit. Keep plants in pits and frames as dry and warm as possible by means of fresh linings, by judicious thinning of the soft lateral growths, and by the use of a good covering at night.

CUCUMBERS.—The August-sown plants will now be in a fit state for bearing a few Cucumbers if wanted, but if not required, the removal of all male and female blossoms for some time longer will give increased strength, and better prepare them for giving a full supply when the plants in pits and frames are no longer profitable. Where former directions have been followed, and plants in pots or boxes are placed on pedestals, thoroughly worked fermenting materials, consisting of Oak leaves and short stable manure, will now play an important part in keeping up a genial bottom-heat in every way preferable to that obtained from hot-water pipes, as the ammonia given off by the manure is obnoxious to insects, and the constant presence of atmospheric moisture reduces syringing to a minimum. In compact, efficiently-heated pits many prefer planting out on hills or ridges, and, provided the compost used is not too rich, very satisfactory results are obtained; but great caution in this matter is needed, otherwise the growth of Vine and leaf will become too strong at the outset, and a check will follow at a time when the absence of sun and light is most unfavourable to winter culture. In the arrangement of the plants an effort should be made to keep the stems well away from the top-heat pipes, as it is at this part of the house where spider first puts in an appearance, and the hot steam generated by constant syringing often increases the evil by scalding or making the foliage too tender to withstand the attacks of the enemy. Young plants may still be raised from cuttings or seeds for fruiting in February and March, a time at which good fruit is never too plentiful. To succeed with

these, light rich turf, medium-sized pots, and good drainage are essential. Bottom heat may be secured from tan until new Oak leaves can be obtained, or from tan and hot-water pipes combined. A position near the glass is also important. Cleanliness in every part of the pit and good covering in severe weather cannot be too strictly enforced, as many start right and fail through inattention to details.

ORCHARD HOUSES.—By this time pot trees of all kinds that have been kept under glass will be clear of fruit, and the latest batch will be fit for potting. A few years ago no one thought of disturbing the roots of a deciduous fruit tree until it had cast all its leaves, but it is now generally admitted that the best results follow potting immediately after the fruit is gathered. The after-treatment is, of course, different, as trees which are potted before they go to rest require the shelter of an orchard house where they can be syringed occasionally until the wood is ripe, when the best place they can occupy is a sheltered situation out-of-doors. Here they should be placed, not too close together, with the pots fully exposed to the atmosphere until bad weather threatens, when they may be well packed with dry Fern to secure the pots and roots from frost through the winter. Shelter from rain is quite unnecessary, as pot trees suffer more from drought than they do from moisture. In course of time trees become too large for the house, and require shortening back considerably. When this is the case autumn is the best time to use the knife and the pruning should always succeed the reducing and re-potting. Trees of ordinary size, which have been kept properly pinched throughout the summer, require very little pruning, and on no account should the shoots be shortened back until the triple buds can be distinguished. If maiden trees for potting have not been selected no time should be lost in looking them out, as first comers generally take the best, but it is not always advisable to take the strongest unless the wood is thoroughly ripe and the young shoots are evenly balanced.

STRAWBERRIES.—Plants of the different kinds selected for early forcing having filled their pots, which are generally small and full of roots, some little care will be needed in their management, particularly in the way of watering, as an excess of water may start the most prominent crowns, and the want of it might seriously injure the roots by causing the balls to shrink, and letting them separate from the sides of the pots. Later plants in larger pots are less liable to suffer in this way, but with these judicious watering until the time arrives for storing away will form a very important item. The best time to water is early morning, when every plant should be examined and supplied for the day without wetting the crown or foliage, particularly when diluted liquid is used as a stimulant. Let all plants be kept quite clear of weeds and runners, and give an abundance of space between the pots to let in light and warmth, which will facilitate the ripening of the roots as well as the crowns. In many places great difficulty has been experienced in getting healthy runners for early potting, and on this account the plants will have been making vigorous growth throughout the past month, but, notwithstanding the lateness of the season, the same ripening process must be gone through by elevating the pots on dwarf walls, planks, or shutters until the weather breaks in November. Worms, if possible, find their way into the pots, and soon do considerable mischief by running through the rich, heavy compost and clogging the drainage. Experienced growers go upon the principle that prevention is better than cure, but when they do find their way into the pots no time should be lost in getting them dislodged by watering with lime water before the plants are stored away for the winter.

PINES.—Plants which have well filled their pots with roots, if intended for starting early in January, will now require a drier atmosphere, with liberal ventilation whenever the weather is favourable. As days decrease in length and more

fire-heat is needed, the minimum temperature may range about 68°, with a rise of 10° to 15° in the daytime, but no fixed rule must be adhered to, as the weather at this season is very changeable, and it is best to keep below rather than above these figures when the plants are going to rest. The most important point in the successful management of tender kinds like *The Queen* when resting is the bottom-heat, which should range from 80° to 85° for the next three months, and if this can be secured by keeping them plunged to the rims of the pots in dry tan or leaves, there is little danger of the roots going wrong or the fruit coming up prematurely. Plants intended to make growth before they start in the spring should still have every encouragement, particularly when favourable weather prevails, by maintaining a temperature ranging from 70° at night to 80° by day, and 85° to 90° at the roots. Give atmospheric moisture by syringing all available surfaces, including that of the bed, when the day temperature begins to rise, and again when the house is closed, but guard against syringing overhead, particularly in dark, heavy houses or close pits. By this time the potting for the season should be complete, but where stock is likely to run short a few of the strongest suckers which have well filled their pots with roots may be shifted into medium sized fruiting pots and plunged in a sharp bottom-heat with their heads near the glass in a light span-roofed pit if at command. In a favourable position with due attention to surface heat the plants may be kept in good growth for the next six weeks, and slowly moving through the remainder of the winter. Collect all fruiting plants together in a house by themselves where they can receive treatment most favourable to the swelling or ripening of the fruit, as anything approaching a close stagnant atmosphere through the last stage prevents the Pines from keeping after they are cut.

INDOOR PLANTS.

ASPARAGUS PLUMOSUS.—Being a native of the Cape as well as further northwards—as far as Natal, this species is undoubtedly a greenhouse plant, and thrives well in a house where *Pelargoniums*, &c., are grown. Here we have two plants planted out in a cool conservatory, as well as several good plants in pots in another cool house. Those planted out are in a compost of loam and peat with a little brick rubble; below 1 foot of this there is a good drainage of broken bricks, &c. During summer, when these plants grow like weeds, they are assisted with a little weak manure water about once a week; during winter no water is given. Those in pots are in a similar compost to that described above, and these, as well as those planted out, are kept to supply cut sprays. In addition to these we grow about a dozen small plants in 4½-inch pots for table work, and to those who have not seen this plant thus employed, we recommend it as one of the most telling, the graceful deep green sprays and elegant habit of the plant rendering it, in our opinion, the very best among table plants. The propagation of this species is easily managed, seeds which are frequently produced on our oldest plants germinating as freely as the garden *Asparagus*, and growing into useful little table plants in about twelve months.

BULBS.—One of the best for November, December, and January is the Roman *Hyacinth*. Until January we have been more successful with this than any other. It may either be grown to make a display in pots or for cutting. Five bulbs in a 6-inch pot make a pretty display, or they may be placed singly in 3-inch pots, and, for cutting only, quantities of them may be grown together in boxes. There is no difficulty in getting them into flower, and every one, no matter how inexperienced, may succeed in their culture. Other early *Hyacinths*, which may be had at Christmas by a little attention, are *Grand Vainqueur*, *Pelissier*, *Mdme. Talleyrand*, *Grand Védette*, *Bouquet Tendre*, *Panorama*, and *La Tour d'Auvergne*. Some of these are bright in colour, but some might probably be grown more for scent than show, and one

or two varieties of the scarlet *Tulips* may be grown for their brightness, and in this respect no kind is superior to the *Duc Van Thol* class. As regards *Narcissi*, the double Roman and Paper White are easily managed, very early sorts. *Crocuses* we have never been able to get in bloom before the days began to lengthen; indeed, their culture for early winter decoration need not be attempted. Those bulbs which have been named for early flowering should be procured at once and potted; a mixture of loam and leaf-soil or half-decayed manure is suitable for all kinds of bulbs. It is necessary that they should be placed in the dark some weeks before forcing. When placed under a thick covering of ashes, Cocoa fibre, or sawdust, they soon show signs of growth. In bringing them on to bloom they should, if possible, have a position near the light and a temperature of about 60°.

CHRYSANTHEMUMS are always useful late in autumn and early in winter. At present all *Chrysanthemum* pots will be well filled with roots and the bloom buds showing. They should occupy the most sunny position obtainable, as it is of the utmost importance that the wood should be well developed and hard, and great care should be taken that they never suffer from want of water at the root. Manure water may now be freely given. The middle of October or later is early enough to remove them from the open air under cover, and the house in which they are placed should be cool and unshaded. By many they are considered not ornamental enough to be put in the greenhouse or conservatory before they begin to bloom, and until then a cool Peach house or similar place will suit them. Some of our *Chrysanthemums* are placed in a slightly heated house, and others in a house in which there is no heat, and by means of the two places we always manage to have blooms from the beginning of November until a little way in January. When in flower they are always kept very moist at the root, but the atmosphere, especially where is no heat, is always kept as dry as possible, as the flowers suffer from damp, especially those of the Japanese kinds. February is the month when most of the *Chrysanthemum* cuttings are put in, but tops rooted in July, and grown on in 3-inch or 4-inch pots, make pretty little plants for Christmas blooming; in fact, for small vases or dwarf edging plants they are much more useful than the others.

SALVIAS are another grand class of winter flowering plants. They are as easily rooted, grown, and bloomed as *Chrysanthemums*, and are just the plants for those who have no great amount of heat at command in winter. They grow quickly and bear stopping freely. They also speedily fill their pots with roots, and where large plants are wanted plenty of pot room must be given; 8-inch pots are the largest we use, and we have small plants furnished with three or four flowering shoots in 2½-inch pots. It is from the point of each shoot that the bloom comes, and the more points produced by frequent stopping the better. Stopping may be practised until September, and the points taken off may be rooted until then. They like a rich soil. In summer they may be grown out-of-doors, and about this time they should be placed in a cool house or frame well exposed to the sun. Here the shoots will lengthen, and from November onwards abundance of flowers will be produced. Further on when plants show signs of becoming exhausted they may be placed in a little more heat, their food increased, and a succession of bloom will be the result.

CHINESE PRIMULAS.—These should always be grown in quantity for winter flowering. Some strains are very much superior to others, and care should be taken to secure the best. Useful plants may be grown in 4-inch pots, and the largest in 6-inch ones. At the present time the earliest are just showing bloom. A little soot water now will improve them greatly; strong liquid manure must not be given. Many grow their *Primulas* in the shade in summer. Ours are grown in the sun, and those which have been previously in the shade should be put in a sunny position at once to harden

them for the winter. Primulas and other soft-wooded plants have a tendency to decay in damp weather or in moist positions in winter, and those grown in the shade are always worst in this respect. It is surprising how much better plants grown in the sun will stand the severities of winter. Primulas do not bear strong heat well, and they do not force readily, but all forward plants in light, airy positions now will bloom fast enough without forcing. From now onwards Primulas require to be watered with care.

ABUTILONS.—These are not so extensively cultivated as they should be. We are annually increasing our stock, and have never too many. They are easily cultivated in summer, and bloom with great certainty in winter. Until the end of this month a cold frame is a suitable place for them, and after that any kind of greenhouse. Their beautiful bell-shaped flowers are produced in numbers at the point of every shoot, and until they are allowed to flower they should be constantly stopped in order to make them branching and bushy. From now onwards they may be said to come naturally into bloom, and they will continue to do so the whole winter through. For this purpose, however, it is important that they be well ripened, and if this has not already been accomplished it should be set about at once. During long periods of cold, dull weather a little fire heat assists them to open more freely, and liquid manure is beneficial when the pots are full of roots. From even a small collection flowers may be had almost every day in the year, and their shape and colours enable them to be used in the most choice arrangements.

BOUVARDIAS may be classed amongst the choicest winter flowers. They, too, are easily grown, but not so much so as some things; young healthy plants of them are more satisfactory than old ones. Early propagation and frequent stopping will secure dwarf bushy plants for winter use. A cold frame fully exposed to the sun is their proper summer quarters. Now they may have a little more warmth, but very little, as strong heat now will hurry them over, and they will be weak and straggling long before they come into flower. From a frame we shift ours into a cool house to which no artificial heat is applied until it is wanted to keep out frost. Those we want to bloom in October and November are showing quantities of buds now, and later ones are still being pinched. Cutting the flowers induces fresh growth, and consequently more blossom. Cleanliness is a great matter in the case of Bouvardias, and to this a sharp eye should be kept.

CELOSIAS.—These are not produced from cuttings, but may be readily obtained from seed. This for the winter plants need not be sown before July, and from then until now the young plants may be grown on in frames. After this they should have a little more heat, such as is generally afforded by one of those useful odd houses set apart to bring flowers forward for the conservatory. As the shoots grow they are always inclined to bloom at the points, and if this is allowed to take place they will not become very bushy, but by picking the blooms off as they appear shoots and leaves will be made, and the flowers may be allowed to form after the plants have got to a good size. The flowers may have been kept off until now, but after this they should be allowed to grow, and during November and December they will make a pleasing display, their feathery plumes mixing in and contrasting well with the other flowers already named. Small plants in 6-inch pots are generally the best after this time, or two or three may be put into a larger-sized pot.

ORCHIDS.

EAST INDIA HOUSE.—The plants in this house should now be as much exposed to the sun as possible, and where the house is span-roofed with the end to the south, shading will not be much required, and should only be used during warm, bright weather for an hour or two at mid-day. Particular attention should be given to watering, which ought to be applied with a syringe, taking

care that none of it goes on the leaves. It is best to water in the early part of the day with water that has been standing in pots all night near the hot-water pipes. Saccolabiums and Phalenopsis should be surface dressed if they require it. These and similar species have so far been freely supplied with water, and the Sphagnum has grown up in some cases so much as to cover the centre of the Phalenopsis; this ought to be removed, replacing it with some fresh Sphagnum which has been well washed in clean water before using it. It will not grow much after this time, as in the course of a month it must be allowed to become rather dry before watering it. In surface dressing all decaying matter ought to be removed. *Aerides nobile*, a good form of *suavisimum*, is now in flower. It is not only a useful species for flowering late, but also exceedingly handsome. We have *Cattleya superba* in flower now, and very beautiful it is, and distinct in colour from that of most other *Cattleyas*; few, too, require less attention. It should be tied to stumps of Tree Ferns about 1 foot long, when it will annually make good flowering growths if kept near the glass in the warmest house. *Dendrobium formosum*, not yet out of bloom, ought to be grown in baskets and suspended near the roof. Many of the *Cypripediums* also flower at this season. We have a large specimen of *C. Stonei* throwing up three good spikes, and the flowers are just open. *C. Harrisianum* also flowers at this season, and the pretty singular-looking *C. Dominicanum* is not yet over, while chance blooms may still be found of the pretty *C. niveum*. All these may be looked over, and if any of them would be improved by a little fresh material being added to the surface it may be done. The temperature of this house need not exceed 70° at night. Our house falls in cold nights to 65°, but we do not care to have it lower than this until the season is further advanced, when it may fall between 65° and 60°, but not lower. Trap slugs, snails, and wood lice; watch for them at night to prevent them eating any flower-spikes coming up, or the succulent roots of *Saccolabiums*, &c. The eaten roots sometimes rot and do much injury. We have not yet got rid of thrips, but the instant they appear the plant infested with them is either washed with a sponge or dipped entirely in a solution of Tobacco and soap. The yellow aphid is also troublesome to destroy; the instant a plant is touched, one of their number acts apparently as leader, and the whole of them troop after it down the stem and hide in the Sphagnum at its base, from which they re-ascend at their leisure.

CATTELEYA HOUSE.—If *Odontoglossum Phalenopsis* has been kept in the cool house until now, it should be removed to this house and placed in a position quite near the glass; a good plan is to place the pots containing the plants in teak baskets and hang them up to the rafters. Our plants have been placed on shelves, where they have succeeded much better than they did when further removed from the glass on the stage along with *Cattleyas*. *Odontoglossum vexillarium* requires much the same treatment. We removed our plants from the cool house the week before last, and placed them near the glass; before doing so, the surface of the compost was made fresh by the addition of living Sphagnum and good fibrous peat. Where the Sphagnum grows so luxuriantly as to cover the pseudo-bulbs, we sometimes press it down with the fingers, and at others remove it, supplying its place with that which has been freshly gathered. *Oncidium crispum* and *O. varicosum* are now throwing up their flower-spikes; the tender growths of the former when about 2 in. or 3 in. in length are frequently eaten over; and they can only be saved by watching at night with lamp-light for the depredators. Both of these species seem to succeed best if planted in upright baskets, or rather cylinders of teak. I have grown them successfully in this way with a length of Tree Fern split into quarters and placed in the interior of the basket. The roots run into and take firm hold of the Tree Fern, the loose nature of which retains water, but not in sufficient quantity to injure the roots. *Oncidium Marshallianum* may

soon be showing the points of the flower-spikes from the base of the pseudo-bulbs, and ought to be looked over every night. The very showy *Odontoglossum grande* makes a beautiful display at this season in the *Cattleya* house. Some grow these in the cool house, but there we have found the bulbs had a tendency to rot when their growth was nearly completed. This they do not in the drier and warmer atmosphere of the *Cattleya* house.

COOL HOUSE.—*Masdevallias*, &c., should now be potted without delay, and surface dressed if required. All flower-spikes coming up, too, must be preserved from depredators. The earliest spikes of *Oncidium macranthum* will now be showing, and should also be carefully guarded, but they will not reach the flowering stage until June. *Odontoglossum bictonense* is a distinct and useful species, and one which does well in the coolest house. It is now in flower, and lasts in beauty a long time. *Lælia autumnalis*, a good cool house species, is now showing its flower-spikes; the best varieties of this *Lælia* are truly valuable plants, and form quite a distinct feature well worth attention in the cool house.

FRUIT GARDEN.

PEACH CULTURE UNDER GLASS.

The progress which Peach culture under glass has made is really remarkable. At one time, and not so long since either, Peach houses were thought necessary in large gardens only, but now no garden of any importance is considered complete without a house or houses devoted principally to Peach and Nectarine culture. Even amateurs are turning their attention to this branch of horticulture, and two at least subscribers to THE GARDEN, and apt pupils of mine, are commencing this season. I am not surprised at this progress, simply because I believe a good well ripened Peach has no equal among fruits—at any rate during June, July, and August—nor are there any much more profitable or interesting fruits grown. The frequent failures of late years on open walls have doubtless largely contributed to this change in culture, but for my part I always shall, provided I had a good wall, still continue open wall culture, if only to supplement the earlier crops grown under glass. According to my experience, if we gave the same attention to our trees as our forefathers or the older race of gardeners did, they would repay our care as well now as then. I do not profess to be an expert in Peach culture generally, but I have fair experience besides noting closely the practice of other growers, and my giving an account of this may possibly be of some service to beginners, if not to others who have fewer opportunities of improving themselves than I happen to possess.

SUITABLE STRUCTURES FOR PEACH GROWING.

—It is a difficult matter to advise generally as to what kind of house is best adapted for this purpose, so much depends upon circumstances. If cheapness is an object, and a good wall, say not less than 12 feet high, is available, I should be inclined to erect a common lean-to house, fixing the wall plate directly under the coping; the house to be either 10 feet or 12 feet wide and about 4 feet high in front. The whole of the front (3 feet) sashes to be hinged and fitted with leverage gearing, so that little or much front air can be given at any time. The top ventilators to be in the form of a glazed lap or laps according to the length of the houses in the range, and about 3 feet in depth, and which also would be worked with the leverage or screw gearing. In such a house there need be no expensive sashes, as the ends could be formed with strong sash-bars, and the roof with strong, but not heavy, rafters at 4-foot or 5-foot intervals, while between these three or more sash-bars could be mortised into the cross pieces running from rafter to rafter directly under the proposed limit of top lap ventilators, the latter to be about 3 feet in width, and all the butts or hinges to be either entirely of brass or with brass pins, otherwise they soon rust up and become unworkable; the back wall should be wired or, better still, covered with coarse 4-inch

mesh wire netting, and eventually covered with trees, and another row of trees should be grown along the front of the house and trained to a semi-circular trellis formed either with wires at 6-inch intervals or with stouter wires at 30-inch intervals, and covered with more of the coarse wire netting, the latter being by far the most convenient as regards tying. The semi-circular trellis could either be supported with long and strong iron eyes screwed into the rafters or by occasional flat iron supports with holes drilled for the wires, and fixed either to the woodwork or to iron uprights. Commenced near the front wall plate, it should be taken up to within 15 inches of the glass, and be gradually rounded and dipped, so as to terminate about 30 inches from the glass and 42 inches from the back wall. Fixed in this manner, the whole of the trellis may be covered and the trees fruited without materially affecting those on the back wall. A strong and portable wooden pathway is the best for the only pathway near the back wall, anything in the shape of brick piers being in the way whenever the trees require lifting or transplanting. What I believe to be

THE BEST PEACH HOUSE IN THE COUNTRY is to be seen in the gardens at Wilton House, near Salisbury. This is a comparatively new structure, and erected on a new principle, far ahead of anything of the sort I have yet seen or read of. Not only is the house built and glazed in a very superior style, but the system of training and the way in which the trellises have been covered in a short time, if not exactly original in its conception, are at any rate most noteworthy, and reflect the greatest credit upon Mr. Challis, who has for many years had charge of the gardens in question. The range is unusually high, and in the style known as the three-quarter span-roof, with a lantern ventilation. The highest point or ridge of the house is 14 feet high; it is 13 feet wide, and about 7 feet high in front. The back wall is covered with trees; the trellises for the front are not taken along the front, but are fixed so as to economise space to a marked extent, and in this manner, at intervals of about 5 feet, a strong framework, formed with gas piping, is disposed across the house at right angles, with the front over the path and up to the wall; on this is stretched coarse wire netting. To nearly every trellis only one tree is trained, but from experience gained by planting a few pairs, these being arranged back to back or one on each side, Mr. Challis has confirmed his previously formed opinion, that the whole house might have been so planted without any ill effects resulting from over-crowding. All that would have been necessary would have been to fix the netting for training on each side of the trellis. Recently this plan of double planting has been adopted in a fine Peach house in the gardens at Old Sneyd Park, near Bristol, and with every prospect of ultimate success. The Wilton house is glazed on an imperishable system, also devised, I believe, by Mr. Challis, and which I for one would much like to see fully described by him and illustrated. The whole of the roof is completely covered with glass, this being fastened by clips and in such a manner as to make it possible for a broken square being replaced from the inside. Not only this, but any other somewhat similar imperishable system is greatly to be recommended, as any subsequent expense in the shape of painting or renewal of putty is not necessary, at any rate so far as the exterior is concerned. The Wilton system of training is not applicable to low-fronted houses, as at least one-half of the trees have to be kept hard pruned for want of space to extend; in fact, frequent liftings are necessary to prevent exuberant growth, and I do not recommend this system to amateurs. There are

OTHER STYLES OF HOUSES AND METHODS OF TRAINING, all of which, if inferior to the above, may yet answer the purpose for which they are designed. For instance, the span-roofed house in the gardens adjoining the residence of Mr. J. Derham, Old Sneyd Park, Bristol, annually produces a great weight of fine fruit, but only those grown

on the fan-shaped trees trained on front trellises are of first-rate quality, those obtained from the double row of standards in the centre being inferior both in appearance and colour. This I was informed by Mr. Rye, the gardener now in charge, and personal observation can fully corroborate his assertion. In this case the cross trellis system might well be adopted. A cheap and profitable house has long been in use at Cote House Gardens, Westbury-on-Trym. This is a lean-to structure, the front not being glazed, but only covered with perforated zinc, the same material being employed along the front edge of top ridge ventilator. The advantages are cheapness in construction, no attention being required in the matter of ventilating, the constant current of air ensuring a good set of fruit, and no wasps can get into the house. Mr. Bannister, the well-known gardener in charge, affirms that the trees never fail to crop heavily; they certainly are in good bearing condition, and much less affected by the late spring frosts than innumerable trees growing in fully glazed, unheated houses in other parts of the west of England.

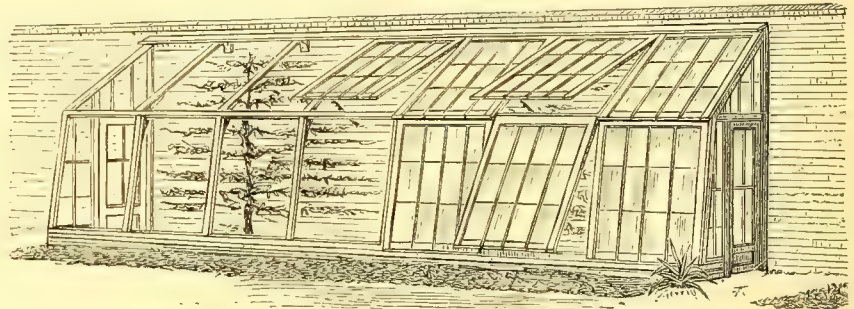
FORMATION OF BORDERS.—In several cases I have noted that the houses are formed with

tating over-heating, as this is particularly injurious. Two or three pipes are sufficient in later or successional houses, while a flow and return, or at least a single pipe, ought to be in the late houses. It is true there are a great number of unheated Peach houses which answer well, but at times, in some localities especially, the blooms are liable to be injured by spring frosts, or the fruit may ripen badly, or, again, the wood may fail to ripen properly, all of which may be avoided if only a little artificial heat could be given. Where they are contiguous to other heated structures, the little heat occasionally turned on to a Peach house would not perceptibly affect the coke bill, and even if it did the extra value of the crops would more than counterbalance the extra cost.

W. I. M.

IMPROVED WALL TREE COVER.

JUDGING from the experience of practical men, there cannot be any doubt that efficient protection not only increases the general productiveness of wall trees, but lessens the risk of losing a promising crop of fruit. But by "efficient protection" must be understood a combination of conditions



Movable wall tree cover.

arched fronts, so that the roots of the trees near the fronts have access to the borders made outside. According to my experience and that of others with whom I have talked over the matter, large and deep borders for Peaches and Nectarines are quite unnecessary; in fact are not unfrequently a source of danger. Far better is it to have the roots somewhat confined and near the surface. They are then well under control and in a position to be benefited by liberal supplies of not only solid, but liquid manures. Once let the roots get away from the surface and down into deep borders, and inferior crops and perhaps the "yellows," which will be again alluded to, will be the result. A border 2 feet deep, with 6 inches of drainage, is ample, and, unless the subsoil consists of badly drained clay, no concrete on the bottom is necessary. A compost consisting of equal parts turfy loam and ordinary garden soil, with a moderate admixture of lime rubbish and wood ashes is quite good enough at the commencement for Peaches and Nectarines as well as Roses, Figs, and Grapes, which for a time may share the house with them. It should, however, be made quite firm, firmness tending to ensure the formation of fibrous roots and the desirable moderate sized growth. If I could have my way when arranging a new house or remodelling an old one, the roots of the trees on the back walls and the front of the house should be separated by a single brick wall, and in the case of planting cross-ways, a brick division should be taken midway between each trellis. If big borders are, to say the least, undesirable, it must also be borne in mind that very limited borders must be well and closely attended to, or the results may be somewhat as disastrous as is sometimes the case with neglected pot plants. With regard to

HEATING, I may merely say that I prefer plenty of pipes, say two flows and two returns along the front of an early house, in order that the requisite heat may be maintained without necessi-

—not merely power to check, when necessary, the upward current of air so that a wall warmed by the sun may not too rapidly part with its heat; protection from heavy rains descending, or horizontal currents of cold air; protection from wasps and birds, but also power to give easy, rapid ventilation in any part, to any extent, even to that of removing all protection. This necessitates lightness, portability, and an absence of all complication, so that skilled labour may not be required in its erection, manipulation, or removal. If to all these conditions we add cheapness and sightliness, we have very nearly exhausted the conditions which go to make up a thoroughly efficient wall tree cover. The annexed illustration will be almost self-explanatory of a wall tree cover designed by Mr. F. A. Fawkes to meet the above requirements. As will be seen by the engraving, the cover consists of a light, permanent framework, in front slightly inclined from the perpendicular, held in its position by light cast iron T ribs, which can be fixed to the wall by bolts and nuts, or, where there is an objection to anything passing through the walls, by coach screws. The roof ribs are hollowed in the centre to carry to the front any drip or rain which may find its way between the roof sashes. Upon the roof and front are lights held by special hinges, so constructed that the lights are secure, and yet may be unhooked in a moment when it is necessary to do so. Each light is provided with a simple ratchet set open, so that ventilation to any extent may be effected from the inside or the out, and the lights are held automatically in whatever position they may be placed; or the cover can be stripped of upper or lower lights or both in a few moments. Nets may be hung in place of the upper or lower lights or both. This cover, which is manufactured by Messrs. Dennis, of Chelmsford, is sent out ready to put up by any intelligent labourer. As the lights simply drop on to the framework, there is a little

margin for "play," and ease in erection is further facilitated. Of course, independently of a wall tree cover pure and simple, the front portion may be used for growing early Strawberries, small salad, &c., and by the addition of suitable rods and gearing the lights may be opened simultaneously.

W. W. H.

TRANSPLANTING RASPBERRIES.

RASPBERRIES are sometimes allowed to grow solong in one situation that the produce becomes worthless; this should not occur, for transplanting is by no means a hazardous operation provided good roots can be secured. Some think that it takes years to get new plantations up to a fruit-bearing condition, but that is not so. Although Raspberries make new canes every year, and in some soils and positions will continue to produce good crops for many years, there can be no question that the best results can only be ensured by giving the plants a fresh root run by annually transplanting a portion of the stock, so as to always have some rows in the highest state of productiveness. Raspberries make excellent divisional lines in the kitchen garden, and rows of them at a considerable distance apart yield the best returns for the space occupied.

October is the best month in the year in which to plant. Take out a good wide trench, as if for Celery, and in the bottom of this place 6 inches of thoroughly rotten manure, forking it into the bottom and thoroughly pulverising the soil; then dig up the plants carefully with all the roots that can be got attached to them. Place them in the trench, and fill in with the top spit soil; tread them firmly, and leave the tops entire until their buds begin to swell in spring, when the canes should be shortened to about 2 feet in height. They will not need any supports the first season, but during the following winter stout posts, with two wires stretched between them, should be put to each row, and to these the canes should be firmly tied. In market gardens Raspberries are not staked or tied, but the canes are cut down shorter at the winter pruning than in private places, and probably, on a large scale, that is the best plan, but in gardens where only a limited space can be devoted to this fruit I would recommend the use of wire trellises about 4 feet high. As regards pruning, there is nothing gained by leaving the canes more than from 4 feet to 5 feet high, for even strong growing kinds like Prince of Wales, if left much longer and arched over one another, only fruit at the top; the lower buds remain dormant, whereas if cut down lower they fruit to the ground. There are few fruits so much benefited by rich top-dressings of manure as Raspberries, and in winter, after the canes are thinned and tied, apply a liberal dressing on both sides of the row. Do not crop with vegetables too closely to the roots, for the fruit will be just in proportion to the amount of food the roots can lay hold of. If a good drenching of liquid manure can be given after the fruit is set, it will materially improve its size.

J. GROOM.

Gosport.

THE APPLE CONGRESS.

A "CONGRESS" indicates an important conference at which something is to be settled, and it is to be hoped the proposed Apple congress fully appreciates its responsibilities. The delegates ought to be men who understand Apples, and to some few of the fifty committee men named in the list no exception can be taken, and all the others may be equally good, only we suppose nobody ever heard of them in connection with the subject of Apples; nor, although the congress is to be a national one, is the committee a representative one. That will not matter so much, however, if it understands its duties, but the task the congress has set itself is not one it can get through between the 4th and 18th of October. That period might be sufficient to enable the judges to name specimens and correct a few mistakes of nomenclature, but how it proposes "to compare the merits" of the numerous varieties, and in that way "make the meeting instructive and educational,"

is a puzzle, seeing very few of the specimens that come under its notice will be in season or ripe till long after the congress is dissolved. The merits of Apples consist in their cropping, keeping, eating, cooking, and other qualities, things which cannot all be determined satisfactorily as soon as the fruit comes off the trees. The circular published a week ago is an extremely vague production. It is impossible to tell from it who are the originators or promoters of the congress, or whether it is the "meeting of fruit growers" or the fruit committee who bear the burden of responsibility or both combined. The whole thing has the look of having been hurriedly organised. The Royal Horticultural Society is credited with lending its countenance to the undertaking, but it does not seem to be further interested in the matter. This is not to be wondered at, for such a conference looks very like taking the legitimate work of the fruit committee out of its hands. The congress does not propose to do more than hold a mere Apple show, and unless it amplifies its programme it may safely be predicted that it will accomplish no more than such shows usually do. It is preposterous to suppose that it can accomplish what it proposes in the time. A fruit committee consisting of really competent pomologists, sitting monthly or periodically from September till June for several years in succession, and doing the work thoroughly as it went on, could no doubt accomplish much in the proposed direction, and the least reflection might have convinced anyone that the work could not be rightly done in any other way. A good Apple season will no doubt enable the congress to procure many varieties for examination, but as regards the important problem of the best sorts for general culture in the different parts of the kingdom, one season would be as good as another; perhaps those seasons in which the crops are precarious would be the best. We may be anticipating, but such reflections as these cannot but occur to any thinking individual, and it remains to be seen (when the report is issued) how the meeting, which has dubbed itself a "congress," will discharge its duties.—A FRUIT GROWER.

The Apple Congress Committee is very badly selected. Ireland is represented by one member, Scotland has three within a few miles of each other, and Wales has no representative at all! Probably some of the members, so plentifully named about London, may be going to "work up" Ireland and Wales, but I venture to think the work will be very imperfectly done. I know of a good many Apple growers in both countries whose information would have been of use to the congress.—CAMBRIAN.

American blight on Apple trees is best dealt with in winter when the trees are clear of foliage, but it may be considerably reduced by cold water or soap-suds vigorously applied by means of a garden engine; in fact, there are few insect pests that can withstand such an application long. If the roots of fruit trees had sufficient moisture and the tops a vigorous application of water to keep the leaves and branches clean they would have fewer ailments. It is at this season when fruit trees are most in need of root moisture to swell up their buds for next year's crop, and applying water to cleanse the branches also helps to moisten the soil about the roots.—J. G.

Golden Spire Apple.—I send you a few fruits of an Apple bearing this name. Whether it is a local name or not I do not know, but I rather suspect it is. However, it is one of the very best Apples I know. It is a most excellent baker, for as soon as the fruits are large enough to pare they bake as well as when fully grown, a great desideratum, as the tree is a very heavy cropper, and the fruits can be gradually thinned, leaving a good crop to finish. I have had a very heavy crop, a fine sight—in short, the feature in my garden. I have pulled hundreds off besides what fell off. I have treated the trees liberally, or they never could have produced such a crop as they have had on them. I have picked some of the best for you, and I do not call them a bad sample

for our north-country. I planted my trees about eighteen years ago. I think you will agree with me that their fruits are good. They will keep, as a rule, until December. I believe I had some into January the year before last.—CHARLES H. WOOD, *Preston*.

* * * The Apple sent by our correspondent is of medium size, about 3 inches in height and 2½ inches in diameter. In shape it is conical, somewhat angular, and every fruit bears a distinct contraction or neck a little below the shoulder. The eye is closed and deeply set in a corrugated depression. The stalk is very short and invariably accompanied by a curved protuberance or bump. The skin is of a uniform pale green, inclined a little to yellow on the sunny side. It is a capital cooking sort; we have, indeed, rarely tasted an Apple with a more delicious flavour when baked.—ED.

Cutting off Strawberry leaves is a decided mistake, although still to some extent practised. The best plan is to keep the plants clear of runners except such as are needed for stock, and the soil clean by frequent surface stirrings, but deep digging ruins Strawberries; in fact, the soil can hardly be too firm for them. Strawberries are largely grown on light stony land in this locality, but beyond keeping it clean, or lightly forking in the top dressing of manure in spring that has been spread amongst the rows in winter, nothing else is done. Ground for Strawberries should, however, be trenched deeply before it is planted.—J. G., *Gosport*.

Brockworth Park Pear.—Of this Pear Messrs. Wheeler, of Gloucester, make a speciality, and they have introduced large numbers of it into South Wales. It is one of the very finest of September and October Pears. In seasons when failures are the rule this variety is sure to have some fruit on it, and in such a year as this it is loaded. Some fruits of it which I have seen this season weigh about 1 lb. each. The skin is quite smooth, pale yellow, with a little crimson on sunny side; flesh white, melting and juicy, with a fine aroma. At Ewenny Priory, Bridgend, it is spoken well of as a pot variety, and for general culture I can heartily recommend it.—CAMBRIAN.

Yellow Ingestre.—"J. G. H." is quite right in all that he says concerning the Kentish summer Golden Pippin, but as intending planters may be misled, it may be well to state that the Apple known under that name is the Yellow Ingestre. It is usually a better cropper, and will keep longer than the true summer Golden Pippin, which it much resembles. The Yellow Ingestre will be at the great fruit show about to be held at Chiswick, and I wish that some of your readers may have a plate of the summer Golden Pippin left, for it does not keep long, and will forward it there. I find Kerry Pippin to be one of the best dessert Apples now in use, but we are much in need of a good one for the end of September to precede the Ribston, Cox's Orange Pippin, and Apples of that class. If any of your readers can name some good varieties that come in between the summer Apples and those I have named, I for one should be pleased to know of them.—L. A. K.

The Phylloxera—inside and outside borders.—In answer to Mr. Clayton's remarks in THE GARDEN (p. 217), I may state that it does not make the least difference whether the Vines are planted outside or inside, as the Phylloxera attacks them equally. My own two houses were fairly planted, i.e., half outside and half inside, and I certainly saw no difference in the roots. If I started fresh houses I should prefer having the roots inside, thus having them more under command, and they do not require covering; but, owing to circumstances, my houses are now bounded by a wall inside and out, and so in case the Phylloxera attacks them again, I intend trying the submerging process, and I am now going to build a wall round the outside roots of another of my vineries, so as to be enabled to give them a fresh border of say 3 feet every two years and to keep the roots confined. I am quite aware that our best authorities say that burning is the only

safe cure for the pest. I have burnt and it is most effectual, but it costs one three years' work, and now I shall try the submerging process should it again occur. I believe it to be much more prevalent than many think. With regard to the remarks about outside and inside borders, I cannot see much saving of labour as regards outside; if one covers up, which I suppose is so, they must be equally looked after. I have never seen any difference in the crops of either, and, considering our climate, I much prefer an inside one. Mr. Clayton should read Taylor's pamphlet, published by some bookseller at Warminster, and "La lutte contre le Phylloxera," par J. A. Barrel.—H. W. TUGWELL *Crove Hall, Bath.*

—In answer to Mr. Clayton's query as to whether the Phylloxera attacks Vines planted in outside borders, I may mention that in our case there was no trace of it on those so situated. Of the five houses here in which the Vines were destroyed in consequence of the Phylloxera, two had outside borders, in which the roots of old Vines were confined, and these when uprooted were apparently perfectly free from Phylloxera, and the Vines would have been spared had they been in other respects satisfactory; but, owing to their bad condition, they had been previously doomed, and inside borders had been prepared and planted with young Vines intended to replace them. Unlike the old Vines, the roots of these young ones were infested with the pest, as were also those of old Vines in the other three houses, which were entirely confined to inside borders. The Phylloxera a

where the soil is dry and warm.—THOS. COOMBER, *Hendre, Monmouth.*

Grapes cracking.—Mr. Wildsmith (p. 201) expresses a wish that Grape growers would record their experience as regards the cracking of the Madresfield Court Grape. I have grown this Grape for thirteen years, and have never seen a cracked berry. My own opinion is that it requires a light, well-drained border. That in which my Madresfield Court grows is both light and well drained, and also poor, so much so that I am obliged to mulch and feed with liquid manure. I have a Primavis Frontignan in a rich and somewhat heavy border that cracks so badly as to be worthless. I have tried light cropping, and also the plan of allowing the laterals to grow, but all in vain.—GEO. A. PASSINGHAM, *Milton, Cambs.*

5058.—**Select Gooseberries.**—The following dozen kinds will be found to be all that can be desired, viz., Lancashire Lad, Crown Bob, Coe's Late Red, Rifleman, and Warrington, all red; Early Sulphur and Yellow Rough, yellow; Green-gage, green; Velvet White, Whitesmith, Cheshire Lass, and Champagne, white. Their cultivation is simple, briefly: Plant strong cut-back two-year-old bushes on well-trenched land from 6 feet to 8 feet apart in October or November, leave the shoots entire until spring, then shorten them about one-third. Keep caterpillars in check by dusting with lime or Hellebore powder, and in winter keep birds from the buds. Thin out all cross shoots in February or March, and apply



Statice Suwarowi.

appears to enjoy a dry, warm berth, and there is no question that it is more destructive in inside than in outside borders. In fact, I am of opinion, from our experience of it, that it will not be found a very formidable enemy to Grape growers in the British Isles who plant in borders formed out of doors, except, perhaps, in very favourable sites

short manure, lightly forking it in between the rows.—J. GROOM, *Gosport.*

Apple trees and canker.—It appears to me that trees on soils which contain any sensible amount of iron are almost sure to canker, and the greater the quantity of iron the more canker.—J. C. C.

TWO NEW PLANTS.

We have received from Messrs. Haage & Schmidt, Erfurt, illustrations of two new plants which they intend to put into commerce shortly, and, having seen a living plant of one and a fine dried specimen of the other, we have had an opportunity of judging of their merits. One is

EXACUM AFFINE, a plant belonging to the Gentian family, discovered and named by Dr.



Exacum affine.

Balfour when exploring the island of Socotra a few years ago. The specimen sent to us by Messrs. Haage & Schmidt was of tufted growth and exactly similar in habit to the plant represented in the accompanying woodcut. Every shoot was laden with blossoms about the size of a sixpenny-piece, the petals of which were of a delicate mauve, inclined to pink, set off to advantage by a tuft of bright yellow stamens. "This year," say Messrs. Haage & Schmidt, "we have tried it as a bedding plant, and have found that it thrives very luxuriantly in the open ground. The very cold and wet weather in July made it suffer a little, but in August it soon recovered. When cold weather sets in the plants may be brought into a temperate house, where they will continue to flower throughout the winter. There are few other plants—one being Begonia Schmidtii—that can boast of a similar uninterrupted continuance of blooming throughout the year. Though this Exacum is by no means brilliant, it is, nevertheless, pretty, and well worthy of cultivation; it is sweet scented, and its lilac or pale purple flowers resemble somewhat those of a Solanum. The plant may be easily raised from seed." The other plant is

STATICE SUWAROWI.—This is a much showier plant than the preceding, judging by the dried specimens sent to us, and the annexed woodcut admirably illustrates its peculiar habit of growth. The leaves are rather deeply cut or sinuate, as in *S. sinuata*. The flower-stems rise well above the foliage, and the flowers are borne in dense cylindrical spikes, which branch off from the primary spike at almost right angles. The colour of the flower is a bright rose-pink. Some of the flower-spikes of the specimen sent measure a foot in length, and are six-branched. Messrs. Haage & Schmidt state that it flowers during the month of June.

Maurandya Barclayana.—Few flowering climbers surpass this in elegance of growth and general effectiveness. Trained on trellis work or a wall or to sticks in the manner of Sweet Peas it has a most pleasing appearance, and adds quite

a new feature to the summer flower garden. Twenty years ago there was a good demand for this plant, which, with *Eccremocarpus scaber* and *Cobaea scandens*, were much used for hanging baskets both for the open air and under glass, and when growing freely and allowed to hang in graceful festoons loaded with bloom, they impart a pleasingly varied and picturesque appearance to any position which they may be chosen to beautify. *Maurandya Barclayana* is easily propagated by means of cuttings made of the young growing shoots, or it may be raised from seed, which should be sown in February in heat in order that good plants may be obtained by the end of May.—J. C. B.

FLOWER GARDEN.

DAFFODILS.

"PEREGRINE" invites me (p. 247) to tell your readers what *Narcissi* to plant most extensively, and I have pleasure in doing so. It is certainly a difficult matter for any amateur to judge, from the crowd of names in the leading catalogues, what are best worth growing for floral effect, which is the main object with gardeners after all. This is a point I have now studied for some years, and I hope the spring display of Daffodils at Brockhurst may illustrate it if any of your readers should think it worth while to visit us. All the following varieties may then, I expect, be seen blooming in large quantities; of most we have over 1000 bulbs planted in clumps in various situations and under differing conditions.

NARCISSUS MINOR VAR. NANUS.—This is almost the earliest, and is one of the very best. It grows about 4 inches high, and is very floriferous. It associates well with *Scilla sibirica*, blooming at the same time. Used as an edging with this *Scilla*, the effect is lovely. It should be planted by hundreds.

N. PRINCEPS.—This is also a very early Daffodil, and one of the best. It is also most excellent for the cool greenhouse; indeed, I sometimes think it quite equals *Horsfieldi* for this purpose. It has the longest, narrowest tube of all the Daffodils. It is cheap, and should be largely used.

N. OBVALLARIS (the Tenby Daffodil), one of the earliest, and for all-round purposes the best of the yellow Daffodils. It is, however, difficult to obtain true. Care should be taken on this point, as I see it is advertised at lower prices this year than I have ever been able to buy the genuine sort at. It has a sturdy habit of growth, short tube, and high shoulder perianth petals, the tube and corolla being of the same deep self yellow. For ladies' wear and for all purposes there is no more beautiful or useful Daffodil.

N. BICOLOR HORSFIELDI.—This is, I see, called by some the King of Daffodils, and as it was raised by an old Lancashire weaver we are proud of it. I know of no Daffodil so sturdy of growth and so effective in the flower garden. It also bears forcing better than any other. The ordinary bicolor is frequently substituted for it, so care should be taken to get the genuine plant. It cannot be planted too largely.

THE LENT LILY (*N. Pseudo-Narcissus*) should be largely used. I have many thousands planted, which have been obtained from various parts of England. In simple beauty it equals any of its larger rivals.

N. TELAMONIUS PLENUS (the double Daffodil) is also most desirable, as it produces more effect in the borders than the single ones, although perhaps not so pretty. There are three well marked varieties which should be separated from the clumps when blooming time is over, so as to grow them apart. One of these I take to be the double form of *N. princeps*, having a closely packed, narrow tube and a tall habit. Another has a wider tube, generally burst, and a larger and more diffuse flower, possibly the double form of *N. major*; and lastly, the great Rose Daffodil, John Tradescant's variety. This is difficult to obtain, but is to be found here and there in country gardens, and especially in Ire-

land, and it may be picked out at blooming time from clumps of ordinary double Daffodils. It is a grand flower, the best of all the doubles.

N. MAJOR, MAXIMUS, LORIFOLIUS, AND SPURIUS—These are all good Daffodils, and should be bought with the rest but sparingly, as they are dearer. *Maximus*, when it can be had true, is the grandest yellow Daffodil of all; *Emperor* comes next. I am told John Nelson beats them all, but as this bulb is unobtainable, I have not seen it. A few of these should be added, and, amongst the bicolors, *Empress*, *Bicolor*, and *Bicolor-maximus* should also be indulged in. Of the white Daffodils a few should be ordered of *Moschatus*, *Albicans*, and *Cernuus*. The best of all the whites is *N. tortuosus*, but that is not easily obtainable. It holds the same place in the white Daffodils that the Tenby Daffodil has in the yellows, having high shouldered short perianth petals, which give it a sturdy appearance and a jaunty beauty, separating it from all the rest. As a rule the white Daffodils have a drooping habit, which greatly mars their beauty.

Of the *N. incomparabilis* group it is not so easy to advise, as they are not readily obtainable in quantity at moderate prices. All the Leeds varieties are good, and you cannot have too many of them. Fortunately, also, they are becoming cheaper. The double forms of *incomparabilis* are also well worth growing in quantity. *Aurantius plenus* is cheap, and the double white is cheaper still. Both these, and in fact all the double forms of *incomparabilis*, are worth growing; so also, of course, *N. poeticus*, and especially the variety *ornatus*, which has rounded petals and an exquisite form of flower. I think the above will form a pretty good selection for the rank and file of a Daffodil garden, and all are good. To these should be added, in choice corners, the rarer varieties.

Brockhurst, Didsbury. WM. BROCKBANK.

AURICULAS BLOOMING IN AUTUMN.

MOST collections of Auriculas, however well managed, appear to be throwing up trusses of bloom this season. "It does not seem to matter to any appreciable degree whether the plants were repotted in May or in August; they are flowering." So writes an amateur cultivator in Somersetshire. In the course of his letter he states that some plants were sent to him in July with all the soil shaken from their roots. When received they were half dried up. They were potted as soon as they came to hand, and, singular to state, nearly every one of them has thrown up autumn trusses. I repotted two-thirds of my collection at the end of June, and the remainder the second week in August, and more autumn trusses are being thrown up by the latter than by the former.

It is recommended by some that one way to prevent autumn flowering is to keep the plants pretty dry during August and September, a recommendation in which I do not think there is much force. If the plants be allowed to become too dry during hot weather, there is great danger of the extremities of the roots withering, and that cannot do the plants any good; and if a collection be subject to the woolly aphid—and it would be difficult to find a collection that is not more or less subject to it—it appears to make headway with amazing rapidity when the weather is warm and the plants are kept dry. I have to keep my plants all the year round on an elevated stage in a north house, and in spite of all I can do the temperature is necessarily warm and dry during summer. The chief thing is to keep the plants as cool as possible during summer about the roots, and to this end I have abolished crocks, and I now simply place a piece of crock on the hole at the bottom of the pot, add an inch of Cocoa-nut fibre, and repot. I am certain the roots are kept cooler in consequence, and they seem to revel in the Cocoa fibre; and as another means of keeping the roots cool, I should like to use glazed pots, that is, pots glazed on the exterior surface. I find that in the case of the few plants I have in these pots they do not need one-third of the supply of

water the plants do in ordinary earthenware pots, because the latter are porous and a good deal of evaporation takes place. I wish these glazed pots could be got in London, as I should use them for all the strong-growing sorts of Auriculas.

Just now my plants are growing merrily. It is warm and dry in the house, and I keep soil and house both moist. I freely water growing plants with water taken from a tub containing a bag of soot, and in bright weather I syringe overhead once a day, and I am not troubled with a great deal of green fly in consequence. The question arises, Am I exciting the plants too much, and will they throw up flowers in October? Well, they may, but they are strong enough to form new trusses for spring flowering. As soon as this glorious warm weather comes to a close, and it becomes dull and cold, water will be withheld, and the plants will go to their winter rest. But I like to see them robust in August and September, with plump filbert-like centres, and then one can recognise the promise of a fine spring bloom.

I have just gone through my collection, turning each plant out of its pot to see if the roots are healthy and active. Any that appear sluggish and ill at ease are shaken from the soil, the roots examined, and repotted in good sweet soil in the smallest pots they can be made to occupy. A few needed this treatment, but in every case they are making a fresh start, and one that promises to be conducive to their well-being in every respect.

R. DEAN.

Potentilla colorata.—Wherever *Potentillas* are grown this one should find a place, as it is so remarkably distinct, and flowers more continuously than any other variety with which I am acquainted, lasting in bloom all through the autumn. The individual flowers present such a combination of colour as is rarely met with, and are so numerous produced as to render a large specimen very attractive.—J. C. B.

Late-struck Pinks.—Pinks are now largely used in a cut state, and the time at which cuttings are taken influences their flowering. For instance, in order to get plants for forcing cuttings are put in as early as possible, and are taken from plants that have been forced. The mid-season lot are taken when the plants are in bloom, which is the time that florists select, and probably the best for exhibitors. I have put in Pink and Carnation cuttings at all seasons, and find an advantage in doing so, as late-struck cuttings bloom proportionately late, and are very useful for cutting from late in summer.—H.

Border v. Tree Carnations.—I have grown these two classes of Carnations under exactly similar conditions, and the comparison is greatly in favour of the Tree section; for, while border kinds are all over, the strong young flowering growths of the Tree varieties still keep rising and producing a copious crop of buds and flowers. Tree Carnations are truly perpetual if given plenty of pot room and stimulating food such as may be had in a good bed of Roses. The Carnations mingled with *Mignonette* as a carpeting for the Rose bushes make a fine bed.—J. KNIGHT, *The Oaks, Epsom*.

5054.—**Designs for flower beds.**—If your correspondent contemplates making a geometrical garden on Grass, two or three roughly-drawn plans are at his service. I imagine, however, that what is required are beds dotted here and there in an irregular manner, and, if so, it is hardly necessary to adopt any particular design. It would be better to trust to the simplest forms of beds, always adapting them as far as possible to the requirements of the case. Simplicity in shape is best; elaborate designs get hidden as soon as their occupants commence to grow. Let me, therefore, say that three points should be especially considered when placing beds in an irregular manner on a large lawn. These are, let them be of simple pattern, of large size, and allow plenty of green turf between each bed; the crowding together of a number of little beds on a large area of turf is a most objectionable ar-

rangement. As regards particular shapes, let the space about the centre be worked with circles, ovals, heart shapes, and elongated forms of the letter S. Beyond these may be curves, concave or convex, triangles, pentagons, hexagons, &c., as fancy dictates; or, if the taste leans another way, Maltese crosses (always useful in showing off leaf bedding to advantage) and the shell pattern may be substituted. This last is pretty when it consists of a variety of shades, with a narrow strip of turf dividing its compartments. Out of the forms just named a selection may be made, and I must enter one more protest against crowding. Armed with a measuring wand, some pegs, and stout twine, the desired end may soon be attained, and there are few more pleasurable ways of spending an afternoon than in cutting out here and there "the right bed in the right place."—E. B.

5119.—Freesias.—These ripen very quickly after flowering. Water should be withheld as the leaves turn yellow. When quite ripened they may be taken up and kept in sand, or, if in pots, may be kept without water till the time arrives for planting or potting in the autumn. The bulbets in the axils are available for planting, and will flower the following spring. Seeds sown at the same time as the bulbs are planted will flower the second year. If "Delta" will send me some of his seeds I shall be glad to send him some of my bulbs. Our varieties may be different.—W. C. ELLIOTT, *Port Elizabeth*.

Gladioli in Scotland.—Perhaps the most effective group of hardy plants at the Edinburgh flower show, on September 12, was one of Gladioli, exhibited by Messrs. Campbell, of Gourrock. They were a good proof of the beauty to be found amongst such plants, not only in their variety of colour, but in the form and size of the spikes and the individual flowers. As the selection seemed so good a one, I furnish some of the names: L'Unique, Violet, Nereide, Belladonna, Bicolor (very distinct), Archduchess Maria Christina, Dido, Addison, Dumont d'Urville, Giganteus, Horace Vernet, Mabel, Milton, Mr. Thornton, Ondine, Queen Mary, Shakespeare, Rossina, Sylvia, Tour du Monde, Penelope, Marie Stuart, Marica.—C. M. O.

SHORT NOTES.—FLOWER.

Impatiens Sultani is now fruiting freely here and ripening seeds. It has been grown close to the door of an intermediate house, and has plenty of air and light, which perhaps may account for its seeding.—G. FIM, *Dublin*.

A pretty flower bed.—One of the prettiest flower beds I have seen this season is in the flower garden at Ewenny Priory, Bridgend. It consisted of a centre mass of the beautifully variegated sweet-scented Geranium Lady Plymouth, edged with a fine band of blue Lobelia.—CAMBRIAN.

Indian Strawberry.—A plant of this sent me last spring now covers a space of 6 square feet. It is now covered with bright red fruits, and is very ornamental. It is a bright yellow flowered rambling plant, which only requires keeping within bounds. Its name is *Fragaria indica*.—A. K.

Single Dahlias (H. J. Greenwood).—Among the flowers you send are some uncommonly fine sorts, but as you did not number or name we cannot point out which we consider the best. The magenta is the finest of all, and as good of its colour as we have seen. The yellow, too, is a fine one, but not better than those already named. The crimson one is excellent.

Pentstemons.—These are now beautifully in flower, and when planted in large groups or beds have a striking effect, even at a distance. They can be easily raised from seeds, and the named varieties are as easily propagated by cuttings as bedding Calceolarias. They should be put in about the same time under hand-lights or in cool frames. Horace Vernet is one of the most striking.—J. D. E.

Venidium calendulaceum.—All that was said last week (p. 235) in favour of this beautiful annual is perfectly true, and I may add that it is worth culture in pots for the greenhouse. Seeds of it came to the Cambridge Botanic Garden as *Arctotis calendulacea*, which led to its culture in pots, and that accident has not been regretted. The beautiful white Cape Marigold (*Dimorphotheca pluvialis*) forms a lovely companion to it.—L.

Climbers for cottage walls.—I recently saw the front of a cottage covered with the common Traveller's Joy (*Clematis Vitalba*) in full flower, and intertwined with it were *Eccremocarpus scaber* and Jackman's Clematis, the bright orange-scarlet blossoms of the former and the large deep-coloured blooms of the latter being very conspicuous among the tangled masses of the *Vitalba*, by some called Old Man's Beard.—ALPHA.

Calceolaria amplexicaulis, referred to in THE GARDEN (p. 240) is one of the varieties that have been nearly driven out of cultivation through not being dwarf enough for bedding purposes. Sorts like Golden Gem, that form a level sheet of golden heads, are the ones in most request, yet the old *amplexicaulis* is well worth attention, being pale sulphur yellow, and not ungraceful in habit of growth. In this locality *Calceolarias* withstand ordinary winters without protection, but it is well to be prepared for exceptional visitations of frost by having a stock of cuttings put in during October in a cold frame. They should be merely protected in severe weather with external coverings, as *Calceolarias* of all kinds do best without artificial heat.—J. GROOM, *Gosport*.

—Some ten or more years ago there were a few beds of *Calceolaria amplexicaulis* at Kew, but whether it is cultivated there now or not I am unable to say. Besides its pleasing colour (a sulphur yellow) this *Calceolaria* seldom goes off when at its best, as is the case too often with some of the other kinds. Its rather tall habit may account for this plant not being grown so much as formerly. Mr. Cannell, I see, still retains it in his catalogue, in which he speaks of it as the best late blooming *Calceolaria* we possess.—H. P.

The white Lily (L. candidum).—This lovely Lily, unquestionably the finest of the hardy section, grows with exceptional luxuriance about Gosport, large clumps of it being seen in nearly every cottage garden. The soil is very light and stony, and consequently well drained. Last autumn I took up some old clumps of it that had not been disturbed for years, and planted the largest bulb singly between rows of Red Currant bushes, and they appeared to enjoy the shelter and shade thus afforded them, as they not only produced the finest spikes of bloom I ever saw, but, what is perhaps of greater importance considering the size and vigour of the bulbs, they retained their lower leaves on the flower-stems quite green until the new leaves were pushing up; whereas in hot, sunny positions the leaves on the flower-stems are usually withered, even before the flowers fade. I would recommend admirers of this delicate and stately flower to try a portion of their stock in various aspects and positions, and I feel sure that a partially shaded one will give the best results. Briefly, this Lily likes a porous, light sandy soil, shelter from scorching sunrays and violent winds, and, above all, transplanting when the old leaves begin to fade, or, rather, just as new ones are about to push up. The resting period is very brief. J. GROOM.

Double-flowered Golden Feather.—The pretty lace-leaved Golden Feather, usually called *Pyrethrum aureum laciniatum*, has proved with us to be the best white-flowered bedding plant we have. Without any attention, it has been a dwarf and compact mass of white flowers the whole season, and the flowers are so freely produced that one can scarcely see the foliage except at the margin of the beds, where the pale, lemon-coloured leaves make a pretty fringe. I am by no means enraptured with Golden Feather, seeing it is so overdone in many gardens; but white flowers have so softening a character amongst brilliant summer blossoms, that any plant is welcome which produces them freely, and I feel sure that anyone giving the double *Pyrethrum* a trial—not as a foliage, but as a flowering plant—will be well satisfied with it. It keeps sending up a continuous succession of flowering shoots from the base in such a way that a dense mass of double button-like flowers is produced the whole season. It is as easily raised from seed or by division of the old plants as the ordinary form; but whereas old plants are of very little service in a fine-foliage point of view, from their running up to flower so persistently, in this case they are very useful. In a cut state this plant is also serviceable. The shoots average from 9 inches to 1 foot in height; and, as white flowers are so effective in all kinds of floral decorations, a plant that produces an unfailing supply is ever welcome, whether for beds or borders. Although the flowers are as perfectly

double as those of the old-fashioned Bachelor's Buttons, it seeds as freely as the single kind, and reproduces itself freely with a minimum of attention.—J. GROOM.

Tritonia aurea.—This, when grown in pots, is often seen in a poor, wretched condition. It is very subject to red spider, which gets on the leaves, and not only disfigures them, but quite spoils the plant's growth. When planted out this insect seldom attacks it; and not only does the foliage remain clean, but the plants are always much stronger, and produce more than double the bloom that plants in pots would do. The spikes of this are of great value for cutting, as, besides being so light and elegant looking, the flowers are unique in form and colour, and continue to open in water. As the bulbs of *Tritonia aurea* are not quite hardy, it is necessary to plant in a warm, sheltered place, the most suitable situation being close up against the foot of a south wall, or immediately in front of a greenhouse or other glass structure, as there the soil gets a little warmed from the pipes inside, which prevents frost penetrating and killing or injuring the plants. To make sure of keeping frost out and having the bulbs safe, it is a good plan, before winter sets in, to mulch the ground above them with Cocoa-nut fibre or half-rotten leaves, as both are capital non-conductors, and frost must be very sharp to find its way through a few inches of either. In planting the *Tritonia*, which may be done from pots at any time, or early in spring if the roots are at rest, plenty of sand should be used, which, from insuring quick drainage around the bulbs, saves them from rot—a malady they are subject to when allowed to come in contact with the wet earth while lying dormant in winter.—S. D.

KITCHEN GARDEN.

NEW POTATOES AT THE CRYSTAL PALACE.

In the necessarily hurried report of this extensive exhibition (p. 237) new varieties were only incidentally alluded to. We will therefore now refer to them a little more amply. Commencing with the class for the best dish of any white skinned Potato, new variety, in commerce, not offered to the public before the season 1883, a fine variety, named Lady Truscott, superbly shown by Messrs. P. McKinlay and G. Allen, took first and second prizes. This Potato was distributed by Messrs. Sutton & Sons, and is one of Mr. Robert Fenn's seedlings. It is a white round, rather flattish, sometimes inclined to take a kidney shape, a good cropper, keeps well, and is of fine table quality. This was obtained from Snowflake, crossed with a chance seedling. Mr. R. Dean was third with Alderman (Dean), a large, long, flat white kidney, very fine and handsome, a heavy cropper, and excellent in quality. This came from a cross between Early Rose and Early Market. In the class for any coloured skinned Potato shown under the same conditions, Mr. T. H. Hills, The Gardens, Durwards, Essex, was first with The Belle, an American variety, much resembling Queen of the Valley, but flatter, like Breese's prolific in shape, but of its table quality nothing is known. This was sent out by Messrs. Daniels Brothers, Norwich. Mr. W. Kerr, Dumfries, came second with Sir Garnet Wolsley, a showy kidney, pale red blotched with white, broad at one end, pointed at the other, but I am unable to say anything about its cropping or table qualities. The third prize went to Lee's Defiance, a fine purple skinned kidney of good quality and an excellent cropper, but apt to come small. In the class for a single dish of any white kidney Potato not in commerce, Mr. C. Ross, Welford Park Gardens, was placed first with Welford Park Kidney, a fine handsome variety in the way of Woodstock Kidney, of which it is said to be a seedling; it is an excellent cropper, but when cooked at Chiswick was not considered first-rate in flavour. Productive and Beacon, both seedlings from Woodstock Kidney and greatly resembling it, were also shown by Mr. Ross; the first is said to be the best. Mr.

J. Hughes, Eydon Park, Byfield, had Beauty of Eydon, a large white handsome kidney of the Snowflake type, said to have come from a cross between Beauty of Hebron and Myatt's Prolific; it is an excellent cropper and first-rate table quality. Mr. R. Dean had Midsummer Kidney, an early white obtained from the American Success crossed with Woodstock Kidney; it is large, handsome, rough skinned, a heavy cropper and fine in quality. First-class certificates of merit were awarded to Beauty of Eydon, Midsummer Kidney, and Welford Park Kidney. In this class was to be found Hughes' Prolific, a large and handsome white kidney, and very like Snowflake in the character of growth and appearance; it came from the same cross as Beauty of Eydon. In the class for a single dish of any seedling variety of coloured kidney Potato not in commerce, Mr. E. S. Wiles, Banbury, was first with Edgocote Purple Seedling, like Purple Ashleaf in colour, but a Lapstone tuber; a very fine looking variety for exhibition purposes; it is said to have resulted from the Purple Ashleaf crossed with the Edgocote Seedling Kidney. This is an excellent cropper, but, as tested at Chiswick, of doubtful table quality. This was awarded a first-class certificate of merit, as was also Cardinal, one of Mr. R. Dean's seedlings, a variety obtained from Early Rose crossed with Bountiful, a second early kidney, rich red in skin, handsome, a great cropper, and of first-rate table quality. In this class Mr. J. Lye, Market Lavington, had Wiltshire Giant, a large red kidney, obtained from a cross between Bountiful and Late Rose; a fairly good cropper at Chiswick, but said, by Mr. Lye, to be an excellent bearer. Crimson King (Lye) is from the same cross, and like a deep red Magnum Bonum in appearance. Rose Queen was also shown, a handsome, very pale red kidney, very like Prizetaker, and we think this also came from Eydon Hall Gardens.

In the class for any seedling variety of white round Potato Mr. R. Dean took the prize with Prime Minister. This is a grand late round Potato, of robust growth, a heavy cropper, and first-rate in quality, and certain to take high rank as a main crop and market variety. It was also awarded a first-class certificate of merit. A few other white round varieties were shown, but none of them of any promise as seen. In the class for any new seedling coloured round variety not in commerce Mr. R. Dean was awarded the prize for The Dean. This is a very handsome deep purple round, and, obtained from Vicar of Laleham crossed with Woodstock Kidney, represents a greatly improved Vicar. It is richly coloured, a great cropper, good in table quality, and fine for exhibition purposes. In this class was also Purple King (Lye), of the shape of Blanchard, but slightly suffused with pale purple, very handsome, and distinct in appearance. Ellingtonia was also shown in this class by Mr. Ellington. It is of a dull pale red appearance, flaked and blotched with purple, and is said to have come from Royal Ashleaf crossed with a purple kidney.

Looking round the exhibition, we saw a number of new varieties in collections not shown for competition, some of them being in commerce and some not yet let out. Messrs. Sutton's stand contained a number of seedlings, prominent among them being Alderman De Keyser, from Snowflake, and a red round seedling; it is a pale red kidney, very handsome, and of high quality both as a cropper and for table purposes. It last year was awarded a first-class certificate of merit. Their more recent varieties, Fiftyfold, Early Regent, Standard, Favourite, and Early Border, were all in good form and appearance. In Messrs. Carter & Co.'s collection was a fine lot of Cosmopolitan, a grand kidney, and though it has this season cropped heavily, yet it has not been produced in good form for show purposes, but it was finely shown by a few exhibitors. In Messrs. Hooper & Co.'s stand were Vermont Champion (Bliss), a handsome white pebble-shaped kidney of the Snowflake type; and Rubicund, a large flat pale red American variety of the Bresee's Prolific type. Messrs. Daniels Bros. had several new American varieties, including Wall's Orange, a pale rose-coloured half-kidney variety, flaked and

blotched with purple, not unlike the variety shown as Ellingtonia; Boston Mill, a very handsome kidney of the Snowflake type; Blush, a pale red flat round variety that is likely to displace the red-skinned Flourball; and White Rose, a seedling white, partaking much of the character of Snowflake. Beauty of Handsworth, red, mottled with white; and Royal Norfolk Russet, a very rough-skinned Potato of the Schoolmaster type, were also in Messrs. Daniels' collection. The two last named are of English origin; the preceding varieties were imported from America.

KITCHEN GARDEN NOTES.

Asparagus tops are now becoming yellow, and before they are quite dead they may seem to some rather unsightly, but on account should they be cut over until they have quite dried up. To cut them over in a half green state would cause the stems to bleed and weaken the roots considerably. Those who are in the habit of sowing a little Asparagus seed annually should endeavour to improve their stock. This cannot be done with any certainty by buying seed about which one knows nothing, but if a system was introduced of gathering the berries from the very finest growths in our gardens and raising the plants therefrom, an improvement would soon, in many instances, take place. The berries should not be gathered until quite red and ripe, and they must be kept in a dry place and divested of their seeds any time during the winter.

Autumn Giant Cauliflower and Self-protecting Broccoli.—Had Messrs. Veitch never sent out anything from their nurseries but these, their name would always have been remembered with gratitude by gardeners. Of all vegetables in this way, there is nothing to equal the Autumn Giant for present use, and the Self-protecting Broccoli further on. In autumn nothing else but this Cauliflower is cared for, and the solid pure white heads which it invariably produces give the utmost satisfaction. Some years we have had patches of it not quite true, but this season it is magnificent, and let us hope it may continue true, as any deterioration would be a loss to us.

Young Cabbage in autumn.—Tender young Cabbages are much valued in early spring, and everything is done to get them good then; they, however, lose favour in summer, and few seem to think anything of them in autumn, but at the present time and onwards for some weeks they are as sweet, delicate, and good as they possibly could be early in the year. When the spring heads are cut over the stumps are generally left to produce side heads, and these are useful in a rough way, but they do not possess the tenderness and delicate flavour of those heading now for the first time. In order to secure a plantation of these the seed should be shown in June, and the plants should be put out in July, when they will produce a valuable crop at a time when Peas and Kidney Beans are going out.

Batavian Endive.—There has always been a good many Endives, but now we have a multiplication of Batavians. There is the broad-leaved, the improved broad-leaved, and the round-leaved, but the old broad-leaved is as satisfactory as any, and I may observe that this is the best of all the Endives. It is the most useful winter salad plant grown, and all who have a demand for Endives should not forget to put the Batavian in their seed orders, and treat it well when they have got it.

Vegetable Marrows in light and heavy material.—It is generally understood that Vegetable Marrows are gross feeders, and that they grow best where manure is most plentiful, but their inclinations in this way are often overdone. Lately I have seen some plants growing in nothing but pure manure; in fact, they had been put out on the top of a manure heap, and they had produced a mass of growth and plenty of flowers, but very few fruits—doubtless the result of having soft, watery shoots quite incapable of bearing fruit. The variety was blamed, but under the conditions just referred to I could not accept this

conclusion, as some of our plants which had been growing all summer in a firm bed of loam and sand, with the addition of a little manure, had produced fruits almost as thick as they could lie on the ground. In this instance the wood was short-jointed, not over-abundant, very hard-looking, and there was a fruit at every joint. In wet districts or wet seasons this is certainly the best way of growing them, and although a large fruit or two may be had from a manure bed, the general crop will be deficient.

Glamorganshire Tomato.—This was brought to my notice by Mr. Crossling while at St. Fagan's Castle, Cardiff, some years ago, and it is worth directing attention to it owing to its peculiar fruitfulness. Here and hereabouts Tomatoes have not done well in the open air this season. Periods of wet, sunless weather were all against them, and some kinds did nothing but make large quantities of fruitless wood. The Glamorgan, however, has done better; it is now well furnished with fruit, and I have no hesitation in saying that it is one of the best of Tomatoes for open-air culture.

Giant Zittau Onion.—This is one of the finest Onions that has ever been cultivated. It is handsome in shape, clear yellow, and if sown in March and properly treated many of the bulbs will weigh upwards of one pound by the end of September. Hitherto the seed has been rather expensive, but when cheaper it will doubtless be generally grown as a main crop variety.

Large v. small Onions.—No one can object to Onions being too large for autumn use, but the largest are not by any means the best keepers, and if a supply has to be kept up until the next crop comes in, too much confidence must not be placed in large bulbs. I find none to keep longer or better than bulbs which weigh from 3 ounces to 4 ounces each, and those of James' Long Keeping, which are about this weight, sound, and well harvested, might be kept in good condition for nine months after being stored.

Autumn-sown Cauliflowers.—These are now in various stages of growth, and until frost comes they cannot be grown too hardy. It is a great mistake to begin covering them up or shutting them in by any means until this is absolutely required; such treatment not only makes the plants very tender, but draws them up until the stems become long and spindly, and then there is not much chance of their ever doing well or producing serviceable heads. Plants in seed beds now should not be allowed to become too close, and in dibbling them out they should be put in where frames or lights can be placed over them by-and-by. Besides raising early varieties at the present time a quantity of Veitch's Giant would be found of the utmost use to follow the others by way of succession next spring.

Earthing up Celery.—When the plants are allowed to grow up to almost their full size before they are earthed up they are harder than plants earthed up from time to time as growth proceeds; but I have found that late earthed ones take a long time to blanch, and when all was done they were not so crisp and tender as the others. I saw some very fine unearched Celery in a garden the other day, and the gardener told me that less labour was needed to earth it up all at once, and on this account the plan may have something to recommend it.

J. MUIR.

Margam.

Novel practices with Celery and Brussels Sprouts (see p. 258).—To divest Brussels Sprouts of most of their leaves while green and vigorous, as they must have been so early in the season as the beginning of September, seems to me to be very unnatural. It is difficult to see how such a practice can improve the Sprouts, and as to hardness, there is very little trouble with them on that score. But with regard to Celery, there can be no doubt, I think, that bundling the leaves together and earthing them up checks their growth. "J. S. W." will find that a good deal of what was earthed up, as well as the growth that

takes place in the heart of the plant after that operation, becomes blanched and eatable.—DONALD.

Pea Harrison's Glory.—Amongst market growers this Pea is increasing in favour, its value consisting in its productiveness, fine colour, and the time at which it comes into bearing, viz., just after the early kinds and rather before the midseason varieties, so that if several successional sowings of it are made at intervals of a few days, there will be no danger of a failure in the supply.—J. C. B.

Tomatoes at Clovenfords.—The finest Tomatoes which I saw last year were in the Tweed Vineyard at Clovenfords. The plants were in 10-inch pots, and were bearing very heavy crops. The variety was what is pretty well known as the Drumlanrig, a unique form of Excelsior. The fruits are globular, perfectly even in form, and, as seen at Clovenfords, many of them weighed over 1 lb. This year the crop is equally good, the fruits being very heavy, some of them recently gathered turning the scales at 1 lb. 5 oz. Pure loam and Thomson's Vine manure are the sole ingredients used in their culture.—CAMBRIAN.

Taking up and storing roots.—The winter never close upon us, it is high time to be thinking of taking up and storing our roots, the first requiring attention being Beet, and Carrots, which, as they are rather tender, soon take harm from frost. In the lifting of Beets, although to many it may seem a very simple operation, great care is required, for, should they become bruised or the main tap roots broken, they bleed or boil out and lose their colour while being cooked, which quite spoils them for table. The same result follows if the crowns are cut away, and therefore the leaves should be removed by being wrung off, which may easily and quickly be done by giving them a twist in the hand, when the Beet will be ready for storing, and the same process is necessary for Carrots, which require just as much care as the Beet to get them to winter in safety. The best place for keeping both is a shed, where they ought to be packed in dry sand or earth, which absorbs any moisture they give off, and, by excluding the air, prevents them from shrivelling. Some pit them outdoors, but that is a risky method of storing, and it was only last winter that I saw great heaps of them that had all gone bad from the rot. Although Potatoes keep well under ground in clamps or pits, they are never so good eating, as it affects their flavour by causing them to taste earthy, and therefore those for table should, if possible, always be stored in sheds or cellars from which light is excluded, as light turns the skins green. On the other hand, it does those for seed good, as it retards growth, and the shoots they make come very strong and short under its influence, and the seed is therefore all the better for planting. Parsnips ought never to be put indoors, as frost greatly improves them by rendering them much more mild, and in a great measure does away with that peculiar taste so many object to. Instead, therefore, of storing Parsnips, it is much the best way to dig them them up and let them lie on the ground, or throw them in a heap till wanted, but white Turnips should be buried by having the soil drawn up with a hoe over the bulbs, as, after being frozen, they lose much of their good quality.—S. D.

SHORT NOTES.—KITCHEN.

Potato crops in Cheshire.—At Chester market on Wednesday very fine Magnum Bonum Potatoes were sold at 2s. 9d. per hamper of 126 pounds, or a little over one farthing per pound. Reports from all parts of the country show that the present crop is the largest on record.

Wheeler's Empress of India Cucumber.—Mr. Hawkins, the gardener at Eweny Priory, Bridgend, Glamorgan, has grown nine varieties of Cucumbers this season, and he considers Empress of India to be the best of them all. It is robust in growth, prolific, handsome, and of the finest flavour.—CAMBRIAN.

Perpetual Parsley.—The variety sent out by Messrs. Carter this year under this designation is a fine curled strain and very robust in habit. In order to secure its perpetual character the flower-stems must be constantly picked out. I have often kept Parsley in good condition by this means for several years. Possibly the new variety will not involve so much trouble in this way.—H.

Autumn v. spring-sown Cauliflowers.

—I cannot agree with "E. B." (p. 230) that autumn sowing of Cauliflowers is unnecessary. I have not yet seen the sort that sown in February will yield perfect heads a fortnight before autumn-sown plants of Early London. Of course there may be some diversity of opinion as to the size of head required. I know that if very small ones will do they may be produced in a very short time, but as far as my observation goes the small sort to which "E. B." refers is merely an apology for a good Early London Cauliflower, which, if cut before its leaves begin to unfold is white as driven snow and firm as a cricket ball. Plants from spring sowings hurried on have not the stamina to produce such heads as autumn-sown ones. Last winter I sowed both Early London and the Early Dwarf Forcing, and with me the Early London was fit to cut quite as soon as the Early Forcing; the latter did not form heads large enough to be presentable at table, while Early London was realising from six shillings to nine shillings per dozen, and white late Broccoli was in good condition. I consider a good selection of Early London to be the king of Cauliflowers, and, if sown in August and wintered under handlights or in cold frames and planted out in March, it does not produce better heads in June than those sown in February on hotbeds or elsewhere I am much mistaken. Forcing Cauliflowers, like forcing Peas under glass, is a costly and not very satisfactory proceeding.—J. G. Hants.

NATIONAL CHRYSANTHEMUM SOCIETY.

TO THE EDITOR OF THE GARDEN.

SIR,—All true florists have, I believe, been pleased to see the great and gratifying success that has attended the efforts of the newly-formed National Dahlia Society, as proved by the late show at the Crystal Palace. This seems to be an age of specialities. We have national organisations for Roses, Tulips, Carnations, Potatoes, and now Dahlias, and I should like to know how it is that some national society has not been started in the interest of that queen of autumn flowers, the Chrysanthemum, which comes to gladden our gardens with its beauty at a season when other flowers are scarce, and which will grow in situations in which other plants would perish. There is, perhaps, no flower that has more local societies formed for promoting its culture than the Chrysanthemum, and yet, as far as I know, they are all without a recognised head or centre. How is this? There is, we know, plenty of enthusiasm among the great numbers of men who grow it. I would, therefore, suggest that some steps be taken towards placing our "autumn queen" on a footing with her worthy compeers of other seasons. Support, pecuniary and otherwise, is sure to be forthcoming if only some of our influential and well-known horticulturists would take the initiative. The way is easy, success is sure, and might be accomplished in several ways. Either let a new society be formed or, still better, let one of our many local or suburban societies take the matter up and form a nucleus for a national one. I for one am fully prepared to support any such movement as far as I can, and as I have the honour to be one of the exhibition committee of the oldest Chrysanthemum Society, that of the Borough of Hackney, I have had some opportunity of forming an opinion on the matter in question. I should be glad if some of our great growers of this flower will favour us with their views, and also the executives of the existing local societies. In order for the movement to be a success it must be taken up with spirit and unanimity. H. FIGGURES.

Books on gardening.—At p. 182 a list of books is given, forming a good garden library. It is a very good list, but if any of your readers are forming such a library I strongly advise them to add to the list Miller's "Gardener's Dictionary," in four vols. I know of no gardening book so generally useful, though it is now nearly eighty

years since the last edition (Martyn's) was published. The botanical descriptions are very accurate; the cultural directions are excellent; and for the identification of old plants it is invaluable.—HENRY N. ELLACOMBE.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 146.)

GYMNOGRAMMAS.—A very popular genus, remarkable for the attractive character of the numerous species and varieties of which it is formed, and for the easy mode of cultivation, under which some of the most robust kinds at least thrive admirably. They form the nucleus of that most interesting section, the gold and silver Ferns, lately described at some length in THE GARDEN, being nearly all covered with farina, of a colour varying from the purest white to shades of yellow of different degrees of intensity. Sometimes, in fact, plants are found which bear fronds suffused with white and yellow powder at the same time; this sort of dimorphism in colours may frequently be observed in forms derived from the chrysophylla type, which also sometimes produce fronds one-half of which are provided with the usual covering, whereas the other half is completely destitute of the coloured powder. Such instances, however, besides not being very common, can only be regarded as curiosities, and the same remark is also applicable to the varieties with crested or forked fronds, which they have a strong tendency to produce under culture, and of which Wettenhalliana and Parsonsii are excellent examples and the most commonly met with in general collections. Then there are also a few kinds, such as rufa and tomentosa, totally devoid of any powder whatever, and where that principal ornament is replaced by a covering of short reddish brown hairs, giving the plants a tomentose aspect quite as attractive as any other belonging to the genus. They all possess a very ornamental habit, and the majority of them can be grown with great success in hanging baskets, where they show their beautiful colours to perfection. This way of growing them is really the most suitable, when and where it is practicable, as they are fond of light, and also of an atmosphere drier than that which is usually found in the ordinary fernery or the warm plant house. However, owing to the great size and the robust growth peculiar to some kinds, these can only be grown in pots. In any case Gymnogrammas should be potted in light material made up of two parts of fibrous peat, one of leaf-mould, or where this is not readily procurable, the same quantity of finely-chopped Sphagnum may be substituted, and one part of silver sand. As much as possible those grown in pots should not be mixed among other Ferns, but kept by themselves and out of reach of the water from the syringe, as they not only suffer from the effects of watering over-head, but also present a most wretched appearance by the white or yellow meal being easily removed by the slightest sprinkling of water. They grow very well and get much better coloured if kept without shading—the light, however strong, never being too much for them, provided they have been used to it from the first, and that plenty of ventilation is given to them. Although very fond of a dry atmosphere, they are plants that suffer very much if water at the roots is not freely administered, which treatment, in many cases, accounts for the poor state and diminutive size in which one sometimes sees them in general collections. On account of their being freely produced from spores, which germinate readily and make handsome specimens in a comparatively short time, Gymnogrammas deserve more extensive culture than that which is generally allowed to them.

G. CALOMELANOS.—A very handsome and robust West Indian species, with bipinnate fronds often reaching 3 feet in length; the stalks are of a very shining black on their whole length, with the exception of their base, which, next to the crown, is covered with brown scales. The fronds,

whose under-surface is thickly covered with a white farinose powder, have their upper surface of a dark glossy green. Stove.

G. CHÆROPHYLLA.—This most distinct and lovely little Fern from Tropical America is seldom seen in collections, probably on account of its being of only annual duration, but as it produces fertile fronds in abundance, and as spores germinate very freely, the consequences are that wherever the plant has been once grown it makes its reappearance as soon as the spring comes round, when it is sure to be found in many parts of the house. It is of small dimensions, the fronds, which are triangular in shape and divided into fine segments, seldom growing more than 8 inches high; they are of a very bright green colour and almost pellucid; the whole of their underside is covered by the sori, light brown in colour and disposed in close lines. Stove.

G. CHRYSOPHYLLA.—This West Indian species is, among the golden section, a general favourite, and most deservedly so. The fronds, which are produced from a closely set crown, grow from 18 inches to 2 feet in length, and are borne on stout stalks, which keep them up in a nearly erect position, thus showing their underside to advantage. They are of a somewhat lanceolate shape, with their upper surface of a light green colour; whereas a rich golden yellow powder densely covers their under surface, which is all dotted over with black sori protruding through the gold coating, and making a very pleasing contrast. This interesting species has, under cultivation, been most prolific in producing numerous and handsome varieties. The principal one and most worthy of cultivation is

G. LAUCHEANA. This is a beautiful and symmetrical variety, of dense habit and with fronds quite triangular in shape and borne on stout, short stalks, only sufficiently long to give them a gracefully arched appearance, rendering it a most valuable plant for decorations. The under side of the fronds is of a very bright and uniform golden colour, which is retained as long as they remain on the plant. Several forms of *G. chrysophylla* *Lauchæana* are highly decorative, and even surpass the variety from which they have sprung; such is the sub-variety

G. ALSTONI. Although only a form of the above, it is quite distinct in aspect; the compact habit of growth remains the same, and the brilliancy of the powder covering the under surface of its fronds is quite equal to that of *Lauchæana*, but these are not so regularly triangular, and they are, besides, borne on equally stout, but longer stalks. These characters would be quite sufficient to distinguish it from any other sub-variety, but the peculiarity which greatly enhances the beauty of the plant, and renders it still more distinct, is the singular way in which nearly all its pinnae are turned upwards and gracefully incurved, making the upper side of the fronds appear as if dotted all over with golden little globules. It is also an exceedingly good grower. The sub-variety

G. LAUCHEANA GIGANTEA is also distinct, inasmuch as its fronds (which are longer) are more lanceolate in shape, their pinnae set further apart, more coriaceous, and much more incised; their under-side is, besides, covered with a powder equal in colour to that of the *Lauchæana*, but much thicker than in any other species or variety in cultivation. It is one of the most handsome for basket culture. Lastly, there is the sub-variety

G. LAUCHEANA GRANDICEPS, of recent introduction. It is the most decorative of the crested forms. The lower part of its fronds, which are erect and robust, is nearly depauperated about half way; the upper portion of them (bi-pinnate with every pinna crested) is terminated by a dense tuft, corymbiforme and beautifully golden, the weight of which is sufficient to make its strong stalked fronds arch over very gracefully. All these varieties and sub-varieties of *G. chrysophylla* require stove temperature.

G. CHRYSOPHYLLA MASSONI.—This garden variety is particularly remarkable on account of the length of its fronds, which are lanceolate in

shape, very handsomely golden underneath, and somewhat loose and of rather pendulous habit, making it an excellent plant for large hanging baskets. Stove.

G. DECOMPOSITA.—A very handsome and totally distinct species, with somewhat the aspect of *G. pulchella*, but furnished in young state with sericeous powder, white or nearly so, which, as the plant gets older, becomes of a bright yellow, and freely covers the stout stalks, bearing large fronds from 2 feet to 3 feet long, of triangular outline, and arching in a graceful manner. The pinnae are unequally triangular, and have a peculiarly elegant aspect; their lobes small and deeply cut, or split into several minute finger-like divisions, give the whole plant a finely dissected appearance. Stove.

G. FLEXUOSA.—This singular species from Tropical America is one of the few members of the genus which are destitute of the usual farinose powder of either colour. It is, nevertheless, a beautiful plant of scant habit, and one of the most elegant of the whole genus, being an excellent grower with much-divided fronds, whose ultimate segments are quite narrow. Stove.

G. OCHRACEA.—Probably the most accommodating of all *Gymnogrammas*. As regards temperature, this Tropical American species makes itself at home equally as well in a good greenhouse as in the stove. Its fronds are produced in greater abundance than those of most other *Gymnogrammas*. They are lanceolate in shape, and seldom grow more than 12 inches high. They are of a shining dark green, showing a good contrast with the pale yellow colour of their underside.

G. PEARCEI.—An exceedingly elegant Peruvian species, which, unfortunately, has become very scarce in collections. Its beautiful quadripinnate fronds are most delicately cut, of a bright shining green above, their underside being slightly dusted over with white farinose powder. They grow to about 18 inches high, are triangular in shape, and borne on bright brown stalks. It is a real gem amongst its genus. Stove.

G. PERUVIANA ARGYROPHYLLA.—This species is to the silvery section what *G. chrysophylla* is to the golden one; it is the Silver Fern *par excellence*. No description, however complete, can over-rate its merits. Its splendid fronds, which are produced in profusion, sometimes reaching 30 inches in length, are very massive and broad at their base; the pinnae, closely set, are also broad and obtuse. In addition to the above enumerated qualities, the fact of the silvery appearance not being restricted only to the under surface is well worth special mention, for the dense farinose powder covers its upper surface as well, and on that account it is all the more likely to suffer if the fronds by any chance whatever get wetted over. In a specimen in good health the thickness of the white powder on the upper surface is such that all traces of green have disappeared, and the frond has become of a bluish white. It is of excellent habit. Stove.

G. PULCHELLA.—A very elegant species from Tropical America, and mostly distinct from any other species by the lemon-coloured farinose powder which thinly covers the under surface of its graceful fronds, which sometimes attain 2 feet in length and 1 foot in breadth; they are of a very bright green on the outside, and have their pinnae cut into very fine segments. Stove.

G. RUFA.—This very distinct species from Tropical America has very little resemblance to any other member of the family. The fronds erect, pinnate, about 15 inches long, with pinnae oblong and obtuse; these singular fronds are borne on reddish stalks. The whole of the plant is hairy. It is now seldom seen in cultivation. Stove.

G. SCHIZOPHYLLA.—A beautiful and exceedingly distinct species, whose very elegant contour, moderate size, and graceful habit, its delicately cut pinnules, and pleasing colour render it one of the most attractive of Ferns in general. The fronds, produced freely, are borne on slender stalks of a reddish brown hue; they average about

2 feet, and are gracefully arching on all sides, which habit makes it one of the very best Ferns for growing in suspended baskets. The leafy portion of the frond is about 2 inches broad, very finely cut, the ultimate pinnules being deltoid and minute. A very remarkable peculiarity in this *Gymnogramma* not possessed by any other member of the genus is seen in the furcation of the stalk at about two-thirds of its length, where it is proliferous, every frond producing a young plant at the point of furcation, thus making the plant appear to have fronds of an unlimited length. Those little plants produced at the point of furcation can be used with great advantage for propagation, as they get on quicker than seedling plants do. Stove.

G. SULPHUREA.—This very pretty dwarf-growing species from Jamaica is about the smallest of all golden *Gymnogrammas*. It is a little gem, which, unfortunately, is rather more difficult to keep through the winter than other plants of the same genus. Its slender fronds rarely exceed 10 inches in length and are bipinnate, with the pinnae set rather far apart; their upper surface is of a light green colour, whereas their under-side is densely covered with a bright sulphur-yellow powder, of which there is also an occasional slight sprinkling on the upper surface. During the winter it is indispensable that this species should be kept close to the glass. Stove.

G. TARTAREA.—A distinct and deservedly very popular species from South America, with bipinnate fronds growing from 18 inches to 24 inches long, dark green above, but whose under side is covered with farinose powder as white as snow; pinnae lobed with obtusely rounded lobes; the crown is covered with black scales; the stalks and sori, being also intensely black, form a striking contrast with the pure white under-side of the fronds. Stove.

G. TOMENTOSA.—This Brazilian species somewhat resembles *G. rufo*, from which, however, it is distinguished by its fronds being invariably bipinnate; whereas those of *rufo* are only pinnate, so that the least attention will show the difference. It is also a stronger grower, its bipinnate fronds sometimes reaching from 20 inches to 24 inches in height. They are of a dark green colour and hairy all over. The robust stalks on which they are borne are also clothed with reddish brown hairs. Greenhouse.

G. TRIANGULARIS.—A South American species which has of late become very scarce in cultivation, owing no doubt to the trouble, real or imaginary, which attends its preservation during the winter. It is of dwarf habit, and its general aspect or facies is that of a *Cheilanthes* much more than that of a *Gymnogramma*, for its small triangular fronds are borne on slender stalks and produced in tufts; they seldom grow to more than 9 inches, their undersides being covered with a sulphur-coloured powder, well shown, as the fronds are very nearly of erect growth. Greenhouse.

G. TRIFOLIATA.—This most conspicuous and very remarkable species from Jamaica bears no resemblance whatever to any other member of the genus, the mode of growth, shape of fronds, and general aspect being so many totally distinct characters peculiar to this species only. The fronds are bipinnate, with segments trifoliate and linear, whose upper surface is of a dark green; whereas their underside is covered with a farinose powder very variable in intensity from the purest white to a lemon colour. It is a robust grower, attaining an indefinite length, especially if grown in such a place that its gradually extending fronds can be trained along the glass of the roof, in which case it forms a very picturesque object. Stove.

G. WETTENHALLIANA.—A very handsome and decorative garden variety, and probably a crested sport from *G. pulchella*, which species it somewhat resembles, although it is not so strong-growing a plant. It has the disadvantage of not always reproducing itself true from spores; but in good varieties the fronds, which have their extremities ornamented by a large corymb, bear also dense crests at the points of all their pinnae; the foliose

part is rather contracted, and the whole of the plant, which is naturally of a stiff habit, is copiously covered with a pale sulphur-coloured powder. Stove. PELLEA.

A PLANT COLLECTOR'S TROWEL.

OF the vast concourse of tourists that yearly wend their way to Switzerland, the Tyrol, the Pyrenees, &c., not a few would wish, did they only know how to compass it, to send home to their gardens some of the many lovely denizens of those regions which meet them at every step as they wander over the mountain pastures. To this end a suitable implement for digging up the plants is of the first importance, and it is only quite recently that I have come across a form of trowel which fulfils the needful conditions of efficiency and portability, for to an ordinary tourist anything cumbersome is out of the question. Moreover, as far as I know, the implement to which I wish to draw attention seems but little known. It consists of a somewhat pear-shaped blade, about $4\frac{1}{2}$ inches by $2\frac{1}{2}$ inches, having a sharp point; the other end is firmly fixed into a stout handle of some hard wood about 8 inches in length, the whole implement being thus about a foot long. The blade is bevelled so as to be sharp all round, which enables the user to cut completely round any plant he may wish to remove, a most useful power, as many of the choicest plants grow in a thick sod of Grass and other things, while the trowel is quite strong enough to lift them out when cut round. It appears to be manufactured in England for a French house and then re-imported, as it is branded "Acier fondu anglais" (English cast steel). It is obtainable from most respectable ironmongers at the low price of about 1s. 6d. each, and is by far the handiest tool I have met with for digging up moderate sized plants, it being quite possible to successfully uproot even a good sized Fern by its aid. A little leather sheath, which can be made by any cobbler, enables it to be securely and handily slung to one's side, where it offers no impediment to the pedestrian. I have already in these pages advocated sending home the spoils at once by post, firmly wrapped in gutta-percha tissue, which can be done very cheaply; two or three pence postage suffices for a good sized parcel if marked "Plantes sans valeur."

G. P.

THE PETUNIA "CURE."

NUMBERS of "cures" are heard of in various parts of the world, particularly in Germany. There is the Grape cure and the milk cure, but we had not before heard of the Petunia cure. The dyspepsia cure, which a man advertised for a small sum, had also a horticultural bearing, for all the appetite got for his money were these words:—

"Dig in your garden and let whiskey alone!"

However, we will let Mrs. H. M. Lewis, of *The Western Farmer*, tell us her own tale. A discouraged young woman, who, having worse than wasted her substance on doctors and druggists, at last had the good fortune to meet a true friend of sense, who plainly told her she had fooled away time and money enough in the demoralising atmosphere of medicine, shut out from the fulness and life of God's sunshine and pure air. So floriculture was prescribed as a certain and pleasant panacea: "Try cultivating the Petunia in the highest style of art. Search the catalogues and

get the best seeds and plants. After that prepare the soil; let it be rich leaf-mould and guano. Stir and work it all yourself, and before the summer is over you will be as well as any of us."

In sheer desperation, and with feeble faith, she acted on this hint; advanced by easy stages, and is now healthy and happy, and, naturally enough, enthusiastic about the chosen plant which was the agent of her rescue. "First, she obtained the best possible seeds of single varieties; next purchased from the greenhouse young plants and cuttings of double and semi-double varieties; these were put out in the garden as soon as weather permitted in spring, and when the flowers appeared, if one of inferior quality was seen, it was ruthlessly pulled up. In this way she succeeded in getting only true, free-blooming, brilliant flowers. They showed themselves in many shades of rose colour, in brown, pink, purple, crimson, white, dark violet, and three varieties of green—one of them of great size. Some were fringed, others blotched, striped, and bordered, while others were covered with a network of purple, green, or brown. Some of the flowers were as small as a 10 cent piece, others as large as a Hollyhock; and one year she originated four varieties of double ones—one a pinkish flesh colour that would have been a treasure had a professional florist originated it. Was it astonishing that scores of visitors came from far and near to see the beautiful flowers that were the talk of the county? In growing these flowers, she, assisted by bees and insects, slightly interfered with Nature's workings. The pollen from one flower was carefully sifted upon the pistil of another, and by thus fertilising some of the flowers, rare beautiful ones were produced that astonished herself and friends—for a number of her hybrids were entirely new. When the double and single are fecundated in this manner, the result is a double or semi-double one. This is the only way by which seeds can be obtained from double varieties."

It is not fair, perhaps, to express a doubt as to the fitness of the subject chosen, but we should have selected something not less beautiful, and with a point or two in its favour in other respects. Our showy friend, the Petunia, has nothing in common with the Sweet Brier or the May in the scent of its flowers, while, unhappily, its leaves have a very rank and disagreeable odour, stronger than that of the living Tobacco leaf, to which the plant is allied. How much better to work up the Carnation, with its healthy, spicy odour or the Primrose and its allies! Apart from all joking, to get a vital interest in any pretty family of plants and grow them to perfection with one's own hands is a pretty sure and pleasant way to health.

5062.—**Softening hard water.**—"G. F." may try a way of softening hard water which I employed a few years ago in a country where I had only very hard water to deal with for syringing plants, and which covered the leaves with large white lime spots. To prevent that I added to the water some carbonate of soda, stirring the water well and letting it stand for a few hours before being used in order that the limy deposit might fall to the bottom of the cask in which the water was kept. If "G. F." adopts this way of softening water, will he kindly favour us with the result of the trial?—BARDEL.

Exposed bouquets.—One may often see people carrying in their hands choice bouquets of cut flowers even when the sun is shining brightly or the wind blowing fiercely, either of which, in the unprotected state in which the flowers are carried, is sufficient in an hour or two to render them comparatively worthless. It may not always be convenient to pack cut flowers in a box or basket from which sun and air are excluded when on a journey, but it would not require any great effort to wrap them in a sheet of paper to shelter them from the air and the heated atmosphere of a railway carriage. Flowers so treated would be comparatively fresh at the end of a long journey.—J. C. C.

NOTES OF THE WEEK.

An International Exhibition of Arts, Manufactures, Science, and Industry will be held at the Crystal Palace, Sydenham, during 1884. It is intended that the exhibition shall be opened on April 3, and close at the end of October, 1884.

Burnham Beeches.—The dedication of Burnham Beeches to public use will take place on Wednesday, October 3; the ceremony will be performed by the Duke of Buckingham and Chandos, Lord-Lieutenant of Bucks.

Acer Reichenbachii.—Mr. A. Waterer has sent us from his nurseries at Knap Hill, Woking, leaves of this Maple to show how ornamental they are when changing colour. The latter becomes deep crimson-red, varying from that to yellow and brown. The leaves, being large, present a broad mass of colour, which at this season forms a pleasing feature in the landscape, and one that should be taken advantage of by planters. This Maple appears to be allied to *A. platanoides*, but is distinct and very handsome.

Apple congress at Chiswick.—An extensive and fine display of Apples is anticipated on this occasion, the applications for space being numerous. Amongst others, collections will be exhibited by Messrs. Rivers, Sawbridgeworth; The Cranston Nursery Company, Hereford; Saltmarsh & Sons, Chelmsford; Harrison & Sons, Leicester; Lee & Son, Hammersmith; Scott, Merriott; Wheeler & Son, Gloucester; Bunyard, Maidstone; Killick, Maidstone; Haycock, Barham Court; Britcher, Tonbridge; Veitch & Sons, Chelsea; Lane & Son, Great Berkhamstead; Dickson, Chester; Poynter, Taunton; Dunn, Dalkeith; Gilbert, Burghley; Stevens, Trentham; Selwood, Eaton Hall and district; Miles, Wycombe Abbey; Clayton, Grimston Park, &c. Extensive collections are also expected from Tweedside. There will be a meeting of the general committee on October 4, at two p.m. Certificates will be awarded to approved new varieties, the sub-committee being entrusted with the preparation of a detailed report, &c.

CAN any reader of THE GARDEN favour me with an answer to question 5046, p. 127, August 11?—E. K.

"Genera Plantarum."—This work, by Bentham & Hooker, is at last completed, after a labour of about a quarter of a century.

Nettles (M. P. F.).—The only effectual way is to uproot them, taking care that every piece of root is extracted and that the roots of the trees are not injured.

Double Pelargonium (J. Roberts).—A very fine sort as regards colour, which is similar to that of one called *Ministre Constant*, but the flowers of yours are not so double.

Aucuba japonica (M. F.).—You must obtain the female or berry-bearing kind and also a male or pollen-bearing plant. Their culture is simple; merely plant them out, and lift and pot them as soon as the berries show signs of colouring.—T.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of fruit.—S. E. D.—Williams' Bon Chretien undoubtedly. —Apple.—2, Wellington; 3, Nonsuch; 4, Cox's Orange Pippin. —Grapes.—1, Trentham Black; 2, Foster's Seedling. —R. Tristan. We cannot undertake to name Apples or Pears from single fruits only. —B.—Kerry Pippin.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—J. B. J.—We cannot undertake to name Dahlias; they should be sent to some specialist. —W. A.—1, *Eunymus latifolius*; 2, *Potentilla fruticosa*; 3, *Clethra alnifolia*; 4, specimen insufficient. —Constant Reader.—1, *Erica intermedia*; 2, *E. mammosa* var.—H. M. H.—The specimens sent were too much withered to identify. The white is probably *Dendrobium Dearei*, the other a *Gongora*. —Anon.—1, *Hypericum calycinum*; 2, *H. patulum*; 3, *Spiraea salicifolia*; 4, *Teucrium canum*. —Mrs. Pode.—*Lysimachia vulgaris* (yellow), other too small to name. —Mrs. S. D.—*Calacia coccinea*. —F. M.—*Ophiopogon Jaburan variegatus*. —Apple.—*Verbascum nigrum*. —T. M.—1, *Sempervivum tectorum calcareum*; 2, *Saxifraga aizoon rosularis*; 3, *S. lingulata*; 4, *S. aizoon pectinata*. —G. T. B. P.—1, *Nephrolepis exaltata*; 2, *Pteris tremula*; 3, *Aster Novae Angliae pulchellus*; 4, *A. longifolius*.

This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE APPLE CONGRESS.

SUCH a gathering of Apples of British growth as that now assembled in the great vinery in the Horticultural Gardens at Chiswick has seldom if ever been seen in this country. The exhibition is indeed an enormous one, as may be inferred from the fact that there are upwards of 7000 dishes of Apples shown, and these for the most part contain two sorts. These are contributed by some 170 exhibitors from every quarter of England, Scotland, and Wales, and Ireland is not altogether unrepresented, while a goodly display comes from the Channel Islands. No fewer than thirty-six counties send illustrations of their Apple produce. Such a vast assemblage as this is the more remarkable from the fact that it is quite an *impromptu* affair. A few weeks ago it was not even thought of, and the way in which the matter has been taken up shows that horticulture in this country is not dead, though its representative society appears to be more than usually inactive. This huge exhibition, too, is all the more remarkable, inasmuch as no prizes whatever are offered and no monetary consideration is attached to it in any way, although contributors to it must have been put to considerable trouble and expense. It must therefore be inferred that the movement is purely in the interests of horticulture, and it is to be hoped that advantage will be taken of such a gathering to work out thoroughly the important question of nomenclature and, above all, the vexed question of synonymy—a standing bugbear in the way of both commercial and private growers. But nomenclature is not all; the merits of the varieties should be compared, and their suitability for particular soils and localities pointed out. It would be also a great boon, especially to amateurs, if lists of the very best sorts representing every section could be drawn up. For this, and for all other purposes, there is no end of material afforded by this gathering. Such an important affair as this—of national importance, one might say—ought not to be left entirely to the few who have so disinterestedly promoted this exhibition. It ought to be taken up in thorough earnestness by the Royal Horticultural Society as the representative body of horticulturists throughout the country.

The present is probably the best time for such an exhibition as this to take place, inasmuch as it embraces the early as well as the late varieties, though the latter would probably be of better quality and certainly higher coloured if shown two or three weeks later. A great number of the early sorts are represented, even such early kinds as Irish Peach among dessert Apples, and Lord Suffield among the cooking sorts. Of the latter there are some uncommonly fine examples from Kent. This vast array of fruits is arranged according to the counties from which they come—a useful and at the same time an instructive plan of arrangement. The home counties are largely represented, and we need hardly add that Kent contributes the most extensive display. Surrey, Middlesex, and Sussex are also among the largest contributors, and extensive collections come from that pre-emi-

nently Apple county—Herefordshire. Oxfordshire, Worcestershire, Leicestershire, Yorkshire, Essex, and Bucks also send fine fruit. The other English counties well represented are Staffordshire, Westmoreland, Dorsetshire, Somersetshire, Bedfordshire, Gloucestershire, Shropshire, Lancashire, Durham, Huntingdon, Northamptonshire, Hampshire, Norfolk, Suffolk, and Devonshire.

The exhibition, as already remarked, is held in the great vinery, now looking its best, the roof being thickly furnished with sable bunches of luscious Grapes. This capacious structure—the largest vinery in the country—is filled to overflowing, every foot of space being taken up. There are two central tables, while a side bench runs all round the building. Besides this two other ranges of houses are completely filled—one entirely with exhibits from Scotland. Among English exhibitors many furnish upwards of a hundred dishes, while some even contribute as many as 300. Nurserymen exhibit largely, the principal being Messrs. Veitch, Chelsea; Bunyard, Maidstone; Lane, Berkhamstead; Paul & Son, Cheshunt; Cranston, Hereford; Saltmarsh, Chelmsford; Lee, Hammersmith; W. Paul & Son, Waltham Cross; F. & A. Dickson, Chester; Rivers, Sawbridge-worth; J. Dickson, Chester; Smith, Worcester; Harrison, Leicester; Scott, Merriott; Cheal, Crawley; Wheeler, Gloucester; Jefferies, Oxford; and Frost, Maidstone.

There are also numbers of collections from private gardens. Among these is one from the Royal Gardens, Frogmore (always foremost in such matters), consisting of over 150 varieties. A peculiar interest attaches to this collection, inasmuch as the trees from which the fruit was gathered were all carefully planted and named by Mr. Jones's predecessor, the late Mr. Ingram. By careful attention the old trees continue to produce fruit of remarkable excellence, the collection throughout being exceptionally fine. Among other large collections from private gardens may be named those from Gunnersbury Park; Gunnersbury House; Hollanden Park, Tonbridge; Leonardlee, Hordsham; Barham Court, Maidstone; Trentham; Burghley, Stamford; Wycombe Abbey, Bucks; Sherborne Castle, Deepdene, Welford, Syon, Hutton Hall, Eridge Castle, and Killerton. There is a host of other exhibitors showing from fifty varieties downwards.

Among Scotch exhibits perhaps the most important is that from Messrs. Ormiston & Renwick, Melrose, who have furnished an enormous gathering of Tweedside Apples from various places in the valley of the Tweed. Of these there is an excellent printed catalogue, indicating the sorts, the kind of stock, form, of the trees, as well as locality, soil, elevation, and other important details. Other large collections from Scotland come from Dalkeith and Tynninghame, both of which are excellent.

Most of the collections are legibly named, and in many instances particular care has been taken to impart as much information on the label as possible respecting the sort to which it is attached. For example, Messrs. Bunyard, of Maidstone, have a card stating that their collection has been grown in the valley of the Medway on soil of a sandy loam, resting on the Kentish Ragstone. On the labels to each dish is printed the use to which the sort is put, whether kitchen or dessert, its season, and the form of tree for which it is best suited.

Fine as the exhibition is as a whole, a superficial glance only is sufficient to prove the superiority of the produce of the southern over that of the northern counties, and, again, there is a similar difference between the fruits from the south-western and southern districts. The home counties carry the palm for general excellence, all the fruits coming from them being fully developed, and remarkable for high colour, particularly those from Sussex.

A vast amount of labour must be bestowed on this Apple show before anything like a systematic report can be drawn up by the executive committee. The chief work will be the nomenclature; then if the aims of the promoters are carried out, the comparison of the merits of the sorts and other matters must be taken in hand.

A committee of twelve, divided into four sections, began the work on Thursday of going through the whole of the exhibition for the purpose of checking the nomenclature—not an easy task. The committee consisted of the following: Messrs. G. Bunyard, M. Dunn, S. Ford, R. Gilbert, L. Killick, W. Paul, G. Paul, J. Roberts, C. Ross, J. Saltmarsh, J. Smith, and J. Woodbridge. The congress will close on the 18th inst.

APPLE GATHERING FOR THE CONGRESS.

SOME of our earlier sorts, such as Devonshire Quarrenden, Lord Suffield, &c., were quite over before the congress was thought of, but we began by gathering the few sorts which we grow within the garden. Amongst these were Cox's Orange Pippin, very good fruits, but not so deeply coloured nor so good in quality as those grown in the orchard. From two young trees headed and regrafted twelve or fourteen years ago we have just gathered three bushels from each, a dish of garden growth and a dish of orchard growth, six of each, being sent to the congress. Dumelow's Seedling, garden growth, girths 11½ inches; Margil, 8½ inches; Warner's King, from garden and orchard, girths 12½ inches; Winter Hawthornden, grown in our garden, is bearing a heavy crop of fine fruit. Alfriston, both in the garden and orchard, is very fine, and girths 12 inches; on Flat Nonpareil, in the garden, there is a good crop. Of six kinds from the orchard White Nonpareil is an excellent sort and a free bearer; Old Nonpareil is a good late keeper, and the same may be said of Adams' Pearmain. Court of Wick is a heavy cropper, but not so good in quality as usual. Pine-apple Russet is a first-rate dessert Apple for October. Autumn Pearmain is a fine bearer and forms a large tree, the fruit of which is first-rate in a baked state. Of Blenheim Orange we have just gathered twelve bushels from a fine young tree, the fruit of which is medium-sized. Devonshire Queen, a beautiful deep red dessert or kitchen Apple, is a good bearer and fit for use in October. Ross Nonpareil, a fine spreading young tree, is bearing a good crop; this sort we gather later than this; it is a good keeper and first-rate in quality. Sturmer Pippin has a fair crop on it; it is never a great bearer here, but we have several trees of it, as it is one of the best late keepers. Summer Golden Pippin, a nice little dessert Apple in use now, is always a fair cropper, and the tree is of weeping habit. King of the Pippins, generally among the best of bearers, is this year very scarce; we have no choice for a dish; last year it bore heavily. Hubbard's Pearmain we consider to be one of the latest and best of dessert Apples and a great bearer; I have sent a branch of it to the congress to show its character as a bearer. Of Cornish Gilliflower, always a very moderate bearer, we have several trees.

Of Tom Putt, young trees headed and grafted in 1878 are now in full bearing. They are finer than usual, being very strong. This sort generally bears so freely that the trees thereby become stunted; the same remarks apply to Hawthornden, of which we have a fine crop. Keswick Codlin is

this year very heavily cropped with fine fruit. The Wellington is also bearing a fine crop, and the fruits on the uppermost branches are well coloured for this sort. Of all the kinds I have sent to Chiswick, Emperor Alexander forms the most beautiful dish. The largest fruit of this, from a young tree in the orchard, girths $11\frac{1}{2}$ inches. Cellini is carrying a very heavy crop; we gathered the fruit from the points of the branches to prevent their breaking some weeks since. Hoary Morning is likewise bearing a good crop, but the fruit individually is not so fine as usual, a remark which also applies to Gravenstein; the latter is a first-rate bearer. Mère de Ménage generally bears very fine fruit. Royal Russet, a good old sort, generally bears a moderate crop. Royal Somerset is of weeping habit, a good bearer, and its fruit is excellent for kitchen use. I have also another Royal Somerset, a dessert sort. It is of upright growth, an excellent Apple, and good late keeper. Of these I have sent dishes to Chiswick. Easter Pippin is one of the latest keepers and a good bearer; Red-ribbed Greening is a kind used for drying for dessert in North Devon. I have also sent to the congress a few Apples with local names, good kitchen sorts, also a dozen cider sorts with bearing branches of two of the varieties, viz., Tremlett's Bitter and White Cluster. In order to believe the amount which they bear, one must see the trees; every branch is laden like ropes of Onions. The original tree of Tremlett's Bitter in this neighbourhood is said one year to have borne Apples sufficient for four hogsheads of cider to be made from them (equal to eighty bushels). This, however, and some other cider sorts only bear in alternate years. They so exhaust themselves by bearing, that they take the next year to recover themselves and form fresh fruit buds. During the gathering season I mark all those that are getting worn out to be taken down in the winter and supplanted by others.

Killerton, Exeter.

JOHN GARLAND.

TRAINED V. STANDARD PEACH TREES.

I HAVE just been looking at some fair-sized late Peaches, the produce of standard trees planted out in an unheated structure. The flavour was said to be tolerably good for late fruit; but they were sadly deficient in colour, and this circumstance reminded me of an article which I read in THE GARDEN some months since, and which I cannot now refer to, but the writer, so far as I can recollect, recommended the planting of standards in preference to trained trees, stating that the former were less troublesome than the latter, bore more freely, and furnished larger and better fruit, &c. All this, I may say, is hardly in accordance with my experience. It so happens that some years ago I had under my charge two large structures, both devoted chiefly to the cultivation of the Peach and Nectarine. The structures in question were span-roofed, running north and south; they were 90 feet long, 20 feet wide, 12 feet high in the centre, and unheated. In each house the trees were planted out in suitable soil. Those in one of the houses were all standard and pyramidal trees; while in the other the trees were trained to wires fixed under the glass, and at a distance of 18 inches from it. In each case they bore satisfactorily enough, and it may be that the standard and pyramidal trees were a little less troublesome than the trained ones. But they certainly did not bear more fruit, nor was the fruit which they bore so large, so well coloured, or so well flavoured as that of the trained trees. This applied to the various varieties of the Nectarine as well as to those of the Peach. Such fruits as the Peach and the Nectarine can hardly be placed under more favourable circumstances for development and thorough ripening than at 18 inches or some similar distance from the glass, while a considerable portion of the crop of standards or bush trees cannot possibly have that advantage, hence deficiency of colour and flavour is the result. Intending planters will therefore do well to give due consideration to the matter before they plant extensively standard or bush trees under glass if

the desideratum be, as is generally the case, fruit of the finest quality.

Bury St. Edmunds.

P. G.

GATHERING AND PRESERVING WALNUTS.

LOCAL conditions may in some cases affect the maturation of Walnuts, but, taking the several varieties together, they may generally be said to be fit for storing in the first week in October. This is the time at which we get in our stock when we have any, which is not always the case. I find that Walnut crops are not so regular in the west of England as in the eastern portion of it, but for what reason I cannot explain; one thing, is, however, pretty certain, and that is that old trees invariably bear more regularly than young ones, and better crops in proportion to the space which they occupy. The best way to get the nuts from the tree is to send a couple of men up among the branches where, by means of a long Ash pole, all parts of the tree can be reached without much difficulty. It used to be said that the more thrashing Walnut trees get the better they bear, which means that the men who beat down the nuts should also do the pruning. This I never could see did any good, for I have noticed that the crop depends entirely upon the weather. If that is favourable when the young fruit is just forming, we get a full crop; if not, we get none or a proportionally small one. Having secured the nuts, they should be laid out on the floor of a dry shed, or placed in baskets on the floor of a vinery or Peach house. It is not necessary that they should be in single layers, but if laid five or six deep they will dry sooner than if laid in large heaps. I have tried a variety of plans by which to

PRESERVE THEM, including that often recommended of keeping them in their green shells. This plan answers well for two or three weeks, but at the end of that time the green shells get into a black mass, which disfigures the nuts so much that they do not look well when sent to table. I have also tried them in tin canisters, filling the canisters with nuts separated from their green shells, and keeping them in a cool, dry place; but, notwithstanding that the lids of the canisters were tried both open and closed, the nuts kept so constantly damp, that in a short time they were unfit for use. I now adopt a different plan, which answers admirably. By it I can keep the kernel of the nut fresh and plump, from which the skin can be removed almost as easily as when first gathered. It is not difficult to keep them in a dried state bright and clean, but in that case the kernel becomes withered and difficult to separate from the skin. My plan is as follows: After the Walnuts have been off the tree three or four days they must be examined. Such from which the green shells come off easily must be the first to be attended to. These must be thoroughly cleaned, and, if necessary, where any particles adhere to the nut a knife must be used to scrape them off. Those from which it is difficult to remove the outer shell should be laid on one side for a few days longer. As they are cleaned we lay them out in one of the vineries for four or five days to dry. When all are ready we place a score or more—say about enough to make a dish—into clean 6-inch pots; a piece of slate is then made to securely cover each pot, and a place is prepared for the pots under a wall in some odd corner of the frame ground, where they are set as close together as the slates which cover them will allow. When all the pots are in their places the whole is covered with sifted coal ashes 6 inches in thickness, and from this store they are withdrawn as wanted, one being able to remove a single dish at any time without disturbing the rest. By this plan we find that Walnuts can be kept as long in good condition as it is possible to keep them.

J. C. C.

THE first Apple tree raised on the Pacific coast from seed sent out on a Hudson Bay Company's ship to Vancouver in 1826 is said to be still standing on the Government reserve near Vancouver.

MADRESFIELD COURT GRAPE CRACKING.

I HAVE grown Madresfield Court for many years in our cold clayey loam; no manure was ever put in the border, but plenty put on the surface. Some Vines planted in an inside border only made moderate growth, produced medium-sized bunches, and good berries, which coloured well. The flavour, too, was excellent, and there was not a single cracked berry. Two other Vines in another house were planted inside, but most of the roots were outside in a dry, poor border in the second early vinery. They ripened about the 20th of April and made moderate growth. The bunches were of medium size and the berries good, though one half black and the stalk end grizzly. The flavour was good, and there was no cracking. One Vine was in another house, planted inside, but with most of the roots in an outside border, consisting of cold, clayey loam, below the ground level, but well drained; still, it was generally moist. In this case the Vines made strong growth and bore large bunches of fair-sized berries, but they were deficient in colour at the stalk end, and also deficient in flavour, and they cracked very much. The other Vines, all Black Hamburgs, in a vinery 56 feet long, under the same treatment, were all that could be desired both as regards quantity and quality. In my opinion, all that Madresfield Court requires in order to prevent cracking is a shallow border of sweet turfy loam, with a sufficient mixture of open material to allow water to pass through it freely, manure or liquid manure being given on the surface. This Vine is naturally a gross feeder, and its growth must be kept under command. It fruits freely, sets well, and finishes well, and its flavour is excellent. Altogether, it is a first-class early or mid-season Grape. It keeps well in a cool, dry house, but will not stand the damp.

JAMES SMITH.

Waterdale Gardens.

Louise Bonne of Jersey Pear.—No Pear is much better known than this; neither are there many to surpass it. For October use it is invaluable. With us the earliest supplies, in order to prolong the season, are ripened in heat, and the remainder gathered and stored in the fruit room at weekly intervals. The tree is decidedly good in habit, no difficulty being experienced in forming a pyramid of it in the open or an espalier on walls, and it is equally well adapted for standards and cordons. The foliage is, as a rule, of a darker green than that of most varieties, and the fruit is also very distinct and handsome. It seldom fails to bear well in whatever form it may be grown, and we have abundance of its fruit this season.—I.

Heated walls.—It will be a sufficient reply to "W. C. T." (see p. 261) to state, first, that if Harrison does not dwell on "details" about his heated walls in his book, it is probably because their utility was taken for granted and as a matter of course by him; secondly, that his success in producing fine crops of Peaches is too well substantiated to be disputed, and that it is equally certain that all his Peach walls were heated, that he used them in a constant manner, and that such Peach crops as his cannot be and never could be produced in the same place without the aid of heated walls, as the records of fruit crops and vegetation generally in the neighbourhood of Wortley and in the garden where Harrison practised would show. Heated walls accelerate a crop just in the same way that glass houses do, only in a less degree. The principle of both is the same, and if that be admitted, the rest is incontrovertible. "W. C. T." has probably often noticed that crops always ripen much earlier in proximity to a warm surface like that of a flue or hot-water pipe than elsewhere, and it would be interesting to know why a heated wall should not have the same effect. "W. C. T." admits that he has had no experience of fruit culture above moderate altitudes, say 300 feet or 400 feet; whereas I am familiar with fruit culture up to 1000 feet, or rather at attempts at culture at that height, and am, therefore, better able than he is to speak on the subject as regards

heated walls. I am certainly not speaking without due reflection and observation.—J. S.

Madresfield Court Grape.—Withus Black Hamburgh Grapes, which were ripe late in July, have deteriorated considerably both in appearance and quality; whereas Madresfield Court, which ripened earlier, has lost ground in appearance only, the quality still being excellent. As a consequence it will yet further replace the Black Hamburgh, as next spring we intend to bud several of the latter with Madresfield Court, and I am only sorry that I have not taken this step much sooner. It also, I am told, travels better than Black Hamburgh.—W. I. M.

5058.—**Select Gooseberries.**—In selecting Gooseberries attention should be paid to secure varieties which will ripen in succession; if that is done, ripe fruit may be had fit for use for upwards of three months at a time. Yellow Sulphur is the earliest of all Gooseberries, and Souter Johnny one of the latest; these two should be included in all Gooseberry bush orders, and the dozen should be made up as follows: Red—Companion, Lord Derby, and Ironmonger; yellow—Sulphur, Pilot, and Champagne; green—Jolly Angler, Keepsake, and Souter Johnny; white—Whitesmith, Nailer, and Transparent. The largest of all Gooseberries is a variety named London, but size is its chief recommendation. Gooseberries are easily propagated by means of cuttings taken off in winter, put in by the heels, and planted out in spring, when they soon root and make nice little bushes before the end of the same season. The most satisfactory bushes to purchase are three-year-old ones which will bear a fair crop the first season after planting. They should be selected at once, and should be sent home any time between November and the end of February. When the leaves have fallen they are not easily injured, and they will take no harm through being out of the soil for a week or so; nevertheless, no good purpose is served by having them out of the ground longer than is necessary. The ground in which they have to grow should be well prepared for their reception. The soil should be from 18 inches to 2 feet deep, well manured, and stirred up the whole depth. A medium heavy soil is best for them. If very light, some heavy material should be added; and if too much the other way, light mat'ar may be applied. Their position should be an open one, as fine bushes can never be produced under the shade of trees; they should be put in 6 feet apart each way. The stems should not be covered up more than 4 inches, and the soil should be made very firm about the roots. After planting, a short stake should be put in to support each bush. Each winter afterwards they must be pruned, an operation which may be done any time after the leaves have fallen. As a rule we prune all our bushes in February, and the operation is mainly confined to thinning out the young wood where too thick and shortening that remaining. If the bushes once become too full of wood the fruit soon becomes small. Branches taken out are cut in to three eyes from the old wood, and they fruit freely on these spurs. The other shoots which go to extend the tree are left from 6 inches to 1 foot in length. The latest Gooseberries are always gathered from bushes trained on north walls, and all who desire to have this favourite fruit in good condition up to the middle or end of September should plant some bushes in similar positions.—CAMBRIAN.

SHORT NOTES.—FRUIT.

Figs on walls are this year ripening their fruit well with us here in the midlands. Though not much in favour of cutting off leaves, yet where they are dense a few may be removed to let in the sun to ripen both wood and fruit. Second-crop fruits, if of any size, should be removed now, as they are only uselessly exhausting the trees. The fruits no larger than Peas may perhaps be spared.—H.

Top-dressing pot Strawberries.—There is a danger just now of plants obtained from early layers, and which were put into fruiting pots in July, suffering from want of nourishment, owing to their having exhausted their supply of food. Blind crowns are often the result of this, but the danger is easily guarded against by giving a top-dressing of soot or some similar manure.—J. C. B.

Exhibiting fruit.—I have no hesitation in saying that I disagree with the opinion expressed by "D. T. F." as to placing three varieties of Grapes in a collection of fruit. I have myself this season placed three varieties of Grapes in a collection and was not disqualified. I certainly, however, would not have done so had I not been weak as regards one variety of fruit. I would by all means say variety ought to have its due weight, but it is, I think, wrong to disqualify a collection when the exhibitor is not prohibited by any rule of the society from placing in it three varieties of Grapes. The disqualifying process on the lines laid down by "D. T. F." has no footing north of the Tweed.—J. B.

NOTES AND READINGS.

Horticultural societies.—A Scotch newspaper thus comments on local societies:—

What appears to be a weak point at all local shows is the limited competition, the long prize lists being generally a repetition of seldom more than a dozen names. It is owing to this, we think, that local societies, admirably managed as most of them are, have a semblance of being carried on in the interests of a few who compose the committee of management and their friends, to the discouragement of the general body of members. We have often heard the remark made in connection with flower shows, "show me the committee and I will give you a good idea of the nature of the prize list." Well, human nature is frail at the best, and even the most upright committee that ever existed may have a tendency to favour friends. But while the application of a self-denying ordinance in a rigid way would probably have the effect at first of clearing away many of the exhibits altogether, a modified principle might have the best possible effect in many cases, and draw forth a much more general interest in the success of the society. Would it not be practicable to place some prizes at the disposal of the judges for articles to be sent in by the members at their own discretion, and altogether apart from the printed schedule? Members having a single plant of merit might thus be induced to contribute something which otherwise might never be seen in a show room. The aim of all horticultural societies should be by every possible means to promote the science to which they are devoted, to enlighten their members to the greatest possible extent upon the mysteries of vegetable growth, and to afford assistance and advice as to the best means of overcoming their difficulties. We have a pretty extensive knowledge as regards horticultural societies, but we do not recollect a single instance of the least effort having been made on the part of any of them to improve either the knowledge or practical skill of their members. So far as our observation has gone, the sole aim of most of the members of local societies has been to secure for themselves the greatest number of prizes offered for competition. The result is, that when individual members attain to a pre-eminent position, they have simply to walk the course and carry off the principal prizes in nearly every class.

It does us good sometimes "to see ourselves as others see us." The above extract, written presumably by a perfectly disinterested party, touches on several points of interest to exhibitors. Prize schedules are, we believe, as a rule, framed as fairly as possible under the circumstances. They are all exactly alike, for the simple reason that when a society makes a start it borrows a schedule from another society and copies it faithfully. The suggestion to offer prizes for subjects of general interest not mentioned in the prize list, nor perhaps anticipated by the committee or judges, is not new; it has in a limited way been carried out by some societies; but it is a fact, perfectly well known, that such exhibits as a rule, receive, either from prejudice or ignorance, but scant consideration from the judges unless the exhibit happens to be a bunch of Grapes or set of plants, in which case it is sure to receive due attention.

Example.—A young gardener and self-taught artist of no mean order, according to competent critics of the art, was induced to send one or two of his floral sketches to a great northern show, where liberal prizes were offered for fruits and flowers, and subjects of general interest invited. The three "practical men" who adjudicated were good enough to "commend" the paintings, and that was all. Probably none of them understood their merits. On another occasion a gardener, at considerable cost to himself, exhibited certain plants, not contemplated by the schedule, as examples of a certain method of culture and interesting to gardeners generally. The three men

who acted as judges looked at them for some time, apparently personally interested in the specimens, but vouchsafed no judicial opinion upon them whatever. Not so, however, a well-known member of the trade, who wrote to the gardener, offering to take all such examples that he could produce from year to year at a price much above the usual figure. And not only that, but one of the judges travelled forty miles out of his way the following autumn to see that year's plants; being a large grower of the same subjects for sale himself, he was not above seeking a lesson in a quiet way.

Prize schedules no doubt require to be framed, so far, on definite lines, if prizes are to be fixed according to a graduated scale; but they might be wider in their scope, and not so stereotyped in character. Horticulture presents an almost endless variety of subjects, involving skill, knowledge, and enterprise on the part of the gardener, and horticultural exhibitions should aim at drawing out every possible example of cultural interest that may be found instead of confining exhibitors to the same rule year after year with such exactness that one might almost write a general report of any show without seeing it, and almost venture to state the relative merits of the exhibits and tell who the exhibitors are.

The method of bestowing awards at horticultural shows, too, is open to question. At great exhibitions of the arts and industrial appliances the jurors chosen are experts in their different departments, and do not proceed on the one, two, three system of estimating their awards by the comparative excellence of the exhibits before them, but judge everything by some recognised standard of excellence only. Did horticultural judges proceed on this principle, very different results would be often arrived at. Hitherto the custom has been not to gauge the productions by a regular standard, but simply to give the prizes to the best examples, and, as often happens, the best are bad. Discretion is seldom exercised, and the consequences have been baneful in their effects, as could easily be shown by many examples. In fact, the first, second, and third, and sometimes fourth class system of giving prizes has several objections, and we believe this was recognised by the Regent's Park Society when it originally adopted the plan of nominally, at least, awarding gold and silver medals of large and small size, and notifying the same on the cards instead of labelling them, as is usually done. It is the same thing in the end, perhaps, but the principle is worthy of consideration.

The proposed forestry exhibition of 1885, with which it is intended to combine horticulture, will afford a good opportunity of inaugurating a new order of things as regards exhibits and prizes, and should be taken advantage of. It may be certainly predicted that if things are conducted on the old lines we shall have exactly the same kind of show as we have been accustomed to, perhaps, on a larger scale. The Fisheries' Exhibition, which the proposed horticultural exhibition proposes to imitate, has had a far wider scope and purpose in view, and so have the promoters of the forestry exhibition, if we are not mistaken, and we hope the horticultural section will be equally enterprising, and seize the opportunity to step out of the old track a little way at least.

Lilium candidum indoors.—I see one enterprising nurseryman advertising this fine old summer border plant as matchless for "winter blooming" in conjunction with the Richardia, and in a recent number of THE GARDEN "J. C. C." recommends it for forcing. It would be a most acceptable addition to our forced plants, but can it be forced successfully by lifting the bulbs in autumn, as proposed by "J. C. C.," separating them and potting them four in a pot? I think not, and that the plants are much better left in the borders. Unlike the Lilium auratum and japonicum, this Lily does not flower well the first year after lant-

ing—indeed, few bulbs flower at all. It is only when it is left unmolested in the ground, and has formed a mass of bulbs, that it flowers with regularity. What it might do in pots if such whole masses were lifted and potted we cannot say, but the practice would be wasteful. PEREGRINE.

INDOOR GARDEN.

MEYENIA ERECTA.

THERE are two forms of this *Acanthad*, one bearing purple flowers with a yellow throat, the other white, but not differing in other respects either so far as appearance goes, or in matters of cultivation. They are erect evergreen shrubs that attain a small or medium size, and are very nearly allied to *Thunbergias*, the flowers of which they closely resemble. They are easily grown, and amongst the freest of free bloomers, flowering in succession from every shoot that is made. Blooming as they do in a small state, these *Meyenias* are suitable for growing by those who are not able to accommodate larger plants. Cuttings made of small bits of the young shoots strike freely; if these are put in about the middle of April they will root in three or four weeks if kept close, moist, and shaded; when well rooted move them singly into 3-inch pots. They will grow in either peat or loam; if the latter is used, mix with it a little leaf-mould, adding sand according to the nature of the loam; give them a temperature of 65° in the night with more during the day, regulated by the heat out of doors. Do not over-water, as these plants, though free growers, are a little delicate at the roots. Give shade or not, as needed by the state of the weather. Stop the shoots to promote the growth of side branches, and give 7-inch or 8-inch pots as soon as those the plants already occupy are filled with roots. As growth extends a few sticks may be required for support. A little manure water will be of use after they have got well hold of the soil. Syringe freely overhead daily throughout the summer, regulating the amount of air by the outside temperature.

TOWARDS AUGUST they may be expected to bloom, after which they will keep on until the approach of autumn renders a reduction of heat necessary. Give less water through the winter, during which time a temperature of 60° will suffice. They may be cut in before starting to grow in spring; then again keep them warmer, and as soon as they have broken repot, giving them 2 inches or 3 inches more room. This second summer, if manure water is regularly supplied, they will not require another shift, and will bloom all through the season after midsummer. The plants may, if required, be kept on another year or be discarded, and their place filled by younger stock. These *Meyenias* come from Fernando Po, and will succeed with ordinary stove heat.

INSECTS.—These plants are somewhat liable to red spider, but the nature of their foliage is such that the regular syringing they should have daily through the growing season will be sufficient to keep this insect down, and also aphides, which are likewise sometimes troublesome. T. BAINES.

LASIANDBA MACRANTHA AS A STANDARD

CONSIDERING the length of time during which this showy plant has been in commerce and the duration of its flowering season, which lasts until very late in autumn, it is surprising to find that so little notice has been hitherto taken of it. True, its large purple flowers are short-lived, and they are produced in rapid succession and in great abundance. Generally it is treated as a stove plant, and is kept in a close, confined house, under which management its shoots become long and soft, and consequently not at all predisposed to bloom freely. As a standard it produces hundreds of flowers during the autumn months, and thus grown shows them off to advantage.

Early in spring the young plants, which should be in an intermediate house, should be encouraged to grow up with a clean stem about 3 feet in height; then stop it and pinch again, after which

place the plants in a more airy house—one devoted to *Camellias*, for instance, will suit them. There they may remain until the beginning of June, during which time they will have made some good wood, although of a rather soft character; about the middle of the same month they should be put outside, where they may get plenty of sun and air and be sheltered from high winds. In such a position they may remain until towards the middle of August, when the flower-buds will be well set, and, provided the summer is at all favourable, each plant will produce the first year a clean stem of 3 feet high, surmounted by six or eight branches about 12 inches or 15 inches long, clothed with leaves bearing a somewhat battered and sunburnt appearance instead of the clear, soft, silky foliage that one sees when grown indoors, but possessing the undeniable advantage of bearing flower-buds at each of their extremities, that is, if the last pinching has taken place no later than the middle of June. Now, these six or eight branches produced during the first year form the head of the future plant, which will be all the more shapely if the branches are kept pretty evenly balanced, for in this lies part of the secret of success. Each successive season adds to the strength of the plants. During winter they are cut back and placed in either the intermediate house above mentioned or, better still, in ainery in which there is a little warmth. There they remain until they start into growth again early in spring, when they again receive the same treatment as before. They should remain in the *Camellia* house until the beginning of June, when the growth will be sufficiently advanced to stand outdoor treatment and benefit by it. As the plants get older they gradually produce stronger shoots, and when from six to ten years old they often bear growths 3 feet long, studded all along with small flowering shoots, and it is no uncommon occurrence to see on a single plant grown in this way over a hundred flowers open at one time.

A mixture of two parts of roughly broken fibrous peat, one of fibrous loam, and one of coarse silver sand is all that is required for a vigorous growth, provided they also receive copious waterings at the roots and occasional syringings overhead during their growing season. The variety *floribunda* produces larger flowers than the type, but it is not such a strong grower, although it blooms more freely. Altogether, it is a plant of compact habit, and better adapted for places where space is limited than *macrantha*. S.

CEREUSES AND THEIR CULTURE.

UNDER this head are comprised a numerous section of the Cactus family, amongst which are some of the most gorgeous blooming subjects in the whole range of flowering plants, at one time very much more cultivated than now. In times past, when hothouses were mostly warmed by the old-fashioned flues with the dry heat they gave off, the genus *Cactus* was largely represented. True, the flowers individually do not last so long as some others, but when the plants get large they give a succession that keeps on for several weeks. The splendid colours possessed by many of the varieties, comprising the most vivid shades of red and violet, are unequalled in the whole range of cultivated plants. *Cereuses* are of the easiest possible growth, provided that a few essentials to their well-being are kept in view, requiring very little of that watchful attention which many newer and more fashionable introductions demand.

THEY PROPAGATE freely from cuttings made of good sized pieces of the shoots after they are fully matured; these should consist of a considerable portion of the preceding season's growth. If taken off in the spring they should be laid on a dry shelf for a few days to allow the base, where severed, to dry up, after which put them singly into thoroughly drained pots just big enough to hold them, filled with sandy loam; set them in a stove temperature, but not shaded or kept close in the way most cuttings require to be, or the result would be that they would rot upwards from the base; neither must they have much water until they have made

plenty of roots; just as much as will prevent the soil getting quite dry will suffice. After they are rooted keep them near the glass, with all the sunlight available, and also where they will get air daily. A less moist atmosphere suits them better than that of a modern plant stove. When they have begun to grow, put a stick to each to support them, giving water now more freely. If the cuttings have in the first instance been put in 4-inch or 5-inch pots, these will be large enough for the first year, as they do not like too much root room. Towards the end of September gradually withhold water, keeping them quite dry through the winter, during which a temperature of from 48° to 50° will answer.

IN THE SPRING, about the end of March, cut a small piece off the head of each to help them to break out additional shoots. This may not be necessary with all the sorts, as some will branch freely of their own accord, but in no case have I found stopping the points do any harm. Increase the temperature as the days lengthen, giving a little water at first, and when the shoots have got plump, and growth has fully set in, give more; then move them into larger pots proportionate in size to that of the plants according to the strength of habit in the particular kind. Use a moderate quantity of sand, and some potshreds broken small will help to ensure porosity. Continue to treat them as advised during the preceding summer with plenty of heat and sunlight in the growing season; again dry them off in the autumn and winter as before. Some of the smaller freest flowering kinds will yield a few blooms the ensuing summer. The management afterwards required will be of a simple routine character, giving more pot room as the roots need it, but being mindful never to overdo them in this respect. As the plants get large, which they will in the course of years, with the less heat-requiring kinds it will be an advantage to stand them out during July and August in the open air against a wall in the full sun, giving no more water than is required to keep them from shrivelling; so treated, they will go on and last for many years. Such species as *C. McDonaldiae* and *grandiflorus*, the night-blooming *Cactuses*, require to be trained to a wall exposed to the full sun in a warm stove, as they need a thorough ripening to enable them to bloom. In addition to the above two species—the former of which comes from Honduras, and has yellow flowers; the latter from Jamaica, and bears white flowers of an immense size—the undermentioned are all fine kinds: *C. speciosissimus*.—Crimson. From South America. *C. flagelliformis*.—Pink. From Peru. *C. splendidus*.—Scarlet. From Mexico. *C. triangularis*.—White. From the West Indies. *C. Tweediei*.—Orange. From Buenos Ayres. *C. superbus*.—Red. Mexico.

Some of the above will succeed with a lower temperature than that of the stove, but all are benefited by considerable heat whilst growing. There are a very large number of known species, but those named will in most cases be found a sufficient selection for ordinary cultivation.

INSECTS.—These plants are little affected by insects, yet aphides will often be found to attack the young growths and the flower-buds; they can easily be got rid of by fumigation. Slugs are very fond of them, and if within their reach will do serious mischief if not prevented. T. BAINES.

Lilium auratum after blooming.—When the time arrives to repot the bulbs of this Lily late in autumn, cultivators often find on turning them out of the pots that there is nothing left to pot; stem and bulb alike are a mass of rottenness. Pot after pot of what were handsome examples of this fine Lily a few months previously have to be replaced with fresh bulbs. Under careful culture there are sure to be a few losses in this way, but not wholesale destruction. The mistake is turning the plants out-of-doors exposed alternately to heavy rains and strong sunshine. The hot sunshine acting upon the pots kills many of the roots, while excessive wet following kills both roots and bulbs. The best way of treating the bulbs is not to turn

them out-of-doors at all, but to place them close together in a greenhouse where they get plenty of light and air, but are shaded from the greatest heat of the sun.—J. DOUGLAS.

MARGUERITES UNDER GLASS.

THOSE who find it difficult to keep the conservatory gay during October should grow Marguerites. Cuttings of them may be struck early in spring and grown along quickly, so that a well-established plant may be ready for its summer quarters by the beginning of June; they should then be planted in a sunny border, allowing them plenty of room. A sandy loam well worked suits them perfectly. They will do well in this through the summer, and should be large bushes, some 3 feet in height, as much in diameter, and well furnished to the ground by the beginning of September, when they should be taken up and prepared for removal indoors. Choose a dull day for this operation; be ready with a barrow-load of light loam in which a little leaf soil may be worked, and have some 10-inch pots slightly crocked. The soil and pots may with advantage be taken to the bed in which the Marguerites are growing, as much depends on getting their roots covered as quickly as possible. Exercise care in taking them up, and lift them with a large ball, as superfluous soil can be better removed by the hand than the spade. In potting leave sufficient room for a surface mulching later on. After the potting is done the plants may be placed under a north wall, and should at once be slightly staked to prevent breakage, and they should receive a thorough soaking of water. They should be well cared for afterwards in this latter respect, and an occasional damping with the syringe will also prove beneficial for a few days should the weather be hot and dry. In about ten days they will be ready for the conservatory. The above details may seem somewhat trivial, but they should nevertheless be strictly followed, as the object is to prevent the slightest check, and large bushes covered with bloom can be safely transferred in this way without a leaf or a petal being any the worse. It is difficult to name a class of plants that better repay any little extra trouble bestowed on them than these, either as regards helping to make the conservatory gay or the amount of cut blooms which they furnish. With respect to surface mulching, I should recommend it to be adopted in not more than a week or ten days after the plants are taken up. E. B.

THE ZANZIBAR BALSAM.

(IMPATIENS SULTANI.)

No decorative plant, whether flowering or fine foliage, with which I am acquainted has so quickly attained popularity as this lovely Balsam. Being readily propagated and fast-growing, strong plants of it were distributed at a comparatively cheap rate, and this, coupled with the high encomiums passed on it by the horticultural press, induced many to purchase plants of it who are not in the habit of buying novelties. A more easily grown or free-flowering plant cannot, I think, be found. Top or side shoots strike root readily in a little, not over-moist, heat, and the seeds, which are produced plentifully by plants of all sizes, germinate freely wherever they in common with other commoner varieties are scattered by the sensitive pods. Branching shoots only should be selected for cuttings, as those with bloom only will never form bushy plants. No stopping is necessary, as was fully exemplified by the very fine specimen exhibited by the Messrs. Jackson, of Kingston, at South Kensington, and subsequently at Southampton, at both of which exhibitions its merits were fully recognised. It had never been stopped, but was simply repotted as required and staked out; and, if I remember rightly, it was 4 feet high and nearly as much through. We have several in 7-inch pots grown to such a size as to be "top heavy," and very brilliant they are.

During the summer and early autumn months the temperature of a greenhouse suits it best, but more than greenhouse heat is required during the

winter months. Those who possess a greenhouse only are advised to preserve a plant or plants in the warmest end of the house, and to water carefully. In this manner, if sickly in appearance, as I know from experience, they will be under cool treatment, the stock may be preserved for spring propagation. Most probably seed will be offered next season, and those who are unable to save seed or have not yet grown this Balsam will have an opportunity of cheaply and easily raising a stock for next season. With the aid of a little heat, say in a house where the temperature does not often fall below 50° or exceed 65°, it will, provided it is given a fairly open position, flower abundantly and be of the same brilliant colour throughout the winter. The flowering tops are especially attractive on the dinner table, both sunshine and candle-light bringing out the glistening silky colour of the well-formed and arranged flowers. Any good soil appears to suit plants of this Balsam, and, although we pot seldom, that is to say, give but one shift, no matter whether large or small, they soon present a starved appearance unless liquid manure is frequently administered. As a bedding plant I consider it a failure. It certainly grows fairly well, but the blooms are not proof against our frequent heavy rains. I am not sorry for this, as if it succeeded well in the open, its value as a summer decorative greenhouse or conservatory plant would be thereby greatly depreciated. W. I. M.

MANETTIAS.

THESE form a small genus of evergreen twining plants suitable for growing on the roof of a cool stove or intermediate house. They are of a comparatively thin habit of growth, which well adapts them for draping the roof of a house where other things growing underneath do not want much shade. For this purpose Manettias might with advantage be much more grown than they are; their small, tube-shaped, bright coloured flowers are produced in such profusion as to make them very attractive. They strike freely in the spring from cuttings made of the young shoots in a somewhat immature state. These may be put in an inch apart round the side of a 5-inch or 6-inch pot in sand; if kept close and moist, they will soon form roots; after being fairly established, move singly into 3-inch pots in sandy peat. When the young plants have got into active growth pinch out their points, and place a few thin sticks for each to twine round. A moderate stove temperature suits them best, with a little shade when it is very hot; stand them in a light place, syringing overhead daily. Towards the end of June give them 7-inch or 8-inch pots, keeping the shoots from getting entangled. It is particularly necessary to attend to this until placed where they are to remain. Treat during the autumn so as to mature the growth rather than to encourage extension. A temperature of 55° will answer through the winter. In the spring the plants will require 10-inch or 12-inch pots; make the soil moderately firm in potting. Those that are to be grown as trained specimens will need either wire trellises or several sticks inserted just inside the pots; round them the shoots must be regularly trained until they have covered the whole, after which they may be allowed to ramble more freely. Where to be trained to a rafter the growths must at first be kept to the wires intended to support them till these are furnished, allowing more freedom afterwards. So far as water, heat, air, and shade are concerned, treat them as in the first summer. The plants bloom profusely, generally remaining in flower all through the latter part of summer and autumn, after which they may be partially cut in, kept cooler and drier as before during the winter. Give more pot room in spring, according to the extent of space the plants are intended to occupy. The following two species are deserving of cultivation: *M. bicolor*, flowers scarlet and yellow, a most profuse bloomer; comes from Rio de Janeiro. *M. micans* has red and orange coloured flowers, very pretty, and, like *M. bicolor*, very easily grown; it comes from Peru.

INSECTS.—Manettias are subject to red spider and aphides; the former are easily kept under by

syringing daily during the growing season. Dip in tobacco water or fumigate to kill aphides. If attacked with mealy bug, syringe with insecticide. T. BAINES.

Curcuma Roscoeana.—I am glad to see by the note respecting this plant (p. 240) that it has not quite dropped out of cultivation. It affords a welcome bit of colour in the stove at this time of the year, when flowers are not too abundant. Young specimens, too, in 4½-inch pots are suitable for room decoration. The treatment given to the general inmates of a warm house suits it very well, but it requires a considerable amount of light through the summer, or the flower-spikes become wanting in size and brilliancy.—J. C. B.

New Zealand Veronicas.—These attain on the south coast the dimensions of large shrubs, and are very useful for supplying cut flowers in autumn, but they may be turned to good account as pot plants for indoor decoration in autumn and winter; for this purpose young plants, propagated from cuttings the preceding autumn and planted out in spring, like *Chrysanthemums*, make very fine bushy little plants covered with flowering shoots. They should be lifted in September, potted in just sufficiently large pots to hold the roots, and kept shaded and moist until established. Under the shade of Vines will suit them well until they begin to grow freely, when they may be transferred to a cool, airy house, and will flower freely in the temperature of a conservatory.—J. GROOM.

Christmas Roses in pots.—I am not aware that these are generally grown in pots in what may be called specimen form, nor is it a common thing to see them grown permanently in pots, at least so far as I am aware; but I think they adapt themselves to this mode of culture better than might be expected. A neighbour of mine grows them in 14-inch pots in a very successful manner. When he first began he took up a lot of large old plants, and packed them closely together in the pots. This he did in November, just as the flower buds were getting above the soil. The plants were then placed in a cold pit, where they flowered at Christmas time. They were allowed to remain in the pit all winter, and as soon as the weather permitted they were placed out in the open, where they remained all summer, getting what water they required. They were taken under cover again in time to get the flowers open at Christmas. The number of flowers which they produced the second year was considerably in excess of that of the first. With regard to getting them in flower the same treatment is continued annually, but once in two years, in early spring, they are turned out of their pots, a good portion of the old soil is shaken away from the roots, and they are potted again in fresh material. This is all the attention they require; and I must confess that even in gardens in which this plant does well I have not seen results anything approaching the pot system.—J. C. C.

SHORT NOTES.—INDOOR.

Hedychium Gardnerianum.—In reply to your correspondent (p. 240), allow me to state that we fruited this *Hedychium* in 1879, and again in 1880, and raised plants from its seeds on both occasions. Fertilisation was not secured by artificial means.—WILLIAM COOMBER, *Royal Botanic Gardens, Regent's Park.*

5056.—**Caladiums**, as they get shabby, may be stored under any stage in the stove, with an occasional watering till the foliage disappears; then turn the pots on their sides for the winter. I prefer a moist corner for storing them where they will not get dried up. Cold is a great enemy to the tubers; also, beware of mice.—E. K.

Rhododendron arboreum.—In the conservatory at Hessel are several very large old plants of this *Rhododendron*. They are of great age, and are planted in very large tubs. The tallest cannot be much less than 30 feet high, as it has reached the top of the house. The blossoms, of which they bear large numbers, are found to be very useful for cutting during the early London season.—H.

Vallota purpurea.—This is certainly one of the brightest of autumn flowering greenhouse plants. Many make the mistake of yearly repotting this Cape bulb, but the only secret as regards its cultivation is not to disturb the roots for several years together. I have had plants of it in 4½-inch pots, five bulbs together carrying over twenty-five flower-heads, although no fresh soil had been given them for five years.—J. C. B.

Davies's seedling Rhododendrons.—Though early-flowering and sweet-scented, these Rhododendrons do not find their way into cultivation so widely as they deserve. They include five varieties, raised between *R. multiflorum* and *R. Edgworthii*. Their handsome form, stately appearance, and the rich perfume of their flowers make them valuable for conservatory decoration, and I have seen them in fine condition in Mr. Barlow's garden at Stakehill House, near Manchester. There they are grown in an ordinary cool greenhouse that can have fire-heat applied to it if requisite. They do not, however, require artificial heat, and indeed do not flower well in a warm house, an important point in their favour. During summer they may be placed but of doors in a partially shaded situation to ripen and to insure their setting their buds well. They require repotting now and then, a peaty compost being necessary for them. The varieties under notice are as follows: Countess of Derby, the flowers of which are of good substance, bell-shaped, and very large, often measuring 3 inches to 4 inches in diameter. Their colour is pure white, and they are deliciously scented. The plant is very free blooming, the smallest struck cuttings often producing flowers. In Mrs. James Shawe the flower is cup-shaped, with crimped edges, pure white, slightly tinged with rosy purple; habit good and bushy, and very free blooming. Lady Skelmersdale, which bears fine trumpet-shaped flowers with smooth edges and pure white, is bushy in habit and very free blooming. Countess of Sefton has large cup-shaped flowers with fringed edges, pure white, slightly stained with a band of rosy purple on each side of the corolla; the trusses of bloom are large, often equalling in size and fulness those of a hardy Rhododendron. This variety is more robust growing than any of the preceding. Duchess of Sutherland has large cup-shaped flowers, with fringed edges, pure white, stained with rosy purple. These plants are seldom seen at London exhibitions, a circumstance perhaps owing to their being much less known in the south than in the north.—R. D.

PLANTS IN FLOWER.

Dahlia Germania Nova.—A new and most distinct Dahlia has been sent us under this name by Messrs. Cannell & Son, Swanley. In size it is intermediate between a show and a Pompon. The florets are peculiarly cut and fringed, and so dense as to form a compact globose bloom. The colour is a pleasing deep lilac. It seems to be a decided break from the other races of Dahlia.

Carnation Grenadin.—This beautiful new scarlet border variety cannot well be over-praised. Mr. B. Hartland again sends from his nursery at Cork some fine blooms of it, cut from a line of over 200 plants, which were in flower in May, in perfection in July, and even now flowering freely. Being bright rosy scarlet, it is most effective, and would prove, we imagine, a first-rate sort for market growers.

White Lapageria.—I send you a cluster of *Lapageria alba*, carrying twenty-three blossoms on a branch just over a foot in length, cut from a plant growing here. Some seven years ago it was but a small plant in a 5-inch pot; now it covers the roof of a greenhouse 36 feet long, and has borne this summer over 1000 blooms, many of which are in clusters consisting of a dozen or more. For the last three years it has been in a slate tub, which has answered the purpose admirably.—JOSEPH B. DE BEER, *Fairoaks, Grassendale, Liverpool.*

Gloxinia maculata.—The seeming neglect into which such a fine plant as this has fallen is most undeserved, for it is one of the showiest plants now in flower in the stove at Kew. Those acquainted only with the ordinary forms of stove Gloxinias would scarcely recognise *G. maculata* as an ally, being so different from all others in growth. It has tall, stout stems (often a yard high), furnished with broad, thick, heart-shaped foliage. It carries on the upper part of the stem a spike sometimes a foot in length, from which

unfold in quick succession numerous bold, showy flowers of a soft, purplish lilac hue, and some 2 inches or more across. It has perennial roots, but makes annual stems produced from curious tuberous rhizomes. It is of easy culture in a stove in ordinary light, rich soil. It blooms from the middle of September well into winter. It is a native of New Granada.

Dahlia Zimapani purpurea.—Under this name Mr. B. Hartland has sent us from his nursery at Cork a most distinct and beautiful variety of the Black Dahlia, as it is called, but which is, correctly speaking, *Bidens atrosanguinea*. This new variety is one that Mr. Hartland has selected out of about three hundred. It is decidedly purple, and of a singularly rich tint, considerably lighter than the original; indeed, its colour is the richest we have ever seen in a Composite.

Lonicera sempervirens.—I send you some flowers of this, which I consider the most beautiful of all the Honeysuckles. It grows here (Truro) against an open south wall, and its bright scarlet trusses of bloom produce a striking effect. It is almost as bright as *Embothrium coccineum*, with the advantage of being a more continuous flowerer.—SANGUINEA.

* * The flowers herewith sent were finer than we usually see them under glass, thus showing how favourable the Cornish climate is for this and similar half-hardy shrubs.—ED.

Zephyranthes candida.—What a delightful autumn-flowering bulb this is! I saw the other day a large patch of it growing freely in light, sandy soil, and flowering profusely—charming white Crocus-like blossoms with deep golden stamens. These are freely produced, and when the bulbs are well established in a favourable position they begin to flower in August, and go on until October. It is an evergreen plant with deep olive green Grass-like foliage, and it can be readily increased by division of the roots.—R. D.

Callirhoe digitata.—This is a showy, half-hardy South American annual, much too little grown in these days. It grows to the height of 2 feet, and blooms freely from three to five months continually; the flowers are bright magenta-crimson in colour and Poppy shaped. The seeds require to be sown in heat and transplanted to a light, rich soil. A dwarf, compact-growing variety named *nana compacta* grows to about half the height, and is desirable if only on that account. The colour is cheerful, and the number of blossoms which it produces sufficiently large to have a bright effect.—R. D.

Scarlet dwarf Dahlia.—The Dahlia sent herewith was obtained from a small garden about two years ago. Its habit is dwarf, none of our plants reaching 3 feet 6 inches from the ground, and very floriferous. The colour is a rich scarlet, and the blooms are large in size. Altogether it is a very striking plant.—J. C. T.

* * A fine variety, similar if not identical with one called *Glare* of the Garden, sent out by Messrs. Cannell, of Swanley. Its colour is exactly that of *Pelargonium Henri Jacoby*.—ED.

Salvia involucrata Bethellii.—In a snug corner against a wall facing the south there is at Kew a fine specimen of this beautiful *Salvia* bearing a profusion of long spikes of rosy pink blossoms. The plant in question has been in its present position for three years; hence it may be inferred that it is almost hardy. It is freely used at this season in the embellishment of the conservatory (No. 4), and it adds admirably to the display, the plants being well grown and profusely flowered. It is, indeed, among the finest of winter-flowering plants. This variety is greatly superior to the original species.

Pentstemon Cobæa.—It is not often that one sees this plant, which has now become scarce, though some hybrid varieties are often sold for it. Flowers of the true species, however, have been sent to us by Mr. Moore from Glasnevin, where it has long found a home. It is distinct from all other cultivated *Pentstemons* in having flowers almost as large as those of *Cobæa scandens* and of

unusually thick texture. The colour is a violet-purple with a whitish throat. We have not seen it in gardens about London since Mr. Joad's collection was dispersed.

Haplocarpha Leichtlini is the name recently given to a very handsome Composite resembling the common *Gazania*. The flowers are large, the florets slender and slightly reflexed, and of a bright golden yellow, a colour that blends admirably with the foliage, which is covered with a whitish down. Judging from the appearance of the plant, we should doubt its absolute hardiness, but it would thrive well, under frame or greenhouse culture, and would be a capital subject planted out in a dryish part of an unheated greenhouse. It is also called *Gorteria acaulis*. There is a fine plant of it at present in flower at Kew in a cold frame.

Berberidopsis corallina.—I send you some flowering sprays of this very beautiful, but little known climbing shrub, but the gale of September 1 so damaged it, that the specimens sent give but a poor idea of its beauty. It is perfectly hardy here, most distinct in flower and foliage, and I think is not nearly so well known as it deserves to be. It seems to grow and flower freely if planted in peat and placed against a south wall.—SANGUINEA.

* * Our correspondent resides in Cornwall, the climate of which just suits this beautiful Chilean shrub. It is indeed a plant that should adorn every greenhouse roof or open wall in the warmer parts of the country.—ED.

Primula floribunda.—There is a prettiness and neatness about this little Indian Primrose that commend it to the notice of everyone, though its flowers are rather insignificant compared with those of its congeners. The blossoms are about the size of a threepenny piece, and of a rich, warm yellow. They are so abundantly produced as to well justify the application of the specific name. Though not hardy, it is a capital plant for frame and greenhouse culture. Its long and continuous flowering character, too, is a recommendation. It has flowered at Kew continuously for several months, and some plants of it are still covered with bloom. As it produces seeds in abundance it ought soon to become common.

Clematis graveolens.—This is a variety of *C. orientalis*, and the only species in gardens which bears yellow flowers. The blooms are nearly as large as those of the common *C. Viticella*, and of a peculiar shade of yellow, rather inclined to be greenish. It is supposed to have a foetid odour, but that in this case is not very evident. A large plant of it on the warm side of an open wall at Kew has a pretty effect at the present time, being profusely beset with bloom. Its colour, and, above all, its late flowering habit should be taken advantage of by hybridists. The result might be a late flowering race of *Clematises*. *C. orientalis*, the type, is also in bloom, but is not so attractive, the colour being greener.

Double Daffodils.—Will Mr. Brockbank favour us with an exact description of the great Rose Daffodil? On coming into my present garden I found a number of clumps of common double Daffodils very much crowded. These were moved into fresh turfy loam where they bloomed well. One flower was the perfection of a double Daffodil, being five perfect single flowers inside each other. The outer tube was very much widened; inside that were six rays, then a second perfect tube, and so on to the centre. The distinct pale rays, contrasting so nicely both in form and colour with the fringed mouths of the tubes, made the flower very attractive. I intended saving and propagating that particular bulb, but neglected to mark it, and that flower has never reappeared; all have been very large since, but only a confused mass of frilling and rays. Some bulbs which were thrown out and planted again after January became almost single, the tube becoming narrow and long, and filled with frilling and two or three rays only.—J. DUNDAS.

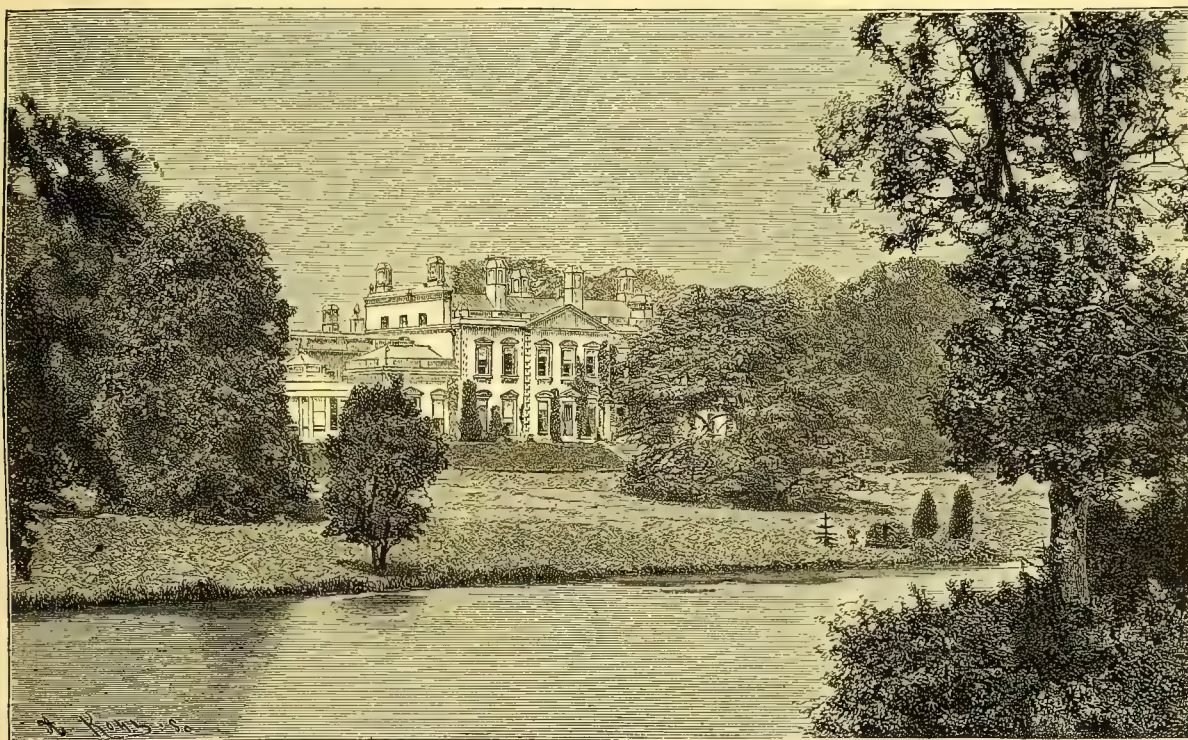
ASTROP HALL, NORTHAMPTONSHIRE.

NORTHAMPTONSHIRE is proverbially famous for its springs, its spires, and its squires, and the proverb might well have included its noble mansions. The peculiar natural features of the county, the fertility of its soil, its fine scenery, and its many pleasant sites have doubtless all combined to render it the chosen county for the homes of great landholders, many of which can boast of ancient lineage. Quite typical of these fine seats is Astrop Hall (the residence of Sir William Richmond Brown, Bart.), the subject of the annexed illustration. There is nothing pretentious about Astrop from a gardening point of view, but its grounds may be regarded as typical of those belonging to a quiet English country residence, embodying a considerable amount of merit as regards design

mirably suited to the surroundings. Viewed from the point from which our sketch was taken, the house has a fine appearance. The country hereabouts is not very diversified, but the house occupies the crest of a slight ridge. On the south the ground slopes gently down to a lake, while beyond the water it mounts up so as to form a considerable hill. The latter is beautifully wooded at its summit with old timber trees.

THE NATURAL TREE GROWTH consists chiefly of Beech and Oak, and among smaller trees Thorns, of which there are numbers of grand old specimens that, when in flower in early summer, must be strikingly beautiful. They seem to thrive uncommonly well here, a circumstance doubtless attributable to the soil—a deep, stiff, dark loam. Another native tree that thrives here in perfection

absolutely refuse to thrive in the natural soil, despite every attention. Of these the most notable is the Deodar, of which there is not a good example about the place, though sickly trees of it meet one at almost every turn. This is to be regretted, for Deodars rightly planted would add largely to the beauty of the landscape. The near neighbour of the Deodar, the Atlantic Cedar, thrives somewhat better, but not so well as it should. The grand Lebanon Cedar is likewise an unsatisfactory tree. As shown in the engraving, there is, however, a rather fine specimen of it on the slope running down to the lake. This, too, is unfortunately showing signs of premature decay, and, large as it is, it bears the stamp of a tree that has made its growth under unfavourable circumstances. Judging by its appearance, it



Astrop Hall, Banbury.

and containing fewer blemishes than one is apt to meet with in gardens laid out in the modern style. Astrop lies just within the borders of the southern extremity of Northamptonshire, some six miles from Banbury, and near the little village of King's Sutton. The hall itself is not old, but Astrop acquired some celebrity during the first half of the last century on account of some medicinal properties being discovered in the water which sprung from what was known as St. Rumbald's Well. It was a favourite resort of the Oxford people and others, but its popularity soon declined, till now it is almost unheard of as a watering place. The hall was, we believe, originally built by Lord Chief Justice Willes. It is a handsome mansion, entirely built with a soft-toned stone, quarried in the neighbourhood, and its dignified aspect is heightened by its uniform proportions. Since it came into the possession of its present owner it has been considerably modified and enlarged and otherwise much improved. The site of the house, its style and colour are ad-

is the Yew, of which there are many noble specimens, and to their sombre hue, in contrast with the lighter foliage of other trees, the garden and park landscapes owe much; in fact, the Yew trees form quite a distinctive feature of the place and nowhere have we seen them in better condition. It would be well if the Yew were oftener planted than it is in localities where it does not naturally exist, for it may always be relied on to withstand the vicissitudes of our climate; and where soil and situation are favourable to its growth, as at Astrop it soon forms fine specimens, far more satisfactory than half the untried exotic Conifers which it is the fashion now-a-days to plant indiscriminately in every garden. The natural soil here is a heavy loam with scarcely a particle of sand in it. It suits certain kinds of Conifers to perfection, notably the Douglas Fir, *Picea nobilis*, *Wellingtonia*, Nordmann's Fir, and the common Spruce; these flourish as well as could be desired, and young trees quickly rise and develop into fine specimens. On the other hand, there are some that

seems to have been planted about the same time (1730) as the magnificent trees of this Cedar that exist at Warwick Castle, Goodwood, Painshill, and other places, but it is not half their size. Among other Conifers that fail here are the *Araucaria*, *Pinus Sabiniana*, *insignis*, and *macrocarpa*, but the Austrian and Weymouth Pines do admirably. Turning from these unhealthy Conifers to the grand old Yews already adverted to, one of which is shown on the lawn to the left in the engraving, is quite a relief.

THE DECIDUOUS TREES, however, represent the real beauty of the tree growth at Astrop. Near the south front of the house is a magnificent Beech, the spread of whose branches is enormous. This tree was evidently beheaded in its youth, the result being a multitude of branches springing from a point near the ground. This beheading seems to have been a general practice here, for many trees, including a whole line of Spruces, have branches similarly produced—the result of removing the primary leader. Other noble trees

consist of both the Eastern and Western Planes (*Platanus orientalis* and *occidentalis*); Oaks, including the almost evergreen *Lucombeana*, and Maples, including *Acer campestre*; Sycamores, Tulip trees, Limes, Elms, common Ashes, and flowering Ashes (*Ornus europæus*), of which there is here probably one of the finest trees in the country. It has a huge bole and a gigantic symmetrically rounded head. A great many of these deciduous trees are densely covered with Ivy, which makes them green in winter. Some of the Ivy stems are as thick as a man's thigh. In almost every instance, however, where the Ivy is so rampant, the supporting tree shows indication of ill-health, caused, no doubt, by the Ivy. It is so beautiful, however, in winter, that it would be a mistake to destroy it. Astrop is one of the few places now existing where the park comes up to the carriage entrance front. This was common at one time, but now it is usually considered best to separate the park from the grounds immediately surrounding the house by means of a fence or ha-ha. The practice has its advantages and drawbacks. The advantage is that it does away with an unsightly fence, and consequently gates near the front entrance; on the other hand, cattle in such close proximity to the house are apt to be troublesome.

THE LAKE, a fine piece of ornamental water, is some 700 yards in length, and of proportionate breadth. It occupies a natural valley immediately below the south or principal front of the mansion, as shown in the annexed engraving. Originally a small brook flowed through the valley, and by forming a dam at a distance down the stream the water filled the hollow without very much labour in the way of embanking. The outline is so contrived as to make the lake appear to be much larger than it really is, and by placing the dam just inside a wood the extremity is admirably concealed, the lake apparently losing itself in the wood. The overflow passes over a steep rocky cliff consisting of huge boulders, over which the water tumbles with all the vivacity of a mountain stream. From a walk made round the margin of the lake, pretty glimpses of the home landscape can be obtained. Close to the water's edge has been planted ornamental, deciduous, and evergreen trees. In one part there is a charming combination, which, whether the result of accident or design is unknown, but be that as it may it is very pretty. It consists of a huge variegated Sycamore, probably the largest of its kind in the country; a fine tree of the ordinary Sycamore, and immediately in front of the variegated tree a specimen of the deciduous Cypress—a trio forming a grand group, the feather foliage of the Cypress being of a bright lively green, in charming contrast with that of the Sycamores. The lake forms the chief water supply of the place. It is conducted to a filtering bed. It then runs into a capacious reservoir, from which it is pumped by horse power to the various cisterns in the mansion and elsewhere constructed for its reception.

THE KITCHEN GARDEN, a spacious walled-in area, is of the usual stamp, and is calculated to yield a supply for a large household. In speaking about the Pea crops to the veteran gardener, Mr. Leggett, he remarked that during the forty years he has grown vegetables he has found no Peas to equal the British Queen and Champion of England, two sorts on which he relies every season for his Pea crop. There are some

excellent Peach houses of antiquated build, but admirably suited for Peach culture, as may be inferred from the fact that over 400 Peaches have been gathered this season from four trees. The range of vineries is of modern construction, fitted with all the latest improvements by Messrs. Perry, of Banbury. The Vines Mr. Leggett grows chiefly are Muscat of Alexandria and Mrs. Pince. The latter is a particular favourite, and the crop this year is a grand example of successful Grape culture, the bunches being unusually heavy, the berries large and admirably coloured. A little matter of detail to which Mr. Leggett strictly adheres is tying the Vine rods at a distance of about 9 inches below the rafter. By this means the laterals can be tied out without fear of twisting or breaking, as is often the case where the rods are fastened close up to the rafter. A large ridge-and-furrow greenhouse is used for plants, and a handsome conservatory attached to the mansion completes the glass department. This conservatory has a very pretty effect. The roof is festooned with creepers such as *Tacsonia*, *Lapageria*, and the like; the walls are covered with *Ficus* and other plants, while the beds are carpeted with Maiden-hair, *Pteris tremula*, *Selaginellas*, and subjects of a similar character that do not require much artificial heat. The most noteworthy plant in this house was a fine specimen of the rather rare Fern, *Polypodium appendiculatum*, which has fronds somewhat like those of the common native *Polypody*, but larger, and every part of their surface is exquisitely netted and dotted with crimson-red on a deep green ground. It is an extremely elegant Fern for a cool conservatory. W. GOLDBRING.

CRAGSIDE, ROTHBURY.

Polygonum Brunonis is a very attractive plant in early autumn, grown as it is at Cragside, near Rothbury (Sir William Armstrong's beautiful seat), in masses 6 feet to 8 feet across on the peaty deposits of the millstone grit rock; the position seems to suit the plant and to bring out its best qualities. Its rich, rosy pink blossoms, produced in profusion, brighten the rocky banks wherever it appears. Although it grows freely with me, it blooms with far less profusion and lacks the rich hue of colour it exhibits at Cragside.

Growing in a recess on the rocky hillside through which a thin springlet filters, *Linnæa borealis* spreads thickly over the half-shaded stony ground. It is seldom in cultivation that this interesting little plant is found in such vigorous health. It is always a pleasure to meet with it, recalling recollections of Norwegian Fir woods, alpine forests, and Scottish hills, and, above all, the great naturalist whose name it records; but Cragside is a happy hunting-ground for the botanical student. The fortunate disposal of the plants, their judicious selection, the rocky heights on which they are seated, all assist the idea that Nature has here been bountiful indeed, and has with no niggard hand spread her rich store of lovely plants.

We find rambling over the rocks, or spreading far over the less abrupt spaces where the waste of the rock has accumulated, rare Saxifrages, Heaths in great variety, the alpine *Rhododendron*, and other plants, not seated in prim precision, and individually isolated with trimly raked ground about them, but in glorious profusion masses of each kind of plant, and it is only in masses that the true natural features of some plants can be realised, one kind merging into another, and clothing the lofty heights from the lake at their base to the towering crests that rise far above the noble and appropriate residence. *Rhododendrons* are largely planted and distributed wherever resting-places on the declivity can be found. There is a temptation to make these showy results of horticultural skill

too prominent a feature. They appear to have found a congenial home, and grow and bloom freely, but the dwarf hardy shrubs enjoy a large share of the hillside. *Cotoneaster microphylla* and *thymifolia* spread naturally over the rocky ledges. *Gaultheria Shallon* has been appropriately and extensively planted, and lends its peculiar charm to the place. Intending merely to notice *Polygonum Brunonis*, I have been led on by the recollection of the many charming features of this grand rock garden, which deserves a more elaborate and detailed description. WM. INGRAM.

Belvoir.

BENEFIT SOCIETY FOR GARDENERS.

ON two or three occasions lately "Peregrine" has made allusion in the columns of THE GARDEN to the want of a society that will afford some provision for gardeners other than that furnished by the Gardeners' Royal Benevolent Institution. The defects of this institution are everywhere acknowledged, and it is the subject of frequent remark that but few gardeners comparatively subscribe to its funds. The reasons for this abstinence are not far to seek, and some of them have been set forth by "Peregrine." That the objects of this society are highly praiseworthy no one will attempt to deny, but the benefit to be derived from it is to very many so remote that interest in its work is reduced to a minimum. Some gardeners attach themselves to benefit societies like the Foresters and Odd Fellows. Let me, therefore, direct attention to the objects and aims of the United Horticultural Benefit and Provident Society, established in 1866, as a means of providing something better than the Gardeners' Royal Benevolent Institution. I can write with certainty as to its present position. I am one of its honorary members, and for two years past I have presided at its annual meeting. The government of this society is wholly invested in the members, who must be gardeners, though if a member should change his occupation he is not thereby excluded from its benefits. No new rule can be made or a rule altered without the sanction of a majority of the members at a special or general meeting. The committee for the time being are chosen from among the members, so that they understand fully the circumstances and requirements of those who seek benefit from the society. The expenses of management are kept at the lowest possible level; the society is a marvellous illustration of economy in this respect. The rules protect the interests of the members in every way, so as to render fraud next to impossible, that is, granting that the books of the society be examined at stated periods as provided by the rules, and this is done by the committee and auditors. Any book can be inspected by a member who may call upon the secretary for that purpose.

There exists in the society a sick fund, a benefit fund, a benevolent fund, and a deposit fund. There is one particular exemption in the benefits afforded by the society. There is no distinct sum provided for the expenses of burial, but a member's deposit is supposed to meet this deficiency. All contributions to the benefit fund become the sole capital of the individual subscribing. I cannot, in this space, go into the various bearings of the deposit fund, but it is highly satisfactory. The dispensation of the benevolent fund is not confined to cases of old age, but varies according to circumstances. Supposing a member to be sick beyond the time relief is allowed, then he will become a recipient of this fund if he is destitute of resources to supply his immediate wants. There are other advantages that are fully set forth in the rules. I would simply recommend a reference to them. The secretary is Mr. J. F. McElroy, The Gardens, Moray Lodge, Campden Hill, Kensington, and the treasurer is Mr. James Hudson, The Gardens, Gunnersbury House, Acton, both of whom will gladly supply all necessary information.

Let me conclude by making an earnest appeal on behalf of this useful and flourishing society. Many can help it by becoming honorary members of one guinea. Mr. William Paul, Mr. B. S. Williams, and other well-known horticulturists, ama-

teur and professional, are among the honorary members. It is a society particularly well deserving the attention of young gardeners, and I heartily commend it to their notice.

Eating.

R. DEAN.

AN OLD VICARAGE GARDEN.

(DATE 1681.)

THIS garden is one calculated to afford pleasure to anyone who cares for the picturesque. The late vicar let everything run wild, and I have persuaded the present one not to touch the climbers further than is necessary to prevent their choking each other. The garden front is one tangle of Virginian Creeper, old Ivy covered with bloom, climbing Roses, Vines, white Passion Flower, and a Thorn with clusters of scarlet berries. The front of the little terrace near the house is in the same picturesque tangle, and the little patches of crumbling brickwork will suit for Cheddar Pinks, *Corydalis lutea*, Saxifrages, &c. The wall of the vegetable garden is covered with old climbers, and the border at the foot of it will suit *Ixias*, *Gladioli*, and *Chrysanthemums*. The garden door of the house goes directly out of a room without any passage, and opens on a narrow terrace. Next comes a little lawn and a few flower beds, and then an archway covered with a great mass of old Ivy opens into the vegetable garden, the path going down a gentle slope and passing on to a little patch of turf, of which I shall make good use in the way of gardening on the Grass. There are plenty of wild *Colchicums* in the meadows near, some beautiful snow-white ones and all shades of deep purple. Lily of the Valley grows wild here, and several *Campanulas*, *Primroses*, and the wild *Columbine*. A continuous walk runs round the garden with a 3-foot border between it and the boundary, and another border between that and the fruit trees which bound the vegetable plots. These fruit trees are old and Moss-grown—many too old to bear. They seem to have been always as they are now, trained with two horizontal laterals at bottom, from which spring shoots trained vertically. They are now weird, gnarled, twisted-looking things. The part of the garden furthest from the house contains some large old fruit trees, and the farthest edge of it is very much shaded by tall trees outside. There is every variety of position in the borders, sheltered and exposed, sunny and shady. The ground first slopes south-west, and then tilts up sharply to face the north-east. In winter and in wet weather the water rises from the chalk underneath, and runs in the hollow. Water can always be got there, so I shall institute a bog bed at that part. The character of an old place like this should not be interfered with; so I shall only add a few climbing Roses and Clematises to the walls, and fill the borders with a stock of hardy plants. I hope to be able to send you from here some good sketches of picturesque gardening. There are plenty of old Roses—old Albas and Damasks they seem to be. The front garden is perfectly level. The soil seems to be a rich bed of sandy loam washed down from the chalk hills around.

J. D.

The weasel in the garden.—The depredations of short-tailed field mice have been so serious in my garden that I welcomed as benefactors a colony of weasels which lately settled here, and which have been seen four at a time, one or two being nearly always about. I am aware, however, that they do not confine their attentions to the field mice. A few days ago I saw a large frog hop out of a bush in great alarm, followed by a weasel, which seized him by the crown of the head and carried him off—a good load for so small an animal. A few days ago my wife observed one of these weasels performing some strange gymnastic feats on a tennis lawn before the drawing-room window, and a number of thrushes were looking on round it, apparently much interested in the exhibition. The little creature seemed as if it was tying itself into a knot or rolling head over heels like a ball, moving first in one direction, then in another; all of a sudden it straightened itself out, and made

a spring upon one of the thrushes, which it caught and dragged into a bush. My gardener had told me that he had seen it trying a similar plan with some tame young pheasants, but without success.—C. W. DOD, *Field*.

TREES AND SHRUBS.

ESCALLONIA SELLOWIANA.*

WHEN Loudon's "Arboretum et Fruticetum Britannicum" was published, only some half-dozen species of the genus *Escallonia*—out of the aggregate of about a couple of scores now known to exist—were cultivated in British gardens. A good



Spray of Escallonia Sellowiana.

many have found their way to this country within the last twenty or thirty years, and, in spite of the fact that probably none, except under favoured circumstances, are able to withstand the severe winters which occur every few years, will no doubt continue to hold their places in the affections of most growers of out-door plants. The beauty of the foliage and flowers of so many of them amply atone for the slight uncertainty by which they are surrounded, and as they admit of easy propagation by means of cuttings, and grow rapidly after being planted out, it is thoroughly worth while to put in every autumn a few cuttings of each kind in pots in a cold frame, and so be prepared to make good the losses occasioned by unexpected frosts or exceptionally severe winters. In the south and south-west of England some species grow very freely, and are most valuable for the decoration of gardens and places exposed to direct sea breezes, which often prove so great an obstacle to the cultivation of the more tender plants. *E. macrantha* especially forms under such conditions a splendid hedge, its luxuriant dark green foliage and handsome red flowers giving quite a tropical character to the scene. Away from the sea in many places, both in England and Scotland,

* IDENTIFICATION.—*Escallonia Sellowiana*, D. C. Prodr., vol. iv., p. 4; Engler in "Linnaea," xxxvi., Hft. v., 1870, p. 565; *E. resinosa* var. *dodonaeifolia*, Chamisso in "Linnaea," 1826, p. 515.

the *Escallonias* are, as a rule, practically safe when grown as wall plants, and no more beautiful shrubs could be selected for such positions. In Colonel H. M. Drummond Hay's pamphlet—"The comparative hardihood of hard-wooded plants, from observations made at Seggieden, Perthshire, during the winters of 1878-79, 1879-80, and 1880-81"—the *Escallonias* are placed under section 3, which includes "those that have been killed down to the roots or suffered so severely as to require to be cut down, but have again completely recovered and made good growths." The author of the work just mentioned says: "Excepting on a wall, the *Escallonia* is scarcely to be depended on with me. Several bushes of ten years standing were all killed. *E. macrantha*, from its habit of growing out to the wind, is used in the Scilly Islands as a hedge plant, where it is invaluable for the protection of more delicate things."

The genus *Escallonia* is confined to the South American continent, throughout which it is widely distributed, but it does not occur in Tropical Brazil and Guiana. The different species differ most widely in appearance, some of them not yet introduced exhibiting remarkable characteristics in size, habit, &c. For instance, *E. pendula* forms a tree from 30 feet to 50 feet in height, with leaves as large as those of the common Laurel, and long, somewhat dense-flowered racemes from 1 foot to nearly 1½ feet in length, whilst *E. myrtillodes*, which no doubt would be welcomed by lovers of rock plants, has prostrate branches and small leathery leaves, almost the exact counterpart of those of our native Bearberry (*Arctostaphylos Uva-ursi*). *E. polifolia* is also a dwarf grower, with large-sized solitary flowers and erect branches clothed with narrow leaves with strongly recurved margins; as far as the foliage characters are concerned, this resembles very closely our only native *Andromeda*, *A. polifolia*.

The species of which an illustration is herewith given is new to British gardens. It was raised some few years ago from seeds sent to the Royal Gardens, Kew, from Uruguay. The plant is of slender twiggy habit, with smooth leaves from 1 inch to 1½ inches in length, and panicles of pretty starry white flowers. It is certainly a welcome addition to the list of half hardy ornamental shrubs. The accompanying figure of *E. Sellowiana* is the only one of that species which has ever been published either in English or foreign works.

GEORGE NICHOLSON.

Royal Gardens, Kew.

FORESTRY FOR OCTOBER.

ABOUT the end of this month all sorts of forest material will be in a fit state to be planted out where it is to remain. Continue fencing, draining, and opening pits for young trees, so that no time may be lost when the planting season is commenced. Soils of a stiff, clayey character will be improved by being broken up and exposed to the weather for some time previous to planting; dry, sandy, or gravelly ground may, however, be planted at once without any previous preparation in that respect. Scotch Fir and Larch to be planted on dry heathy moor ground—by the notch system—always succeed best when done in autumn; therefore operations should be pushed forward with vigour before winter sets in; damp, mossy, and cold, stiff clay, however, had better not be planted till spring.

FINISH PRUNING HEDGEROW and forest trees, and remove the loppings as the work proceeds. Thin young plantations and grub up Broom, Furze, and all rubbish likely to impede the free circula-

tion of air among the young trees. Mark and fell heavy timber in the forest when hands can be spared to do so, so that it may be ready for removal at a time when hard frost stops other work. Clean drains, and collect leaves from roads and walks, and store them away to rot for manure. See that all fences and gates are in a proper state of repair before winter sets in.

SOWING GRASS SEEDS.—This is a proper time to drain, trench, and prepare patches of ground in sheltered situations in the deer forest to be sown with Grass seeds in spring. The best Grass for this purpose is Cocksfoot (*Dactylis glomerata*); it is hardy and grows on a great variety of soils, provided they are tolerably dry. It thrives under the shade of trees if not too crowded, and produces strong conical tufts much relished by deer in winter when food is scarce. Collect Beech mast, Oak Acorns, Chestnuts, and Walnuts, and sow at once or store them away in a cool, airy loft till spring. Gather seeds of Conifers as they ripen; these need not be removed from the cones till spring. In the nursery department two-year seedling Scotch Fir and Larch may be bedded out or planted in nursery rows; the ground used for the purpose should be such as has carried a crop of Potatoes. As soon as the young trees have been removed from the nursery the vacant ground should, if poor, get a dressing of well decomposed manure, and be immediately trenched, dug, or, better still, thrown up into rough ridges to be exposed to frost during the winter. If not already done, finish putting in cuttings of evergreens, &c. See that all nursery fences are in perfect order and rabbit-proof.

SHRUBBERIES.—Push forward the formation of new shrubberies and remodel and improve old ones where necessary. Collect leaves, twigs, and all sorts of rubbish from pleasure grounds, and peg down Rhododendrons, Laurels, and other shrubs in places where it is desirable to extend covert. Plant ornamental trees for scenic effect on the lawn and elsewhere where wanted, and see that all such are properly staked and tied, in order to prevent wind-waving; repair roads and walks where necessary, and push forward alterations and improvements of every kind while the weather is open and favourable. J. B. WEBSTER.

Hypericum oblongifolium has received attention in your columns lately. It is a shrub of surpassing beauty, by far the best of the family, and much superior to its kinsman, *H. patulum*. I have just measured a Myrtle on a wall here (Wigtownshire); it is 20 feet high, girths 16 inches at 6 inches from the ground, and the main stem is 9½ inches in girth at 3 feet above the ground. In a few days it will be a sheet of white blossom. As a standard it is apt to succumb to severe winters; still, some good bushes survived the hard winters of 1880, 1881, and 1882.—SALMONICEPS.

Pinus Banksiana.—In the July number of the *Bulletin of the Torrey Botanical Club* Mr. N. L. Britton calls attention to the fact that botanical writers have commonly under-stated the size of Banks's Pine (*Pinus Banksiana*), Gray describing it as "a straggling shrub or low tree," and other authors giving its maximum height at from 20 feet to 40 feet. Mr. Britton then states that he has found trees in the vicinity of Marquette, on Lake Superior, that measured 70 feet in height, but he overlooks the detailed observations of Mr. Bell, who tells us that on the southern branches of Albany River, south-west of Hudson's Bay, he saw "large groves of these trees about 70 feet in height and 2 feet in diameter at butt, with straight trunks nearly free from branches for the first 20 feet or 30 feet." I have myself seen Banks's Pine growing in abundance at various places along the lower river and Gulf of St. Lawrence and at Newfoundland, and have found many trees at Godbout and Seven Islands that were upwards of 50 feet in height, and some that exceeded 60 feet. In the province of Quebec it is largely used as fire-wood, and along the north shore of the river it has become an article of commerce of no inconsiderable value, thousands of cords being

shipped annually to Quebec. It is here called Cypress. In American manuals the species is commonly, though very improperly, termed the Northern Scrub Pine. Its habitat is in the far north, where it attains its maximum development, constituting one of the larger forest trees. Only beyond the limits of its proper range does it occur as a "straggling shrub," or merit the appellation of "scrubby." Mr. J. A. Allen, in treating of the correlation of size with geographical distribution in mammals, has tersely formulated the following law, which is as strikingly applicable in the present case as in any member of the group for which it was particularly framed: "The maximum physical development of the individual is attained where the conditions of environment are most favourable to the life of the species. Species being primarily limited in their distribution by climatic conditions, their representatives living at or near either of their respective latitudinal boundaries are more or less unfavourably affected by the influences that finally limit the range of the species."—C. HART MERRIAM, *Locust Grove, N.Y.*

THE EDINBURGH FORESTRY EXHIBITION.

QUIETLY, but energetically, the executive committee charged with the arrangements for this great undertaking are pushing forward the preliminary measures necessary to ensure its success. Without any direct appeal to the public, the guarantee fund has already mounted up to about £3500. While no date has yet been fixed for the holding of the exhibition, it is generally understood that the most suitable period for it will be the months of July, August, and September next year. Entries, it is said, will close on the 1st of March next. The nature and scope of the exhibition will, perhaps, be best understood from the following abstract of the proposed classification:—

In Class I., "Practical Forestry," will be exhibited implements, tools, &c., used in forestry, draining, and enclosing, models of foresters' huts, charcoal kilns, and timber slips, plans of river bankments, rafts, and appliances for floating timber, models of machinery for transporting timber and transplanting trees, sawmills, wood-working, and pulp machinery of every description, and fencing materials.

Class II., "Forest Produce," will embrace collections of timber specimens and ornamental woods, woods used for ordnance, for railway purposes, and for pavements, cooperage, wood carving and turnery, basket and wicker work, fancy wood work, wood engraving, tanning and dyeing substances, barks, including cork fibres and fibrous substances, material for paper manufacture, gums, resins, wood oils and varnishes, &c.

Under Class III., "Scientific Forestry," will be ranked botanical specimens of forest flora, microscopic sections of woods, fungi and lichens injurious to trees, forest fauna injurious to woods, useful and noxious insects, preservative processes applied to timber, geological specimens and diagrams illustrating the different formations adapted to the growth of trees, fossil plants, and trees found in bogs.

Class IV., "Ornamental Forestry," will consist of growing specimens of rare and ornamental trees and naturalised species, in tubs or otherwise, rustic work, arbours, seats, bridges, &c.

To Class V., "Illustrations of Forestry," will be relegated paintings, photographs, and drawings of remarkable and historical trees, foliage and scenery, illustrations showing the effects of blight, accident, or any abnormal condition, and sketches of work and operations in the forests.

In Class VI., "Forest Literature and History," will be found reports of forest schools, forest periodicals, and other publications, treatises on measuring and valuing wood, forest floras of different countries, treatises on fixation of dunes and on ancient and extinct forests, working plans of forests and plantations on estates, valuations, surveys, &c., maps and charts illustrative of the geographical distributions of forest trees and their altitude.

Under Class VII. will come essays and reports on specific subjects for which premiums are offered. Under Class VIII. loan collections. Under Class IX. economic condition of foresters and woodmen. Class X. will contain miscellaneous exhibits.

Among the places from which exhibits have already been promised are Ceylon, the Andaman Islands, Jamaica, Canada, California, the United States of America, and New South Wales; while the famous forestry schools of France and Germany are expected to be adequately represented, as is hoped may be also the forests of Norway and Sweden, Cyprus, Greece, and Italy. Application has been made to the heads of the forest departments in the different Presidencies of India, and many of those gentlemen, being personal friends of members of the committee or of the honorary officials, are expected to render hearty co-operation. Communications have also been addressed to the various foreign ambassadors, with the view of obtaining for the exhibition the recognition of their respective Governments; and thus far the results in this direction have been of the most satisfactory character. The literature of the subject is likely to be illustrated by reports of the schools of forestry in all parts of the world; and in this connection occasion will be taken to show the strong claims which Edinburgh has for the establishment of such a school, while abundant material for the practical education of students is to be found all over the country. Closely allied to this branch of the subject is the preparation of plans showing the age of trees and the stage of growth at which cutting should be, or has been, resorted to—a mode of procedure which is said to be confined in Scotland to the Grantown estate of the Earl of Seafield, under the management of Mr. J. G. Thomson, though the practice is said to be largely and advantageously pursued in other parts of the world. By the preparation of such plans the proprietors of forests are said to have been led to take a greater interest in the woods on their estates, and so to have been enabled the better to direct their management, preventing over-felling in some seasons, guarding against overcrowding at other times, and thus rendering the plantations less liable to the ravages of such a gale as that of October 14, 1881. The loan section of the exhibition will, it is anticipated, prove to be one of the most attractive of all, including, as it is expected to do, notable specimens of carving, wood engraving, and several other kindred arts, from various quarters.

Wasps and wasp stings.—There have been several cases recorded lately of the death of persons who had been stung by wasps. This may, I think, be accounted for by the fact that at this time of year wasps begin to lose their accustomed energy, and creep and crawl about, so that persons are much more likely to come in contact with them than they are when the wasps are active and busy providing food for the grubs in the nest, and consequently more persons are stung at this season than earlier in the year. It, however, rarely happens that the sting is fatal, and a person in a thoroughly healthy state seldom suffers more than a passing inconvenience, unless stung in some particularly tender place. The poison of a wasp's sting, and indeed that of all insects, is of an acid nature; therefore, to neutralise the acid and alleviate the pain, an alkali in some form should be applied to the suffering part. Spirits of Harts-horn, washing soda, soft soap, the juice of an Onion (if the sting be within the mouth or throat a piece of an Onion should be chewed and the juice slowly swallowed), or bruised Dock leaves are perhaps the easiest and most convenient alkaline remedies to apply; if possible suck the place well, and make it bleed slightly, and then rub in one of the above mentioned remedies. Keep as cool in every sense as possible. The queen wasps, numbers of which may be found in one nest, will soon be leaving their nests in search of winter quarters—such positions as snug places in out-houses, under roofs, in lumber rooms, and, in fact,

anywhere where they can creep in and find warmth and dryness. They should always be destroyed, as each wasp, if it lives, will form a nest next year.—G. S. S.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 282.)

GYMNOPTERIS QUERCIFOLIA.—This is the only species of this small genus that is worthy of cultivation. It is a very interesting and totally distinct evergreen dwarf-growing species from Ceylon, with barren and fertile fronds quite different from each other; the former, which seldom reach more than 4 inches in length, are somewhat the shape of an Oak leaf; hence the specific name. The latter are of a dark green colour, and wholly covered with sporangia; they are much contracted with segments linear, erect, halbert-shaped, and about 7 inches or 8 inches in height. It is also known under the name of *G. Neitneri*, and is a valuable little plant for Fern cases of small dimensions, where it is easily grown in a mixture of two parts of fibrous peat to one of chopped Sphagnum and one of silver sand. It requires but very little water at the roots, a too great abundance of it causing the barren fronds to turn black in a very short time. Stove.

HELMINTHOTHACHYS DULCIS (*H. zeylanica*).—This genus, which is closely allied to *Botrychium*, comprises only one species worthy of cultivation, and which is very seldom met with, yet it is a handsome, though most singular plant, a native of Ceylon; its barren and fertile segments are, as is the case in *Botrychiums*, very dissimilar; the former are digitate and pedate with pinnules about 5 inches in length and 1 inch in breadth, whereas fertile ones are produced upon rachiform branches, and form a clustered spike of sessile and globose sporangia; both fronds are very dark green in colour. The treatment which suits *Botrychiums* also suits this. Being deciduous, care must be taken that during its resting season, the roots and rhizome, which are both very stout, do not become dry, in which case it would greatly suffer and possibly die outright. It is of little value as a pot plant, but highly interesting when planted in a warm fernery in a moist situation where it does not get disturbed during the resting season.

HEMIDICTYUM MARGINATUM.—This gigantic and highly decorative Fern, from Tropical America, forms in itself a genus closely allied to that of *Asplenium*. It is an evergreen plant of noble appearance, and on account of the distinctness of its character makes a striking object in a fernery of large dimensions; its robust pinnate fronds often attain a height of from 10 feet to 12 feet; they have broad, bold pinnæ from 12 inches to 18 inches long, and 3 inches or 4 inches wide. The semi-transparency and peculiar shade of colour of its foliage, which is totally distinct from anything else in cultivation, also add to its attractiveness. It is one of those robust Ferns of quick growth, which, in summer, need an abundance of water at the roots, and which require to be grown in a permeable mixture of fibrous loam, rough peat, and silver sand in about equal proportions. Stove.

HEMIONITIS.—Of this small and most interesting genus only two species are in cultivation; both are handsome, dwarf, easily grown plants, very useful for table decoration, as good sized plants can be grown in comparatively small pots; in fact, the smaller the pot the more manageable they are. They are also well adapted for Fern cases, where they grow luxuriantly even if planted in Moss only. Both are much admired on account of their beautifully reticulated lines of sori on the back of the fertile fronds. All they require in order to grow them well is a mixture of two parts of peat to one of sand, but care must be taken that besides being kept in small pots the drainage is perfect, and that no water touches the fronds at any time.

H. CORDIFOLIA.—This very distinct dwarf East Indian species is so very unlike any other known

Fern in its general outline, that it forms a striking contrast with its associates wherever it is introduced. Its fronds, which are produced from an underground creeping rhizome, seldom reach over 6 inches in height; they are simple, cordiform, with their upper surface smooth and of a dark green colour; whereas their underpart, which is slightly hairy, is of a much paler hue, and completely covered with black sori, situated on the reticulated veins. Barren and fertile fronds are both of the same shape, the latter being somewhat contracted; they are also proliferous at their base, and can be readily propagated by laying them on the surface of the ground, and keeping them for a time fixed to it by wooden pegs. Stove.

H. PALMATA.—This West Indian dwarf-growing species is generally known by the name of Ivy-leaved Fern, an appellation quite appropriate, as the palmate fronds are five-lobed; there, however, the comparison ends, for they are covered on both sides with a ferruginous pubescence extending all along the stalks and stems. Like the preceding species, it is evergreen and compact in habit, but of a much brighter green colour. The young plants, which are freely produced at the base and at the notches of the fronds, make it a very interesting object. A peculiarity observable in this species is that the fertile fronds, besides being slightly contracted, stand about 3 inches or 4 inches above the barren ones. Stove.

HEMITELIA.—This genus consists of handsome Tree Ferns, all from warm climates, and therefore requiring stove temperature, which is doubtless the reason why the different species belonging to it are not more generally found in cultivation than they are. They require large houses and a good supply of heat to enable them to perfectly develop their broad, shining fronds, which have a grand appearance in a fernery by the side of other kinds with more finely divided foliage. The beauty of the under surface of the fronds is greatly enhanced by the position of the sori, which form an almost uninterrupted line round the pinnules. They are not by any means difficult to grow if potted in a mixture consisting of about equal parts of peat, loam, and sand, and if their requirements are punctually attended to, as during their growing season not only do they want a good deal of heat, but also a large amount of moisture at the roots.

H. GRANDIFOLIA.—This West Indian species forms stems of 4 feet or 5 feet in height, surmounted by strong fronds from 5 feet to 6 feet in length, lanceolate in shape, and pinnate; the pinnæ sometimes attain 12 inches or 14 inches in length, and have obtuse, shallow segments of a bright shining green colour. Stove.

H. HORRIDA.—This highly ornamental species, also a native of the West Indies, is probably the most gigantic of the whole genus, and when given plenty of room makes a noble and striking object in a stove fernery, where its fine fronds, of a bright glossy green colour on their upper surface and their underside slightly hairy and of a lighter hue, attain a length of from 8 feet to 9 feet. They are broadly lanceolate in shape and pinnate, the pinnæ being deeply pinnatifid; the pinnules, gracefully reclining, usually measure from 12 inches to 15 inches in length; the stem and stalks, which are of a light brown colour, are thickly set with long, stout thorns; hence its specific name.

H. SPECIOSA.—This handsome species from Tropical America is less robust than the two preceding. Its arching fronds, whose base, as well as the crown from which they are produced, is clothed with long dark brown chaffy scales, grow generally to about 6 feet in length; they are pinnate, the pinnæ being slightly serrated on the margins, of a dark green colour, and measuring sometimes from 10 inches to 12 inches in length. In this species the disposition of the sori is quite peculiar, inasmuch as they are nearly, if not quite, marginal. Stove.

H. SPECTABILIS.—This noble species from Venezuela is comparatively rare in cultivation, yet in habit it is most ornamental. The stem, which is stouter than that of any of the other kinds be-

longing to this genus, is of a light brown colour, and produces in great quantities fronds from 10 feet to 12 feet long, and of a cheerful pale green hue; the pinnules, which often attain from 10 inches to 12 inches in length and about 2 inches in breadth, are closely set and obtusely lobed. It is altogether a very distinct species. Stove.

HUMATA.—A small genus comprising only a few dwarf-growing, yet handsome, species, all worthy of cultivation on account of their close creeping habit, which renders them well adapted for covering stones or small pieces of dead Tree Ferns, wood, &c. They all are closely allied to the genus *Davallia*, from which, however, they differ sufficiently to have been separated by some of our highest authorities. A mixture of two parts peat to one of sand is all they require in the way of compost.

H. ALPINA.—This exceedingly pretty Bornean species, better known as *Davallia alpina*, is found most useful for covering in the stove fernery the face of a jutting rock, of which it takes possession in a very short time. The fronds, which are dissimilar and somewhat triangular in shape, are produced in great abundance from a flat, light brown rhizome which delights in keeping on the surface of the ground; both barren and fertile fronds are triangular, and produced in such numbers that they form a dense covering; both are bipinnatifid and of a dark green colour, the fertile ones being much contracted and more erect, and standing about an inch higher than the barren ones, which rarely exceed 2 inches high. Stove.

H. HETEROPHYLLA.—Also a very useful and handsome species from the Malay Islands, and, like the preceding, of dwarf habit and evergreen. It may be used with advantage for covering rock-work, and it is also suitable for growing in suspended baskets of small dimensions. In this species the barren and fertile fronds are very dissimilar; the former are simple and oblong in shape, of a coriaceous texture, and rarely exceeding 4 inches in length; whereas the fertile ones, although a little longer, are very narrow, pinnatifid, and bright green in colour. Stove.

H. PEDATA.—This is another pretty and interesting evergreen species from Java, well adapted for climbing over a piece of sandstone or any other porous stone, on which it has a fine appearance. The fronds, which are freely produced from a slender, flattish, creeping rhizome, are deltoid, pinnatifid, of a leathery texture and dark green in colour. They rarely measure over 5 inches in height. Stove.

HYMENODIUM CRINITUM.—A singular and at the same time a handsome and interesting Fern from the West Indies, forming in itself a genus closely related to *Acrostichum*. It is also well known under the name of *Dictyoglossum crinitum*, and on account of its peculiar shape, and also its extraordinary texture, it is generally called the Elephant's-ear Fern. The fronds, which are produced abundantly from a somewhat woolly, decumbent rhizome, are simple and entire, and progressively attain larger dimensions, until ultimately they measure about 18 inches in length and 10 inches in breadth at their widest part. Their whole surface as well as their margins is covered with long, black, stiffish hairs, which give the plant a peculiar appearance; they are borne on stalks varying from 6 inches to 8 inches long, also densely covered with the same long, black hairs. They are of a dark green colour, but the fertile ones are much smaller in all their parts than those that are barren, and they are also contracted and borne on shorter stalks. The sori, as in *Acrostichums*, occupy the whole of the underside. This species succeeds admirably in a mixture of two parts peat roughly broken up to one of sand. Being a very shallow rooter, it is found to do best in pans, and it should be placed above the rim; it also makes an interesting object grown in a piece of Tree Fern out of which the centre has been scooped and filled up with the mixture just recommended. If supplied with plenty of heat and moisture it soon makes a fine specimen, and forms a striking contrast with any other Fern, no others being of similar habit. Although requiring plenty

of water at the roots, care must be taken to keep the foliage dry, as if it is wetted it soon gets spotted and rots rapidly. PELLÆA.

FERNS AT KEW.

THERE is a marked improvement in the health and general appearance of the Fern collection at Kew at the present time. During the past few years visitors have found not a little cause for disappointment by the indifferent health of many of the Ferns as well as by the absence of many popular species and rare ones too. It must be admitted, however, that the Fern houses are not exactly the best from a cultivator's standpoint, but the convenience of the public has to be considered as well as the health of the plants, and although it may be possible to have such houses and such arrangements as would satisfy the most fastidious without entailing any sacrifice of those conditions necessary for the welfare of the Ferns, one must, when criticising the cultivation of plants at Kew, always make allowance for a certain amount of injury that must accrue to tropical plants, and especially to Ferns where there is always a continuous stream of visitors passing through the houses daily. I am pleased to see that improvements are being made where possible both in the arrangement of the plants and in the atmospheric condition of the houses.

FILMY FERNS.—One of the most noticeable alterations is the provision now being made for the cultivation of the collection of Filmy Ferns in a lower temperature than they have been grown in hitherto. Both in number of species and in the size of many of the specimens Kew is particularly rich in Filmy Ferns, but owing, no doubt, to the indifferent conditions under which they have always been grown, the health of many of them has not been particularly good. On more than one occasion I have pointed out the fitness of a cool temperature for most of the Filmy Ferns, and have instanced the rich and healthy collection of them in the possession of Mr. Cooper Foster, and the unequalled collection in the nurseries at York. In both these cases the temperature of the houses in which the plants are grown is much lower than that at Kew; and I need hardly say, that to those who have had opportunities of comparing the condition of the plants grown under cool treatment with those grown under warm, as they are at Kew, the advantage of the former system is strikingly apparent. In the cool ferneries at Kew there is now in process of construction cases for the reception of the greater part of the collection of Filmy Ferns and I do not doubt that with proper attention the altered conditions will prove highly beneficial to the plants themselves. There are of course several species amongst Filmy Ferns, to which cool treatment would not perhaps prove favourable, such, for instance, as *Trichomanes Prieuri*, which is extremely difficult to cultivate even where every attention to its wants is scrupulously paid. I do not remember to have seen in any collection of Ferns such healthy plants of this handsome variety as are now to be seen in the tropical fernery at Kew. There is one specimen bearing half-a-dozen dark green healthy young fronds, measuring from 1 foot to 1½ feet in length and 6 inches in breadth. This plant, it need hardly be said, would not thrive in a cool temperature such as suits most of the Filmies. The same remark applies to several others, but one may say generally Filmy Ferns do not like a stove temperature. The ventilation of the tropical houses has also been improved. It may be interesting to note the

GROWTH OF THE COLLECTION from what it was, let us say, some fifty years or so ago to its present dimensions. In his "Historia Filicum," Mr. J. Smith, ex-curator of the Royal Gardens, says in the preface that "in 1825 he arranged the tender Ferns in a lean-to house," the space they occupied being 12 feet by 6 feet. These formed the nucleus of the present great collection. In 1866 a catalogue of the Ferns in the Kew collection was published under the title of "Ferns, British and Foreign." In this work 164 genera

are described and 1084 species enumerated, including fifty-six Lycopods and their allies. In the preface to the "Synopsis Filicum," Sir William Hooker stated "that the Fern collection at Kew was the finest in cultivation, mainly owing to the exertions and ability of Mr. John Smith." Some modification, both as regards the limits of genera and species of Ferns, has taken place since Mr. Smith compiled his catalogue, and Mr. Baker has reduced a number of both species and genera as mere forms of others; and as the names of the plants now in the Kew collection are based on Mr. Baker's arrangement of the Order, there is consequently a reduction in their number. The collection of Ferns now in cultivation is approximately 1000 species and varieties. This number does not include the endless forms of *Scolopendrium vulgare*, many of the Polypodiums, especially *P. Lingua*, *Doodia aspera*, *Asplenium Filix-femina*, and such like variable plants. As an instance of the reduction in the number of generic names, we may take *Callipteris*, *Ceterach*, *Diplazium*, *Neopteris*, *Allantodia*, and *Athyrium*, all of which Mr. Smith recognised as genera in his "Historia Filicum," but which at Kew are placed under *Asplenium*. Taking the

ADIANTUMS first as perhaps the most popular genus, I noticed that the Kew collection contains fifty-one species of this genus alone, or, including such varieties as *farleyense*, *Flemingi*, *grandiceps*, *Sancta-Catherinae*, *scutum*, and other well marked forms, about eighty altogether. Of these *A. farleyense*, *æthiopicum*, *cuneatum*, *mundulum*, *digitatum* (syn., *speciosum*), *amabile*, and many others are represented by large healthy specimens, many of them over a yard through. Some baskets suspended from the roof are particularly handsome, such drooping kinds as *A. amabile*, *A. Lawsoni*, and the pretty, delicate *A. gracillimum* thriving admirably under such treatment. The rare *bipinnatum*, *corydalifolium*, and *peruvianum* are in good condition here. Altogether I may say the *Adiantums* look exceptionally well. Turning to the *Gymnogrammas*, there is a long stage of large, noble specimens, looking quite pictures of health, especially *G. calomelanos* and its varieties, among which the well-known *chrysophylla*, *Mertensi*, and *l'Herminieri*—usually looked upon as species—are included here. *G. schizophylla*, the pretty little species from Jamaica, is in good condition in a basket suspended from the roof. This plant, like most of the *Gymnogrammas*, reproduces itself from spores quite freely wherever they can find a suitable resting-place. There are twenty species of this genus represented at Kew.

THE ASPLENIUMS, under which there are, as has been pointed out, included many genera of some authors, are very strongly represented, and many rare and pretty little Ferns belonging to this genus, and not to be seen in ordinary collections, find a happy home at Kew. But I might go on enumerating an endless number of species belonging to these largely represented genera, many of which are rare, and most of them are in a satisfactory condition, but space forbids it. The *Davallias*, *Dicksonias*, *Nephrodiums*, *Pterises*, *Polypodiums*, and such like are, however, worthy of mention from their being so largely represented. Turning to the choicer kinds, there are some excellent pans of the charming little *Davallia parvula* and the curious *Rhipidopteris* or *Acrostichum peltatum*. These are grown under bell-glasses, where they appear to be perfectly at home. *Brainea insignis* is represented by some very fine examples. A very handsome and rare Fern, *Mohria caffrorum*, and its var. *achillæfolia* are in good condition. *Lindsæa sagittata*, *Actinopteris radiata*, with its variety *australis*, *Thyrsopteris elegans*, *Cyathea Hookeri*, *Marattias*, *Acrostichum crinitum*, and *A. apodum* I also noted as strikingly handsome and rare Ferns, all of which are well represented at Kew. A couple of good healthy plants of a species of *Danaea*, from the West Indies, are looked upon with special interest at Kew. The Tree Ferns and *Angiopteris* are gigantic in their proportions, and are represented in several other houses besides those devoted exclusively to Ferns. The Selagi-

nellas, of which there are some fifty species and varieties, are grown in pans, and many of them are particularly fine now. *S. atroviridis*, *S. Wildevoni*, *S. uncinata* (syn., *S. cæsia*), and the new *S. grandis* are worthy of special mention.

VISITOR.

GARDEN FLORA.

PLATE 408.

THE HIMALAYAN ANDROSACES.

(WITH A FIGURE OF *A. FOLIOSA*.)

FROM the beautiful and interesting flora of the high alpine regions of the Himalayas we are gradually, though slowly, transplanting to our gardens some of its brightest gems. The *Primula* family, in particular, have afforded us many beautiful plants, and among these are the *Androsaces*, represented on the Himalayas by about a score of species, one of which, the subject of our present plate, has been quite recently introduced. The *Androsaces*, which are peculiar to the Himalayan region, are quite a distinct race from those of Europe, though two European species, *A. villosa* and *A. Chamæjasme*, are common to both regions. Of the typical Himalayan race of *Androsaces* there are now five species in cultivation, all of which are growing at Kew. These are *A. foliosa*, *lanuginosa*, *rotundifolia*, *sarmentosa*, and *sempervivoides*.

A. FOLIOSA is a distinct-looking plant from all the rest, though Sir Joseph Hooker considers it to be but one of four varieties belonging to *A. sarmentosa*, the other forms being *Watkinsi*, *grandifolia*, and *primuloides*. The habit of growth of *A. foliosa* reminds one at first sight of that of *Statice profusa*. It has the same form of leaf, though not of such thick texture, and it also possesses the peculiar tendency to produce its foliage on the upper part of the stem, leaving the lower part unclothed. Our plate is a faithful representation of the plant, except as regards the peculiar colour of the flowers, which is of a clearer rose tint than that represented. It is indeed an extremely pretty plant, carrying its flower-heads well above the foliage. It blooms in early summer and lasts a long time in flower on account of the buds not opening all at one time, but in succession from the centre outwards. It is a native of the Kumaon territory at elevations of from 11,000 feet to 12,000 feet. It was, we believe, introduced to cultivation by Mr. J. Anderson-Henry, of Hay Lodge, Edinburgh, to whom our gardens owe the introduction of so many beautiful hardy plants from the Himalayas, New Zealand, and elsewhere.

A. LANUGINOSA is distinguished by its spreading and, when in vigorous health, long trailing shoots, by bearing umbels of flowers of a delicate rose, and by the leaves being covered with silky hairs. When grown freely it is a lovely plant. Many parts of the country are too cold for it; the southern and western counties, or warm and genial places near the sea, are those in which it may be grown with most success. It is, however, so pretty that in cold places it will be well to preserve it over the winter in dry pits, and plant it out in summer. It is a native of the Western Himalayas, and was introduced about forty years ago.

A. ROTUNDIFOLIA, also named *A. incisa*, by which it is now most generally known, is a small growing species distinct in growth from all the

* Drawn at Kew in May last.



ANDROSACE FOLIOSA.

others, inasmuch as its leaves are rounded, or rather kidney-shaped, similar to those of *Saxifraga rotundifolia*. They are rather deeply incised on the margin, hence the name *incisa*. The flowers, borne in small dense umbels, are purplish, but not so showy as those of the other cultivated species. It is as yet a scarce plant in gardens, and no one seems to have had much experience in its culture.

A. SARMENTOSA is nearly related to *A. lanuginosa*; the latter is, however, a more silvery plant—indeed, nearly white. The flowers are borne in trusses of from ten to twenty on an erect primula-like scape, and the whole inflorescence at first sight closely resembles that of a bright, rosy, white-eyed *Verbena*. It is dwarf and tufted in growth and sends out long slender runners, by which the plant may be readily propagated. It grows in Kumaon at elevations of from 11,000 feet to 12,000 feet.

A. SEMPERVIVOIDES is a rare and most distinct plant, particularly in its winter or resting state, when it closely resembles some of the smaller growing *Sempervivums*. In spring, however, it loses this character, and its foliage develops similar to that of *A. sarmentosa*, which its inflorescence also resembles. It is found in Western Tibet at elevations of about 11,000 feet. Few cultivators have had experience in growing this species.

CULTURE.—The treatment of Himalayan *Androsaces* as regards soil and situation is similar to that usually afforded their European congeners. They like fissures between rocks or stones, firmly packed with pure sandy peat, or very sandy or gritty loam, not less than 15 inches deep. They should be so placed that no wet can gather or lie about them, and they should be so planted in between rocks or stones that, once well rooted into the deep earth—all the better if mingled with pieces of broken sandstone—they could never suffer from drought. It is easy to arrange rocks and soils so that, once the mass below is thoroughly moistened, an ordinary drought can have little effect in drying it. All *Androsaces* are more or less surface rooters. Some, such as *A. Chamæjasme*, may send down their roots to a considerable depth, provided sufficient moisture be found on or near the surface. Their roots prefer to run horizontally along the face of some stone at a small depth then to sink vertically to a considerable distance. Nowhere do they succeed better than in a sandy, well-drained peat bed on the level. In this country, and especially on the eastern side, no vertical or horizontal fissures can be ever so carefully made as to ensure the necessary amount of moisture. Pack stones ever so well about them, they are certain to become too dry. There can be no doubt that these and a great number of other and more precious alpine flowers would thrive better on a fully exposed level bed of sandy soil kept moist than on many a rock garden. They would be safer from drought, and they would be sure of the feeding ground for the roots so often denied them in the dusty rockworks which have been, and are still, the rule. Only they must on the level be guarded from the coarse browsing slugs of the lowland garden, and be kept free from the shade of coarse plants which soon take possession of such moist, gritty, sandy, or peaty beds as would suit the *Androsaces*. It is well to bear in mind, however, that on a properly formed rock garden there will be level spaces of good soil as well as "rocky" slopes.

Like many other woolly-leaved alpine, these beautiful Himalayan species are very difficult to keep alive through our cold and damp winters. It is best to take the precaution to place a piece of glass in a slanting position about 6 inches above the plants; this effectually preserves them. Care should also be taken to put finely broken sandstone immediately under the rosettes of leaves and over the surface of the soil to keep every part of the plant, except the roots, from being in contact with the soil. In the case of *A. lanuginosa* the plants are better for being placed in a fissure of rock so that the long trailing shoots may fall over the face of it and thus be preserved dry in winter.

PROPAGATION.—*A. sarmentosa* and *sempervivoides* may be readily increased by runners, which are plentifully produced during the growing season. They should be allowed to root slightly before cutting them from the parent. When detached they should be potted in light soil and kept in a cool shady frame for a short time. *A. lanuginosa* may be propagated by cuttings in early summer. These should be taken with a hardened base or heel and inserted under a bell-glass in a frame. *A. foliosa* develops, in the course of the season, numerous offshoots from the lower part of the stem; these cut off with a hardened base strike readily.

SEASONABLE WORK.

FLORAL DECORATIONS.

THERE are still quantities of outdoor flowers from which to draw a supply for indoor decoration. With our Hybrid Perpetual Roses have been most serviceable of late, and so also has the old, but well tried kind, *Souvenir de la Malmaison*. All of these we arrange by themselves, only adding thereto a few sprays of Maiden-hair Fern, and occasionally some heads of *Mignonette*. For some time past we have used single Dahlias for indoor decoration and find them most valuable. Seedlings raised this spring are still flowering freely and bid fair to continue for some time yet to come if frost spares them. As a background to these two or three sprays of the bronzy shoots of *Berberis Aquifolium* are a great assistance. Our groupings are made for a sideboard, and, therefore, to one face, for which purpose these flowers are well adapted, bearing in mind to secure as long stems as possible when cutting them. A few even with unexpected buds are a great help; do not forget, moreover, that quantity will not give the artistic effect that can be derived from a small number well arranged. *Anemone japonica* and its varieties are evidently becoming more appreciated than was the case a few years back. There is not, we think, a better herbaceous plant grown than this for floral decoration at this season of the year, lasting as it does a fairly long time in a cut state. These *Anemones* are very pretty for specimen glasses, and the white kind is valuable for working into wreaths and crosses. The dwarf form of *Scabious*, of which there are several colours, is another excellent indoor flower now greatly assisting us, the light and dark kinds being particularly striking. We find these to arrange well with spikes of that valuable autumn flowering Grass, *Eragrostis elegans*, which has been in constant request with us for some time past. For tall epergnes or trumpet vases, we have also used *Love-lies-bleeding* (*Amarantus caudatus*); this, associated with some richly coloured sprays of the Virginian Creeper and a few blossoms of the white Japan *Anemone*, forms an excellent autumnal arrangement. If a piece or two of the growth of *Passiflora cœrulea* can be had with flowers expanded and entwined with the Virginian Creeper so much the better. We are now cutting the handsome blossoms of *Passiflora quadrangularis*, which if secured early in the morning remain open

in most cases till the evening of the second day. We place them in finger glasses about one-third filled with water; though not natural as regards position, it is the best way we can devise to show off their beauty to the best advantage.

INDOOR PLANTS.

STANDARD HABROTHAMNUS.—Although this plant is particularly adapted for furnishing walls and pillars, and where so grown when planted out no doubt it gives the greatest quantity of flower, still it is a most useful subject in the form of standards, with a fair amount of pot room, say 10 in. to 14 in. Thus managed, it can be used with effect to relieve the even surface too often apparent where dwarf plants are almost exclusively grouped together. To keep specimens of this form in shape the heads should be freely cut in from time to time; as it is all but a continuous bloomer, there is no particular season in which to cut it in, but plants that keep on flowering through the summer should now have the shoots well shortened back. If after this they are kept in a warm greenhouse or intermediate temperature they will push freely and flower towards spring. Examples cut back early in summer, and that have been well sustained at the root, will now be furnished with abundance of shoots, and if kept in a genial temperature they will flower freely through the autumn.

LAPAGERIAS.—Large specimens of these, especially when the roots are confined to pots or boxes, are often found after a few years to cease flowering satisfactorily. It is in the nature of these fine climbers to require much more root room than many things need. The ability to bloom freely will generally be found proportionate with the strength of the growth which the plants are able to make. Now whilst they are in bloom it will be well to note whether there is any falling off in the strength of the shoots or flowering, and to rectify any deficiency either by larger boxes or turning the plants out in a prepared bed. Where either of these courses becomes necessary it is well to carry it out at once or as soon as the flowering is at a close, for if the giving of additional root space is put off until near the time when shoot growth commences, next season's progress will be much interfered with. If the roots have more room given them now they get hold of the new soil, and are in a position to sustain top growth as soon as it commences.

ANTHURIUM SCHERZERIANUM.—The time of making growth and also flowering with such plants as this is in a great measure dependent upon the amount of warmth to which they are subjected, and the potting, when required, frequently gets put off through a reluctance to disturb the plants when more or less in bloom. It is a great mistake to keep this bright-flowered Aroid in a hot stove temperature, as is often done; it produces larger leaves and proportionately larger flowers in the intermediate heat, say from 48° to 55°, during the autumn and winter. Where the summer temperature is proportionate with this, it will make the most leaf growth through the autumn months up to the end of the year. There are few plants with which it is so necessary to thoroughly remove the old soil as this, an operation to which it should be subjected every two years. This is particularly the case with large specimens, the soil of which is most liable to get sour and sodden. Any plants that are at all in a doubtful condition in this respect should even yet be shaken out and have the soil renewed. They will keep on rooting in the new material through the winter.

DIPLADENIAS.—Those who grow the small-flowered *D. boliviensis* cannot fail to have noticed its distinct habit of growth so different from that of the other stronger growing sorts, both species and hybrid varieties. The Bolivian species is very suitable for training up a rafter in a stove kept at medium temperature, for although the plant will bear strong heat, still it grows and flowers freely with less warmth than any of the other kinds, and moreover is mostly less liable to go off

at the root if it gets a little over much water in the way the other sorts do. It would be difficult to say too much in favour of its flowers for cutting. Their colour, pure white, with a small lemon-coloured eye, coupled with a long tube, admit of each flower being cut singly. It blooms for six or seven months without ceasing. Anyone having plants of it, by now keeping them in a temperature of 60° in the night, may have it flowering up to the end of November. Young examples of any of the other kinds, struck from cuttings last autumn, provided they have been kept going freely, will do well if at once moved on into 12-inch or 13-inch pots, that is, if a fair amount of heat can be kept up through the winter, say a night temperature of 65°, for nothing is gained by resting young specimens of these *Dipladenias*, but a loss of time in their flowering much later next season. *D. crassinode*, one of the best for cut flowers, should not be lost sight of, for if pushed on during the winter it will bloom continuously from the beginning of May up till late in autumn. For a reasonable chance of success with these plants suitable soil in the shape of the best fibrous peat, with much of the earthy matter shaken out, should be available. Use it in a lumpy condition, with a liberal addition of sand.

GARDENIAS.—The stock should now be looked over, and such as have their bloom-buds prominent, or partially developed, ought to be placed where they can be kept not lower than 60° in the night, with less moisture in the atmosphere than it was necessary to have in the bright summer season. If the pots are full of roots sprinkle a little of some or other of the concentrated manures on the surface of the ball once every three weeks or so; a little at a time in this way will be much better and safer than heavy dressings seldom. The fertilising elements will reach the roots with the water given to the soil; it must not, however, be applied so often as when there was more sun to dry it up, otherwise the flower-buds will be liable to fall off without opening. Successional plants intended to bloom later may be kept somewhat cooler, but must not be subjected to too low a temperature, otherwise the bloom-buds that should now be set will not come forward when submitted to more warmth. The dwarf-growing *G. citriodora* is a profuse flowerer, blooming freely in moderate heat, and deserves to be much more generally cultivated than it is; the flowers when mounted are useful for bouquets, wreaths, or in any other way that Orange blossom can be employed, for which they answer well as a substitute.

TUBEROSES.—Where these are well managed, and sufficient quantities are grown, they can be had in flower over a considerable portion of the year. Those that are pushing up their bloom-stems should be kept with their heads close to the glass; heat ought to be given them proportionate to the need there is of pushing them on into flower, or the reverse if their blooming is to be retarded. If it is necessary to push them on they will bear a night temperature of 60°, or they may be kept at 50°; but if too cold the blooming will not be satisfactory. The same applies to plants that have made considerable root and leaf growth, and are only now about pushing up their flower-stems; if checked by too low a temperature at this season, the chances are that many will fail to bloom altogether. Give water sufficiently often to keep the soil in a moderately moist, healthy condition, but not too wet.

SALVIAS.—The earliest flowering plants of these will now be in bloom, and if sufficiently supplied with manure water, will, after the leading terminal shoots have flowered, produce laterals freely that will bloom later on. Want of room at this season, when almost everything has to be got under glass, frequently is the cause of many things of this character being stood much closer together than is conducive to their well-being, the result of which is that the bottom leaves suffer, not only giving the plants an unsightly appearance, but reducing their flowering capabilities. This is particularly the case with the later-blooming kinds. The lighter the houses or pits in which they are

located, or, these failing, the higher the plants are raised up to the roof, the closer these and all other subjects that develop their flowers through the short winter days will bear standing together. Amongst the less well-known varieties *S. Bethelli* (pink) and *S. Pitcheri* (blue) are particularly deserving of general cultivation; their distinct character in habit of growth and profuse flowering disposition, even in a small state, commend them to all who are in any way pinched for glass accommodation.

BERRY-BEARING SOLANUMS.—Plants that were lifted and potted a short time back, as advised, will have begun to root freely in the soil, as when properly treated, they push their fibres rapidly. They should now be accommodated with a good, light, airy pit or house. Such as have their berries sufficiently coloured may be at once placed in the conservatory or greenhouse, where, associated with flowering and fine-leaved plants, they will be effective for several months. These plants are subject to green fly, and before being taken in, if ever so little effected by it, should be fumigated two or three times in succession. Later stock, the berries of which are yet green, ought to be kept in an ordinary greenhouse temperature, where the fruit will colour slowly, coming to their best about the end of the year, at which time they will be found very useful. One of the advantages of growing a sufficient quantity of these plants is that they bear keeping in rooms, halls, or similar places where the light is insufficient for most things and the atmosphere not such as plants of a more tender nature require.

PRIMULAS.—It is time now to get both the single and double varieties of these out of frames, and to place them in their winter quarters, which should be in a house or pit where they will receive plenty of light, and the atmosphere is drier than most soft-wooded plants need. The double varieties especially will be benefited by a little warmth continuously; where this can be given them all on from the present time to the return of warmer weather in spring, they keep on growing and blooming simultaneously, the flowers under such conditions being much larger and more abundant than where subjected to an ordinary greenhouse temperature. Weak manure water once a fortnight will assist both the double and single kinds materially both as regards the size and colour of the flowers and the stronger condition and more healthy hue of the foliage.

CINERARIAS.—Plants of these raised from the earliest sown seed will, if they have been managed right, be now about pushing up their flower-stems. Much of their ultimate blooming depends on the treatment they now receive; the more liberally they are supplied with weak manure water, the stronger they will flower. They will be benefited by having it every time they require water, not giving it too strong. Keep the plants so far as possible standing on a moist bottom, such as damp ashes or sand, without a current of dry air admitted to the side.

FLOWER GARDEN.

GENERAL WORK.—At present, beyond the maintenance of neatness, there is no department that demands special attention. Advantage should, therefore, be taken of the opportunity to commence operations on any extensive alterations or improvements that are intended to be done during the coming winter, an early start being desirable, first, because of the uncertainty of the winter, or rather of the weather, at that season, and secondly, because the transplanting of most kinds of trees is most successful when performed in autumn and early winter, for the very obvious reason that they have then time to get established in their new quarters before there is any danger of drying winds and powerful sunshine checking free root action. *Rhododendrons*, *Azaleas*, and *Conifers* are the first on our list for transplantation, which will be done the moment the positions for them are prepared by deep trenching and manuring. The character of the soil here—a sandy loam—being suited to

the plants named, no further preparation is needed to ensure success, but those less favoured either as to soil or position must work accordingly. Drainage, deep tilth, and a loam free from chalk and not too adhesive will grow American plants almost equally well as peat, whilst some kinds of *Conifers* really do best in a chalky soil. In the flower garden, as the plants die off or begin to look weedy let them be at once removed and their places filled with others for the winter. All the dark-foliaged tender plants we are now pulling up, and in their places are planting *Ericas*, small shrubs and *Ajugas*, and in some instances laying down plots of *Sedum* that have been grown in a reserve garden for the purpose, and which, being moved with a spade and with soil adhering to them, never feel the removal, and are at once effective. The principle is also applicable to choice plants that it is desired to save from injury by frost. Let these be removed now, and fill in with the most suitable plants at command. Keep the edgings of the beds neatly trimmed, and bad flowers and foliage daily removed; by these means, should sharp frost not intervene, a creditable display of flowers may be had till quite the end of the month. At this moment tuberous *Begonias* are simply magnificent, and have been so during the entire season; next year they will be used much more largely. We have them planted a good distance apart on a groundwork of *Sedum* acre and *Sedum glaucum*, and each plant standing thus separately has a far better effect than others planted in a mass, not to mention the economising as regards plants that this manner of planting ensures. As soon as frost blackens them the bulbs will be lifted and placed thickly in boxes of sand, and wintered in a shed that is cool, but secure from frost. It is not now safe to leave unprotected at night any kinds of bedding plants; therefore all that have been struck in the open borders should either be potted up at once, or, till this can be done, be covered up nightly. *Calceolaria* cuttings should now be got in. A frame is best for striking them in, and the soil should be two-thirds light loam and the other third leaf soil. The cuttings, which should be 2½ in. apart, should be well fastened in the soil and for the first fortnight shaded from sunshine. *Pansies* and *Violas* should be treated in exactly the same way, and these, too, should be got in as early as circumstances permit.

FRUIT.

PINES.—As the days decrease in length the temperature in every department may be reduced by degrees until the minimum is reached and plants in various stages of growth are brought into what is termed the resting period, when the supply of water and atmospheric moisture must be reduced to meet their diminished requirements. It is not, however, wise to withhold heat and moisture to an extent that will produce a check, as there is no standing still in Nature, and succession Pine plants which go away best in the spring and give the most satisfactory results are invariably selected from stocks which have been kept steadily progressing through the winter months. If any alterations still have to be made no time must be lost, particularly where the renovation of the beds necessitates exposure of the plants to the elements. In such places where the only means of access is by the opening of the roof lights and underground pipes are not abundant, good tanner's bark forms the best plunging material for the winter months, as it retains its heat much longer than leaves; but the latter, if well harvested from the Oak or Beech, form a more genial medium for summer use, as the constant decay of vegetable matter by fermentation produces elements highly acceptable to nearly all tropical plants, and notably to the Pine through every stage of its growth. Where composition of any kind has been applied to the glass for shading purposes every particle still adhering must now be removed to give the plants the benefit of sun heat and light, and blinds on rollers may be taken down and stored away for the winter. Keep the successions free from suckers by screwing them out until they show fruit and then allow one on each plant to

grow. Old stools of scarce or shy kinds may be divested of all their leaves after the fruit is cut and placed on their sides in shallow boxes as close as they will lie together. The boxes may then be filled up with leaf-mould or peat, and plunged in a strong bottom heat for the winter. But little, if any, water will be needed until the buds break and begin to push through the surface, when slight sprinklings at syringing time will soon cause them to emit roots and assume the form of seedling plants fit for potting off singly. It is a very common practice to place autumn-struck suckers close together at a time when space is limited. There they often become drawn before the mistake is discovered, and as no after-management can correct this evil, it will be well to resist the temptation to retain a greater number than can be properly accommodated, and then they must be plunged well up to the glass to keep them in a sturdy condition. If a good supply of turf has not been secured for potting purposes, this is perhaps the best time in the whole year for getting it home, as the roots of the herbage are sound and firm, and form a more durable fibre than when taken off earlier in the season. A dry day should always be selected for cutting and storing, and the turves should be taken off thin and rolled up as for relaying on a lawn in preference to stacking large flat pieces in a solid mass quite impermeable to the pulverising influence of the atmosphere.

VINES.—Late houses that were started early and helped forward with fire-heat will now be finishing crops of ripe, well-coloured fruit, which may be expected to hang and winter better than Grapes that still require fire-heat, and the wood and foliage being well ripened, all lateral growths may be shortened back to prevent crowding, and those which emanate from the base of the buds on old Vines should be cut away to plump them up before the foliage falls. As days and nights get colder gradually reduce the temperature to a minimum of 50° with a rise of say 10° on fine days, and ventilate freely to secure a circulation of air when external conditions are favourable, but keep the ground ventilators closed when the weather is wet and the atmosphere is heavily charged with moisture. The above remarks apply to black Grapes; but Muscats, where quite ripe, will keep well under similar treatment. Houses in which Hamburgs and other thin-skinned kinds are hanging must be kept dry and cool, not by throwing all the ventilators open every day, but by keeping them closed in wet weather, and by dispensing with fire-heat as much as possible consistent with the maintenance of a temperature which does not strike cold to the body when the house is entered. Look over the bunches at least twice a week, and remove every faulty berry before it has time to taint its neighbour. Discontinue all sweeping and raking, as dust soon disfigures the fruit, and draw a tarpaulin over the external borders from this time until all the Grapes are cut. If former directions have been attended to all the necessary preliminaries will have been completed in the early house, and the vines will be ready for starting. If fermenting material is used for external borders it should not be applied until the buds are on the move, but some slight covering may be placed over the roots to protect them from cold, chilling rains. The second early house will now be better for having the portable lights—as a matter of course, recently mended and painted—replaced on the roof when pruning, and the usual routine of scrubbing and cleansing must follow. Many people do not think it necessary to expose their Vines or Peaches to the weather, but I have always felt better satisfied with the start and finish after they have had the benefit of fine autumnal rains which so thoroughly cleanse the foliage and buds, and enrich and sweeten internal borders after they have been slushed with stimulating liquid and shut out from the influence of the atmosphere for at least six months out of the twelve. If yearling or maiden Vines are still growing, and do not show a disposition to ripen up properly, this process may be greatly facilitated by maintaining a strong dry heat, with air through the day, and by shutting

off the fire and keeping the house cool at night. Get fruiting pot Vines pruned, top-dressed, and placed in position ready for starting.

ORCHARD HOUSES.—With the exception of a few late Plums, Pears, and clingstone Peaches, the orchard house season is over, and the present month will be devoted to the correction of drainage, potting on, reducing, or top-dressing, and as next year's success depends upon the way in which these matters are carried out, it may not be amiss to again direct attention to the importance of using clean dry pots and drainage, dry sound loam of a calcareous nature with a liberal admixture of crushed bones, charred refuse, or old lime rubble. These should be thoroughly incorporated and kept under cover for some time before being used, and as firm potting is imperative, the shift should always be large enough to admit of the use of a fair sized potting stick for ramming the compost as the work proceeds. Another important point which must not be overlooked is the watering or soaking of the balls of the trees before they are turned out, otherwise it matters little how well every part of the work may be performed. Neglect of this will lead to disappointment and failure. When all the trees have been overhauled, select a dry, airy, but sheltered situation in the open air, place each tree upon two bricks, and leave the pots exposed to the influence of sun and air for a time. On the approach of bad weather fill in between the pots with dry Fern leaves or Cocoa-nut fibre to protect the tender roots, which soon begin to work through to the sides of the pots, from frost, and to prevent the latter from being burst or cracked by expansion of the soil. It is hardly necessary to say all pruning should be performed as soon as the fruit is gathered, and the protection of the buds from birds by means of fishing nets must not be neglected. If trees for potting up have not been selected, lose no time in getting them marked before the leaves fall. Always give the preference to clean healthy trees of moderate growth, as they are generally well furnished with fibrous roots, and the wood being ripe they always lift well.

ORCHIDS.

EAST INDIA HOUSE.—It has been stated that owing to the shortening days and consequent decline of atmospheric temperature, less shading would be required. Another matter also demands attention, and that is the degree of atmospheric moisture needed. On dull days we would not sprinkle any water about after 3 p.m.; but if we had a clear, sunny day, it might be desirable to damp the paths and stages two hours later than that. If shading is required it ought to be removed early in the afternoon, so that the temperature may be run up by sun-heat to 85° as a maximum, and from 65° to 70° at night will be found to be a good minimum. It will not be necessary to water the plants so freely now as it was a month or two ago. All the *Saccolabiums*, *Aerides*, *Angræcums*, &c., that have been watered freely must now be watered with more caution, and it is also desirable to keep them near the glass. Plants of this type, if kept too far from the glass, are apt to suffer from weakness, the leaves become flabby, and if to this is added too much moisture in the atmosphere, the chances are that some of the plants will suffer from the disease known as "spot." Certain species have the tips of the leaves damaged by turning yellow; this spreads down the leaf, which is only saved by cutting the affected part clean off down to quite a healthy part. The flowering of *Vanda Hookeri* forms quite a red-letter day in the orchidist's calendar. Allusion was lately made to the treatment required by *V. teres*, and there is little doubt that *Vanda Hookeri* could be flowered in the same manner. We have seen some growers attempt to flower *Vanda teres* by starving it and exposing it freely during the growing season. It would be better to grow it freely in summer by giving it plenty of heat and moisture with a moderate amount of shade. The incipient flower-buds are formed while the plant is finishing its growth, and

they are further developed by judicious treatment during the resting stage.

CATTLEYA HOUSE.—A number of the occupants of this house are making their growth; some are starting, more are in a transition stage, and some are completing their growth. The question then arises, what is the most suitable treatment to give the plants under such circumstances? We have always found that it is best to take the weather as a guide; as the cold nights and dull days approach less shading and less atmospheric moisture are necessary. Those who have plenty of spare time and can pot their plants when they like should watch the stage in the plant's growth when fresh roots begin to issue from the base of the last formed pseudo-bulb. Just before this the plants, if they require it, ought to be re-potted, and the new roots will then run freely into the fresh compost. *Lælia cinnabarina* is a plant that now requires re-potting, an operation which may be done at this time or in February. Probably September is as good a month as any in which to pot this species. If the roots of imported plants of both kinds are examined, the same material will be found clinging to each, viz., a very light fibrous peat, or light decaying vegetable matter. *Odonoglossum Phalaenopsis* seems to succeed well along with Cattleyas. Place it very near the glass, and keep it free from thrips by dipping in soapy tobacco water. Shading may be quite dispensed with now in this department. Cattleyas can well stand a considerable amount of sun heat, and be the better for it. It would be well if growers would watch such plants as Cattleyas, and allow them to receive as much sunlight as they can well stand; many species of *Lælias* and Cattleyas can stand more sunshine than many persons would think they could. During the present season the large house in Messrs. Backhouse's nursery at York (which contains an immense number of Cattleyas and *Lælias*) was freely exposed to the sun all day long, and its contents seemed to like the drenching overhead which they received from the syringe even when the sun was shining upon them. The temperature of this house should be 60°.

COOL HOUSE.—The occupants of this house like plenty of moisture, and if exposed to the sun it is difficult to keep the atmosphere too moist. Where the house has a north aspect water should be sparingly distributed during dull weather, and if the house receives little or no sunshine do not damp the paths or stages more than once in a day. Much moisture with little artificial heat causes the flowers of *Odonoglossums* to become spotted almost before they open out to their full size. *Masdevallias* ought now to be growing freely. Some of them, such as *M. Veitchiana* and the beautiful hybrid raised from it, named *M. Chelsoni*, have a tendency to flower now, as well as in the spring and early summer months. It would be better if they did not flower now, but reserve their full display until the early summer, but we cannot help it, and the only way in order to get the best possible bloom in spring is to pick the flower-buds off as soon as they show themselves beyond the sheaths. *M. tovarensis* flowers only in the winter, and its beautiful clear white flowers are ever welcome. Our plants which made capital growth in the summer are now producing flowers in abundance; the buds are just showing themselves beyond the sheaths, and it is very desirable to watch them nightly, in case slugs or snails should be inclined to make a meal of them in preference to the baits of Turnip or Carrot laid down to attract them. The temperature may sometimes fall as low as 50° at night now, and it need not be higher as a maximum than 65°.

KITCHEN GARDEN.

GET all late Potatoes lifted as soon as possible; if they could be put into sheds, properly sorted, before finally clamping them for the winter, all the better; if not, put them into clamps at once; 3½ feet wide will be sufficient. Give them first a good covering of straw, and then another of earth; but that most objectionable plan of leaving chimneys

must be avoided. They only let in the wet, and do harm instead of good. Make another sowing of Spinach; keep well cultivated early spring Cabbage and Lettuce quarters; hoeing one row and walking in the other leaves the whole piece smart and trim. French Beans must be earthed and rodded as they make progress and another batch sown. Endive may now be lifted, laid in under shelter, and have charcoal slightly sprinkled among it to keep it from rotting; when nicely blanched it makes a very pretty and fairly good salad, and as a change desirable. Mustard and Cress must also be sown in small boxes, and a regular supply kept up. Get late Celery well earthed up, and any Broccoli or Walcheren Cauliflower not wanted may be lifted and shedded. It keeps well tied up by the heels in a dry shed, or laid in among soil, covering up the roots.

PROPAGATING.

ALL tender plants intended for stock or further use next season should be by this time secure from frost. Echeverias and other tender succulents will be found on being lifted to have formed a number of offsets around the collar, which may be taken off and dibbled in well drained boxes of sandy soil, and placed on a dry shelf, where they will root, and by bedding-out time, though small, will be large enough for many purposes. At the same time, any that are found to be too tall may be at once cut down; the tops should be put in comparatively small pots, and if kept free from damp during the winter will be rooted and ready for use in spring. One of the last plants propagated is generally the Calceolaria; for this a cold frame is best, as it dislikes heat; in fact, an error is often committed by giving cuttings of all kinds too high a temperature; a few degrees higher than that in which they have been—80°—is of assistance, but if much exceeded the chances of success are reduced. The better plan where it can be carried out is to keep the plants for a week or so before taking the cuttings in the same temperature as the propagating house; of course, where planted out such cannot be done, but in the case of new or choice plants where the success of every cutting is a consideration such a practice should always be followed. Greenhouse Rhododendrons of the Princess Royal section strike readily from cuttings, and grow away as freely as those that are grafted. Take the cuttings in summer when the growth is moderately firm, *i.e.*, half ripened, and as the new growth consists of a length of naked stem with a cluster of leaves at the top, it should be cut down close to the leaves of the preceding growth, and at the base of the cutting will be found two or three dormant buds, which, if retained, assist the formation of roots. Thumb pots, in which each cutting is inserted singly, are the best; they may be filled one-third with broken crocks or charcoal, and the remainder with fine sandy peat, space being left for a layer of sand on the top. Care must be taken to press the soil firmly down, and when the cutting is inserted, there must be no cavity left around its base. After being watered the pots and their contents should be placed in a close case, kept at an intermediate temperature, shading, watering, &c., as in the case of other cuttings, and they will be well rooted in about two months, when they may be gradually hardened off. When confined in close cases a sharp eye must be kept for their great enemy, thrips, which, if once allowed to effect a lodgment, soon disfigure the plants. On examination a few will be found to have emitted no roots, although there is a large irregular callus; in that case one of the best incentives to root formation is to take them out of the pots, cut off a few protuberances from the callus, and re-insert as before in fresh soil; so treated, roots will in most cases speedily push from the fresh surface. This principle may be followed out in the case of most subjects that root tardily. Another method by which we have been successful with subjects difficult to root is, after taking them out of the pots to put them in the Cocoa-nut fibre forming the bottom of the case; but if this be followed increased watching will be necessary;

the fibre assists the formation of roots, but they speedily decay in it if not potted off.

All fruits such as those of Roses, Thorns, &c., should as soon as gathered be mixed with sand and placed in a heap outside, commonly known as the rot heap; in this not only does all the fleshy matter rot off, but the seed is kept moist all the winter, and when sown in the spring soon germinates; whereas, if kept in a dry state till sown its germination is much more irregular, and it will be found that many will lie dormant the following spring.

FLOWER GARDEN.

LIFTING AND STORING GLADIOLI.

To what extent bulbs of any kind suffer from being for any length of time out of the ground it is hardly possible perhaps to tell; but in the case of Gladioli, I am persuaded that they do suffer from this cause to a serious extent. In my own practice I therefore make it a point to leave them in the ground as long as it is safe to do so, and the character of the plant shows that this treatment must be right. The Gladiolus is an autumn-flowering plant, and when in flower, if in a healthy condition, the foliage is quite green, and remains so for some considerable time after the flowers fade. I find in dealing with a rather large number of Gladioli that in the case of all vigorous examples they are most reluctant to go to rest, for neither heavy autumn rains nor a few degrees of frost have any effect on them, and frequently I leave them alone in the soil until I am afraid to trust them longer out of doors. I have more than once proved, when the corms have been 3 inches or 4 inches under the surface, that 10° of frost do not injure them. I, therefore, frequently leave them out until the middle of November, and in the case of choice sorts still green at that date, I have left them undisturbed a fortnight later, and only lifted them when severe frost has been likely to set in, and I have always found that corms so treated produced the strongest spikes of bloom the following year. I have frequently had young stock raised from spawn green and growing in mild winters in the middle of December. I therefore maintain that it is not a good plan to lift them earlier. The earliest date should be the middle of November, except in colder districts, where winter sets in earlier than it usually does in the west of England. The next important step is not to hurry them after they are lifted. When we have decided to lift our stock, the beds are gone over and the stems cut down to within 9 inches or 1 foot of the bulb, and I consider that the piece of stem thus left assists the ripening process. When lifted they should be laid on the floor of a dry shed or loft secure from frost, and if they be three or four thick it is of no consequence. Thus situated, they will ripen slower, which is better than hastening the drying process. After they have laid in this state for a fortnight, they may have their stems cut clean away from the bulbs. The young bulbets should also be rubbed off the base of the bulb and the old roots cut off. The cooler their winter quarters are the better, provided they are dry and frost is excluded. Where the number of bulbs is not large, they may be put into paper bags and suspended to the roof of a dry shed or room. In every case it is desirable to keep the air from them as much as possible. In our case, having a large stock, we place them in flower-pots and put a layer of sawdust over the top of them to exclude the air. The pots are placed on the floor of a loft, and the spawn is treated in the same way. J. C. C.

Lobelias from cuttings.—The blue Lobelia being a plant so easily raised from seed, many adopt that plan of getting up stock as the most economical, but from repeated trials I can safely say that plants from cuttings or division are preferable, as they keep more uniform and dwarf in growth than seedlings that are as a rule apt to assume a straggling habit. The way I find to

answer well is to grow a few plants in pots or boxes specially for propagating purposes; small or weakly plants, the surplus of the bedding-out stock, I set in the reserve garden and keep them supplied with water. The flowers are kept clipped off about 2 inches high; they thus become dense tufts of green growing shoots by autumn, and are wintered in cold frames. In February they are pulled to pieces and dibbled into boxes or pans, and if kept pinched in every one will make good tufty little plants by May.—J. G., *Hants.*

SILVERY-LEAVED SUNFLOWER.

(*HELIANTHUS ARGOPHYLLUS*.)

Now that the annual and perennial Sunflowers are in full bloom, it may be well to direct attention to one seldom seen, though, without question, one of the finest of all. It is an annual, but possesses several advantages over the common kinds



Helianthus argophyllus.

inasmuch as the flowers are produced more abundantly, the foliage is handsomer, and it makes a finer bushy specimen, as will be seen by the annexed engraving. It usually grows from 4 feet to 5 feet high, branched to the base, and each branch bears, as a rule, several flower-heads about 3 inches across. Their colour is bright yellow, with a conspicuous disk of blackish purple. The whole plant is clothed with a greyish pubescence, especially the younger branches, thus giving it a silvery appearance. It is specially well suited for culture in small gardens; it is not so coarse in growth as the common Sunflower, and, moreover, should it be desirable that the plants be kept dwarf, that can be done by stopping the shoots. It was introduced some years ago from Texas by Messrs. Vilmorin, of Paris. Another annual Sunflower, *H. cucumerifolius*, from the same region, is also a desirable species. W. G.

Flowers in masses.—A mass of *Crocus speciosus*, 10 feet by 12 feet, at the Lawson Nursery, near Edinburgh, when seen in full sunshine, is as beautiful a bit of colouring as could well be seen in an autumn garden, and shows well the advantage of growing some flowers in large groups rather than in small scattered clumps. A yard or two square of this *Crocus*, with its finely pencilled blossoms of bluish lilac and deep red pistil, would increase in beauty year after year if left undisturbed. A year or two ago I saw, in early summer, an almost equally good mass of colour in this nursery in the shape of a bed of *Orchis foliosa*, the shade being bright purple and

the height from 1 foot to 1½ feet or more. This Orchis is grown here in very sandy loam, which seems to suit it as well as heavy loam or damp peat. It is one of the most easily grown of all hardy Orchids. A collection of the old Scotch Roses (varieties of *Rosa spinosissima*) has been made in this nursery, including about a dozen kinds. Their peculiarly sweet scent might well win for them a place in the wilder parts of every garden, and they require but little care.—C. M. O.

BEGONIAS IN THE OPEN AIR.

THERE seems to be some diversity of opinion as regards the suitability of the tuberous Begonia for the open border, though it is now conclusively proved that it is sufficiently hardy, seeing that it flourishes out of doors so far north as Perthshire almost as well as on the Sussex and Cornwall coasts. The fact is, the tuberous Begonia is about as susceptible of injury from late frosts as the Potato which hails from the same region. Where the Potato thrives the Begonias will also succeed. But a variety of circumstances militates against the Begonias flourishing equally well in all parts. By flourishing is meant a copious crop of bloom of good quality. In some bleak localities in the midlands it will not flower well, while, on the contrary, at Drummond Castle, in Perthshire, which is sheltered, it thrives. There are certain localities in which it may not succeed so well as in others, but even in these it may be made to do well by a little careful treatment. That is, the plants should be allowed to start gradually, so as not to draw them up in the least. By so doing, they make stronger and shorter growth, and flower from the very base. They should be planted out after all fear of frost is past in rich, free soil. If the weather subsequently be dry, the plants should receive copious and frequent waterings, and the surface should be mulched with Cocoa-nut fibre refuse. Putting aside all expressed opinions as to the adaptability of the plant for open-air culture, we will endeavour to describe what we saw the other day, and what everyone may now see in Messrs. Laing's nurseries at Forest Hill. Here, as is pretty generally known, the tuberous Begonia has for years been the leading speciality, and each succeeding year its culture seems to be on the increase. During the past few years the stock of seedlings has been planted out to mature their growth, and this season this planted-out stock is enormous, amounting to some 70,000, so that there is ample material by which to judge of the plant's aptitude for open-air culture. The effect of these planted-out Begonias is indeed very striking, and throughout the whole grounds there is great uniformity as regards the size of the plants, habit of growth, and floriferousness. Even in the short time during which they are planted out they make very bushy growth, and the stems are so stout and strong, that no supports whatever are required.

Seen from a distance of a hundred yards or so, we thought these long Begonia beds contained Pelargoniums (whites, scarlets, crimsons, and pinks), so dense were the masses of colour. These beds all run in a longitudinal direction, and are some 4 feet wide, and each, so far as is practicable with seedlings, contains plants of distinct colours, and it is somewhat remarkable how uniform the colours are, there being very few of what are called rogues among them. For instance, in the long beds of white sorts there is only here and there a coloured plant, thus showing that a packet of seed gathered from plants of any particular colour can be relied on to produce any desired effect. The beds of crimsons, of roses, of pinks, and of scarlets are all free from mixtures, and, as may be imagined, such broad masses of brilliant hues produce a grand effect. Though so bright, there is not that glare about Begonias that there is about Pelargoniums, as the flowers are borne amidst dense foliage, which tones down the brilliancy of the blooms. Any unbiassed person seeing these beds as we saw them last week would without doubt think with us that they con-

stituted a very fine sight—one that augured well for the Begonia as an open-air plant.

Fine as the bulk of the outdoor plants is, however, they are surpassed by a smaller group of longer established plants in the same nursery. These range from 9 inches to 18 inches high, and are fairly smothered with bloom of various colours; in short, it is the best bed of Begonias we have yet seen. The majority of the plants in the open beds are seedlings raised in January last; hence they can hardly be termed established. The rapid system of culture, too, and the vast quantities of plants to be dealt with are against large development. The seedlings are pricked out into pots, then into shallow boxes, and in the first week in June are planted out in drills 6 inches or so apart. The ground is well prepared and manured, but at the best the plants cannot, of course, have the attention that a small quantity would receive at the hands of a private grower. During the next few weeks all these beds will be carefully examined, so as to mark the finest varieties and also to separate the colours, so that when the bulbs are lifted next month for storing and sale, each particular colour is put by itself. As the seed from which these plants were raised was from the finest varieties, there are some remarkably fine sorts among the thousands raised, but only the very finest—and these must be fine indeed—are marked for special culture next year; the others are sold as unnamed seedlings. The storing of the tubers, often a failure with inexperienced cultivators, is a simple matter here. After being lifted they are placed in Cocoa-nut fibre (dry soil will do), and kept in a dry place secure from frosts. Thousands of tubers are stored here every autumn, and pass through the winter without any mishap.

Cimicifuga racemosa is a fine autumn-flowering perennial. It is now coming into full flower, and its stiff spikes, closely studded with many-thered white flowers, are quite distinct from anything else in the borders. The handsome evergreen foliage is apt to be damaged by high winds, so it should have a sheltered position. It increases freely in deep, moist loam or peat. This plant is very rarely seen in gardens, and may find a place in the choicest collection.—SALMONICEPS.

Lilies in the shade.—I see in THE GARDEN (p. 239) an account of Lilies grown in the shade, and I should like to give you my experience of Lilies grown in a bed entirely shaded by a house till noon, but after that fully exposed. They were replanted in an open bed two years ago, and the only attention they have had since has been to keep them well watered and the ground well carpeted with Sedums. From one bulb of *speciosum rubrum* I have this year two stems, one bearing twenty-eight flowers, and forming a perfect pyramid of bloom 21 inches high and 17 inches across the base, this pyramid being borne aloft on a leafy stem of 33 inches high, making the total height above ground 4½ feet. Finding the flowers would not expand properly out of doors, owing to damp and flies, I cut them and put them in water indoors, where they are opening beautifully. Within a foot of this fine specimen of *speciosum*, Browni bore two magnificent blossoms on one stem last July.—ELLEN CROUCH, *Segenhoe Manor, Woburn, Beds.*

Lilium neilgherrense.—This may be said to be the last Lily to unfold its blossoms, for though it occasionally flowers as early as August, it may frequently be had in perfection as late as October. In common with other kinds, its season of flowering of course depends to some extent upon the temperature in which it is grown, and in order to ensure its flowering late it should have but very little artificial heat given it. It may be classed among uncommon Lilies, as good flowering bulbs are rarely to be obtained, while small ones, though comparatively plentiful, do not increase in size very quickly. This Lily belongs to the longiflorum section, but its flowers are in all respects larger than those of that kind, and they are generally of a pale primrose colour, though

in this respect they vary a good deal. The Neilgherry Lily is very peculiar as to style of growth. The flower-spike, instead of ascending, will run along in a horizontal direction, or even slightly descend and make its appearance perhaps a foot or more away from the bulb, that is, if planted out; but as we generally keep ours in 5-inch or 6-inch pots, it is impossible for them to travel in that way. In this case the underground stem runs round the inside of the pot, or even descends to the bottom, and sometimes never makes its appearance on the surface. These underground stems produce young bulbs at intervals, thus affording a ready means of increase. Until growth commences it is impossible to pick out the bulbs that will flower properly from those that grow in this singular manner. The best results are obtained in our case by treating this Lily as a greenhouse plant; if the bulbs are obtained early in spring, pot them at once in a mixture of fibrous loam and sand, and keep an extra amount of the latter all around the bulb. If the soil be kept moderately moist, roots will be pushed forth at once, and when all danger from frost is over the plants may be removed to a cool frame and kept there till the flower-stems push up, when they may be placed in the greenhouse. After flowering the foliage will keep green till nearly Christmas, when as soon as the least signs of decay are visible the bulbs are repotted in fresh soil, keeping the upper portion of the bulb about an inch below the surface.—H. P.

Lilies in the sun.—Plants of *Lilium lancifolium* album are growing admirably in the gardens here on a south border fully exposed to the sun. They form a single row at the back of a ribbon border 120 feet in length; no protection whatever had been given either the plants or bulbs in summer or winter; the stems are clothed with luxuriant foliage, and their lengths vary from 4 feet to 6 feet, most of them being about 5 feet. I should say one-third will average about 6 feet, with thirteen flowers on each; the whole row has about 10,000 flowers on it or more at the present time. The sight, I assure you, is grand. This row of Lilies has been growing in the same border over twenty years, having been renewed once in three or four years. Let me remark in fairness to Mr. Wilson (whose Lilies I have no doubt are magnificent specimens) that in the autumn of 1881 this row of Lilies was renewed, planting what were not required for the south border into a north border. The result is good, but not equal to that from plants in full sunshine.—CHARLES EDWARDS, *Pentillie Castle, Cornwall.*

SHORT NOTES.—FLOWER.

Alstroemeria aurantiaca.—Having saved a good supply of seed from my plants of *Alstroemeria aurantiaca*, mentioned in THE GARDEN (p. 77), I shall be very pleased to send some to anyone who sends me a stamped and addressed envelope.—JOHN T. POË, *Riverston, Nenagh.*

Cuphea platycentra.—This is always greatly admired at this season of the year. The plants in the garden here have made large bushes quite covered with scarlet flowers; they receive no injury whatever from rain, and require no staking or tying, whether in the form of isolated specimens or planted in beds.—J. DOUGLAS.

Tigridias.—My acquaintance with Tigridias extends over a quarter of a century, but never before have I seen them bloom so profusely as they have done this autumn; one bulb produced two flowers, each having five petals, and one with seven petals. Is this a rare occurrence?—W. B., *Windermere.*

Crimson Clove Carnation.—It is wonderful the amount of bloom that this fine hardy flower will furnish when well grown, but it must get careful and liberal culture. It is taken good care of in the gardens at St. George's Hill, where it has a good loamy soil, bushels of flowers being cut from it during the season.—J. C. B.

Ixiolirion tataricum.—This was exhibited at a recent meeting of the French National Horticultural Society by M. Duval, and is described as being a charming plant, quite hardy, and very floriferous, the flowers being bright blue. It is a native of Turkestan, whence it was sent to the Museum of Natural History.—J. C. B.

Two bright October flowers.—These are *Lobelia fulgens* and *Anemone japonica rubra*, both so bright and effective under a cloudy autumn sky, that they should be much cherished by all who are fond of gay flowers in the open as long as they can be had. The red Japan Anemone makes a fine display *en masse*, and it is only thus that it is seen in perfection.—J. C. B.

Bouquet Dahlias.—Dahlias, show, fancy, single, and bouquet, are so well represented in Messrs. Laird's nursery at Pinkhill, near Edinburgh, that the various merits of the different sections are easily seen. For a mass of brilliant colour the single kinds are certainly the most effective; but the large double flowers, from the fine form and size which has been arrived at by careful culture, bid fair to hold their own in spite of the present fashion for single forms. Bouquet Dahlias have, however, the advantage of lasting much longer than the single kinds as cut flowers, and from their small size are also more available for this purpose than the large-flowered section. The following kinds are amongst the prettiest in this large collection of bouquet Dahlias, both from their variety of colours and from their small, well-formed blossoms: Bridal Wreath, very dwarf white; Little Beauty, differing from Aster (or Guiding Star) in having smooth-edged petals; German Favourite, very deep pink; German Daisy, dwarf lilac; Tom Thumb, very dark; Fair Ellen; John Sandy, orange, tinted red; Sacramento, orange-yellow; Toby, deep red; Sensation, clear yellow; Venus, light reddish purple; Sunshine, bright scarlet; Rosetta, bright purple; Yellow Pet, fine in colour, but the blossom rather too large. There is a decided likeness in form between the old purple bedding Dahlia Zelinda and the white Cactus Dahlia; the latter is well worth growing, though its blossoms are less Cactus-like than those of the true Cactus Dahlia.—C. M. O.

5046.—**Preserving bulbs from rooks.**—I would recommend "E. K. J." to try the preventive which farmers adopt in this neighbourhood in the case of their grain crops. Stakes are inserted at tolerably wide intervals apart, string being stretched from one to the other. This is found to be an effectual deterrent; the rooks, evidently suspecting a snare, very rarely descend upon land thus guarded, although curiously enough the small birds do not appear to mind it in the least. If unpeeled nut sticks are used and hempen twine, which is grey in colour, there will be nothing glaring or objectionable in this scare, and I will answer for its efficacy. Another good way is to shoot one of the offenders and expose it in some conspicuous position; the unerring instinct of the rook tells him that that is a dangerous neighbourhood and to be avoided. If neither of these plans should meet your correspondent's approbation, he might try dressing the bulbs with red lead before planting. This is a well-known preventive in the case of seeds and mice and birds, and I do not see but what it would answer as well for bulbs; at any rate it might be tried. Tar, which your correspondent suggests, would be likely to do harm, but I should not suppose that red lead would any more than it does seeds. The best way would be to try it with some of the least valuable bulbs and give it a fair trial before using it largely.—J. C. B.

NOTES.

Flowers of autumn.—Here and there Cyclamens, white and pink, beside the mossy stones, and closely nestling near the warmest of walls, Tritonia (*Crocasmia*) aurea glows in the sunshine, having somewhat of the warmth and colour of a cheerful fire in its orange-scarlet petals. Why is this plant so seldom seen? It has all the colour beauty of *Lælia harpophylla*, and is far cheaper and easier to cultivate, and grown in pots is most effective for conservatory decoration. Crocuses of the autumn-blooming race open their stars in the sunshine, *C. speciosus* being especially beautiful. *Senecio pulcher* and *Chrysanthemum lacustre* mate well together, but the flowers of this season are the single Dahlias and Pentstemons. Then spring-sown Windflowers are throwing up their first blossoms, and rosy-eyed Phloxes and gold-banded Japanese Lilies, with late-blooming Gladioli, Sunflowers, and Flame Flowers are trying their best to seem happy after the late rude storm.

Anemone alba.—This is one of the prettiest and most distinct of all the summer blooming

species of Windflower, bearing pure white flowers on stems a foot in height. We have grown it here for some years and have distributed it under the name of *A. dichotoma*. This last is a North American species, having smaller flowers also white, but purplish behind, introduced so long ago as 1768. Our present species is a more showy plant of spreading habit, and was introduced from Siberia in 1820. Our sketch shows *A. alba*, natural size. It blooms naturally during June and July, thus bridging over the hiatus which otherwise would exist between the spring blooming kinds and the autumn flowering varieties of *A. japonica* and *A.*

us so very seldom. Amid the creaking of branches and the crash of fallen trunks we are perhaps too apt to look on wind as a destroyer rather than as the strengthener which it undoubtedly is. When east winds blow during the spring time vegetation seems at a standstill. I say seems at a standstill, for in reality it is not so; the root fibres are most active, and the top growth of leaves and flowers is eventually all the better for the invigorating breeze. In root-growing districts the old farmers (who, in their own way, are the most observant of men) will tell you that Turnips and Mangolds never bulb until a strong wind or two



Anemone alba.

vitifolia. A peculiarity of *A. alba* is that its achenes or fruits are quite devoid of the wool or fluffy covering which in general covers the ripe seeds of Anemones of this section, so that in this species the seed heads are precisely like those of the common Buttercup (*Ranunculus acris*)—a compact globular mass of smooth achenes. *A. alba* grows freely in all soils, and deserves culture for the sake of its numerous pure white Buttercup-like blossoms.

The late storm.—We are, perhaps, a little too apt to look upon storms and hurricanes rather in the light of enemies than as the friends they undoubtedly are. Some wicked old cynic once said that if we only knew the real worth or value that our enemies were to us we should make more of them; and perhaps it is true also of wind storms which injure us most, because they visit

has swept over them, and so also, no doubt, we owe many fine trees to the exhilarating action of high wind, for after all it is but few, and those mainly the old and decrepid, which fall under its sway.

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Wall shrubs.—At this season of the year the sight of a graceful Virginian Creeper (*Ampelopsis virginica*) in its autumnal dress is one of the most pleasing of all the visions one may see in a sunny garden, especially if its dying colours be contrasted with the soft yellow *Wistaria* leaves or with Primrose and golden Sunflowers. As grown on sunny walls or fences, its leaves are now of all tints and hues between green, yellow, and crimson; indeed, so vivid is its autumnal colouring, that its parti-coloured foliage calls to mind the dying vine leaves of the sunny south, or those glorious Maple

woods which, as travellers tell us, seem to set the banks of the Hudson and other American rivers on fire "in the fall." The Japan Creeper (A. Veitchi) is not nearly so rampant in growth or so graceful withal, but it has the advantage of clinging to the wall neatly and firmly without any nailing. Just now it is very beautiful in colour, and it is very interesting to notice closely how its young growths seem to creep along the wall by means of their sucker-tipped tendrils, which remind one of a lizard's foot.

The Sulphur Corbularia.—Of all the Hoop-petticoat Daffodils this is the largest and finest in its way. There come many inquiries anent this new beauty. How slow our hardy bulb men really are! Here is a plant found by Mr. Llewellyn years ago—in 1875 or 1876, I believe; then Mr. Maw and the late Rev. Harpur Crewe rediscovered it in plenty, and a few growers obtained it for their gardens, including Miss Jekyll, who bloomed it last year, and yet it was not until Messrs. Collins & Gabriel imported its lovely flowers last season, and London society went nearly mad after the soft pale beauty of its blossoms, that any well-directed effort was made to obtain bulbs of it. Its present price varies from 7s. to 10s. per dozen, and a high price it is, seeing that the plant is wild in localities that garden-loving tourists frequent by hundreds every year. Any energetic collector might make a good thing of it by collecting its roots and selling them at 10s. or 15s. per hundred, and even at that rate it will be some years ere we have enough of such a gem among half-hardy bulbs.

Buying Orchids.—On all sides the Orchid-growing amateurs are shaking their heads at Orchid names, even if not openly complaining of them, and not without some just cause. Take the names of *Odontoglossums*, for example, or of *Cattleyas*, names which, as every practical Orchid grower knows, are unreliable and often misleading to purchasers. I am afraid a list of names would be of little service to "A. D. C." (p. 263). The only sure way of avoiding disappointment now-a-days in Orchid buying is to purchase plants in flower only. True, good varieties in bloom will be more costly in the first instance, but then one is quite sure of the quality of the article. Imported plants are cheap enough and far better worth buying than are established plants not in bloom which now and then make their appearance at auction sales, but the buying of Orchids, like the purchase of diamonds or pictures, is an art only born of much experience. Even the best of judges are now and then disappointed; amateurs are sure to be so until their instinct becomes sharpened by practice. Orchid sales are lotteries in which are a few good prizes and many blanks.

Orchid names.—As at present indiscriminately given, the names of Orchids only serve to make confusion more confounded, and we have a tottering babel of names and an array of "descriptions" which it is some consolation to know perplex the botanist himself quite as much as they do the professional gardener or his employer, or the amateur. If we had collected all the Orchids of the world, there would be some slight hope for us, but every day brings to light fresh varieties, and what is called a species to-day is to-morrow proved to be the "missing link" connecting two or three other plants which formerly had been dubbed as species themselves. Nor is the botanist wholly to blame, since no sooner does a remarkable variety of *Cattleya*, *Masdevallia*, or *Odontoglossum* bloom, than names are tacked on to it by the importers, and in some cases even by amateurs themselves. In a word, to give Latin names to mere seedling forms or varieties of Orchids is quite unworthy of the botanist proper, and such a course is degrading in every way. Latin names are all very well for tolerably distinct "species," but to use Latin for mere garden varieties, or wild seedling forms, as much alike as seedling *Primroses*, is only the making of a "slough of despond" for all concerned.

Fruits and vegetables.—Curious quibbles are continually arising as to what are fruits and what are vegetables. Only yesterday the question was put to me, and as a rule the mistake or error of definition arises from regarding the use to which garden produce is put rather than considering the origin of the produce itself. Thus a fruit is really always a fruit, no matter how used; even if used raw as a vegetable it remains a fruit properly speaking. Cucumbers, Vegetable Marrows, Runner or French Beans, Peas, and Tomatoes are literally all fruits, although popularly grown, used, and exhibited as vegetables. So, on the other hand, we have some vegetables, as Lettuce stems, rhizomes of Ginger, and leaf-stalks of Rhubarb which, preserved with sugar, not unfrequently find a place among preserved fruits. Really, however, the whole thing lies in a nutshell. A fruit (no matter how used) is the result of floral or sexual growth, while true vegetables (*i.e.*, excluding fruits which are used as vegetables) consist of vegetative growth only. Thus, of leaves, as in Spinach; of the blanched stems, as in Asparagus; of leaf-stalks, as in Rhubarb or Sea-kale; of tubers, as in Potatoes and Artichokes; of bulbs, as in Onions; of involucre bracts, as in Globe Artichokes, and so *ad infinitum*.

Culinary fruits.—That opinion should differ is but natural, and I was at an exhibition the other day whereat a little scene occurred because the judges awarded the prize for "culinary Apples" to some unripe fruit (*Echlinville Seedling*), instead of to some ripe specimens of *Lord Suffield*, of (as the judges thought) less remarkable quality. The argument used against the judges' decision was that the *Echlinville* fruits, being immature, were less suitable for use than the ripe specimens of *Lord Suffield*; while, on the other hand, the judges maintained that ripeness was by no means a *sine qua non* in the case of fruit for culinary uses. My own opinion went in support of the judges'. Of course, everyone knows that mere ripeness is no test of the culinary qualities of fruits generally. Fancy a tart of ripe Grapes, ripe Gooseberries, or ripe Apricots, all delicious when cooked in a green state. Then who would venture to allow a *Cucumber* to ripen ere it went to table, or say a *Vegetable Marrow* intended for the kitchen. Ripe *Runner Beans* would be an innovation, and even as it is we are too apt to allow both *Peas* and *Broad Beans* to become too far advanced ere we use them. As a writer lately said in these pages, "A good *Pea* gathered at the right time is something delicious—not a hard bullet with some chlorophyll inside." Imagine, if that be possible, an experienced cook baking a dish of ripe *Pears*. No; ripe fruit for culinary use is a mistake.

The new botany.—"I hold the opinion that the position, direction, and shape of the leaf is of just as great a significance for the preservation of a species as is the form, colour, and smell of the flower; and that no hair is meaningless, whether found on the cotyledon or the leaf, on the stem, or the blossom." Thus writes Kerner (see p. 6 of "Flowers and their Unbidden Guests"), and I quote the paragraph as it stands because it bears out what I have long thought and written in connection with botanical drawings. The botany of to-day demands a truth of line and of tint unthought of a few years ago. Darwin, Lubbock, Muller, Grant, Allen, and Kerner all show us what potentialities there are in seeming trifles such as a glint of colour in a petal, the twist of a leaf, or the pose of a stem. When we look at the engravings of two or three centuries ago they are crude and stiff compared with the best work of to-day, and we, too, must not forget that fifty years hence our wood engravings and coloured plates may be weighed in a balance ten times as delicate as that in which we now weigh the work of the past. Our illustrations cannot be too photographic in truth; they must be "studies" in the best sense of the word. Of all things taught by evolution we must see, unless wilfully blind, that the day of bad drawing and of coloured diagrams is gone for ever.

VERONICA.

ROSE GARDEN.

AUTUMNAL ROSES.

To my mind the first and late blooms of *Roses* are the loveliest. The first, because they are the harbingers of better things. How eagerly do we watch the first buds in spring, and how many are the guesses we make as to which will be the first to open. It often, however, happens that those which we think most likely to open first disappoint us, some later growths outstripping these earlier formed buds. For some years I have made notes respecting the first and last *Roses* of the season; and on referring to these notes I find that in 1878 the first bloom was cut here on May 12, it being *Xavier Olibo*; the following day we gathered a bloom of *François Lacharme*, while by the 20th of the same month we could cut a beautiful lot, consisting of upwards of twenty varieties. By the end of the month the cut-backs and standard maidens were all in full blossom, and by the middle or second week in June the dwarf maidens were coming in fast, so that by the end of the month in question our *Roses* were in their best form. In order to show the variability of our seasons I may mention that in 1881 our first bloom was not gathered until June 29, a difference of forty-eight days between this year and the year of 1878. The *Rose* gathered on this occasion was again *François Lacharme*, a beautiful compact *Rose* of medium growth. So quickly did others follow, that by the second week of July they were in splendid form on all cut-backs, while the maidens in this year were not in full bloom until the first week in August. Coming to this year, our first bloom was cut on June 10, being a new *Rose* sent out by us some twelve months ago, named *R. C. Sutfon*. Amidst the hurry and bustle of

THE EXHIBITING SEASON the *Rose* grower for sale has but little time to notice the different characteristics and qualities of *Roses*, while later on, with leisure, after the budding season is over, he can walk amongst the plants and watch minutely the second and richer bloom. The dewy morns and lengthened nights add to the beauty of many kinds which in hot summer days are passed over. The greater stars have in part disappeared, and the lesser lights now light up our rosery. Our summer and special bloom is indeed delightful, and perhaps to the trade more remunerative than the later bloom, but each has its charm. The summer blooms of *Souvenir de la Malmaison* have now changed from that flattened form to flowers much deeper and more globular and richer in tint. *Annie Wood*, whose characteristics in the earlier season are not of the most pleasant to the exhibitor, is now so bright, so rich, and full, that she is not unequal to any of the brighter *Roses*, and now may be classed with such kinds as *Marie Baumann*, *Alfred Colomb*, *Louis Van Houtte*, or *A. K. Williams*. Certainly of this *Rose* it may be said that its autumnal form quite eclipses that of summer. The too-often-condemned *Paul Neyron* is now, on the cut-backs in form and delicacy of colour, all that could be desired, and not inferior to that earlier *Rose* of the same shade, *François Michelin*. *Duke of Edinburgh*, one of the best of our English productions, is never so rich and pleasing as now. *Dupuy Jamain* and its twin sister, *Auguste Rigotard*, under the cooler days and heavy nights of autumn display such fulness of petal as one does not see in the same *Roses* in the earlier summer. There are others, too, of the *Hybrid Perpetual* class over which one might linger, and some which remain constant and good throughout the whole blooming season. Among these may be noted *A. K. Williams*, *Marie Baumann*, *Alfred Colomb*, *Duchess of Bedford*, *Charles Darwin*, *Senateur Vaisse*, *Ferdinand de Lesseps*, *Baroness Rothschild*, *La France*, *Louis Van Houtte*, and that grand new pink *Rose*, *Pride of Waltham*. My notes as to autumnal *Roses*, however, would not be complete if I dwelt only on the *Hybrid Perpetual* class; there is that beautiful class,

THE TEA ROSES, ever lovely and sweet, but never so profuse in blooming, never so rich and sweet in perfume as now. This class especially seems to put forth its full vigour and beauty in autumn, and will not cease until cut off by autumn frosts. Madame Berard, Madame Lambard, Catherine Mermet, and Belle Lyonnaise are the most prominent of those that bloom better in the autumn than in summer, and we must not forget that grand old Rose, Gloire de Dijon. To those, then, who want Roses from June until November there are ample, and a careful selection will reward all lovers of our greatest national flower, the Rose.

Beeston, Notts.

W. H. FRETtingham.

ROSES IN POTS AT CHESHUNT.

ROSES in pots are grown here in enormous quantities. The place for number and prominence here, as almost everywhere, must be assigned to *Maréchal Niel*. House after house, almost to infinity, seemed to be filled with these in 6-inch and 8-inch pots. The general method of culture is to a single or few stems. These are trained up straight to a height of 6 feet or 8 feet or more. The plants are placed thickly together, like Grape Vines, in pots on the floor of the houses, or on low central or side shelves or stages. They are worked on seedling Briers and all good alike—almost as if cast in a mould. The sight of so many plants of such vigour and general excellence gives one a loftier idea of the superlative excellency and usefulness of this magnificent golden Rose than any amount of the most eloquent eulogy. Judged by any ordinary standard of worth, such as the number of plants grown and sold annually, the amount of capital invested in it, the number of hands it employs, the measure of pure pleasure the Roses impart, &c., the commercial and social value of this Rose grows up to overmastering dimensions. It may be said almost to have created a new industry of such huge dimensions and of such a beneficent character, that all rosarians may well rejoice in and be proud of. *Maréchal Niel* may also be said to have originated a new method of growing Roses in pots. The solitary, or at most dual, stem system of growing Roses in pots might have been known and practised in a few solitary cases, but was never exalted into a system till the advent of *Maréchal Niel*. Even now probably Mr. George Paul is almost the only one who grows it thus in a wholesale way. The system seems made for the Rose, as the Rose is for the system. The concentration of force into a single stem forces each plant into a giant alike in strength and stature. In the case of many other Roses this might prove a very doubtful service to the future beauty and usefulness of the Rose, but for the *Maréchal* this may be said to be perfect culture. One or a few of those stems or rods fairly ripened from base to summit as near as may be is already a cordon of golden Roses in embryo. Coil these round a few stakes, run them up glass roofs or front lights, lower them down into a pit or frame and cover them with glass, place them even upright in a light house, and provide a genial temperature, and the shoots burst forth into golden nuggets at every bud. Such methods of manufacturing and developing Roses were virtually unknown until the advent of *Maréchal Niel*. Given the initiatory stages, and the results are almost as certain as a problem in mathematics, and the trade does the initiatory work at the most reasonable price to all who wish it. How numerous these wishers are none can have the slightest notion but the trade and those who visit their enormous manufacturing factories for the working up to flowering size of *Maréchal Niel* and other favourite Roses. To the question of

WHERE CAN THEY ALL GO, the answer is uniformly the same—all sold out last year, and our only difficulty is to supply our ever-increasing demands. And, amid much that is discouraging in our social and commercial condition, this growing love and insatiable craving for Roses is one of the most cheering signs of the times. The facilities for cheap and rapid delivery, and more facile distribution of such plants as Roses afforded by the

parcels post, will give a fresh stimulus to a trade alike profitable to the florist and pleasant to the consumer. Immense quantities of all the best Roses are grown in pots at Cheshunt, and such useful varieties as *Niphetos*, *Marie Van Houtte*, *President*, *Souvenir d'Elise Vardon*, *Perle de Lyon*, *Mad. Willermoz*, *Mad. Angele Jacquier*, *Letty Coles*, *La Boule d'Or*, *Isabella Sprunt*, *Gloire de Dijon*, *Devoniensis*, *Comtesse de Nadaillac*, *Catherine Mermet*, *Alba rosea*, &c., are grown in quantities, while the new pink or purplish Tea *Madame Cusin* formed quite a fresh feature alike indoors and out. The majority of the Teas are grown in rather small pots, thus enabling immense quantities to be packed into the houses without overcrowding. The whole were pictures of health and luxuriance, and being placed near to the glass in light and open houses were full of flower and of buds in succession. Those familiar with Tea Roses know how many of them are refined, as it were, by culture indoors, and will have an idea of how delicately beautiful house after house must have looked in August filled with plants in bloom. Wherever there was a niche or cranny on roof or wall unoccupied these too were furnished with *Maréchal Niel* or other Roses planted out. Next to the amazing numbers grown, the uniform health and perfect cleanliness of the stock were the most striking features.

THE GIANT SPECIMENS with which rosarians are familiar at the great shows were doing their autumnal maturation in a roomy, lofty house by themselves. These are indeed giants in stature as well as in robust strength. Smaller specimens in 8-inch and 10-inch pots filled other houses or stood in cosy, snug places in the open air. Magnificent as the big specimens are, the smaller ones are equally or more interesting in their way, besides, being within reach of all; whereas one of the giants would be as embarrassing to most rosarians as the proverbial white elephant.

However useful and striking Hybrid Perpetual and other Roses, such as *Chas. Lawson*, are in pots for exhibiting purposes, there can be no question that Teas with a few *Noisettes*, such as *Lamarque*, *Celine Forestier*, *Caroline Kuster*, and *Maréchal Niel*, are the Roses *par excellence* for pot culture. With a proper selection and careful culture, such Roses are always in flower. The collection shown by Mr. George Paul at Manchester last year was exhibited three or four times during the season. Either with or without a rest, forced on them by changes of temperature, position, or treatment, such, for example, as the removing of the plants indoors to out, or the partial withholding of water, flowers or buds may always be had either in view or near prospect; and there are no plants which will yield such rich harvests of fragrance and beauty within the same time in the same area as Tea Roses in pots. For the special purpose of continuous blooming little or no training should be indulged. Most of the Teas naturally assume a pretty bush form, and this form is readily retained by the aid of one or more stakes and by the prompt pruning or cutting back of every shoot the moment it ceases blooming, the extent of the cutting being regulated by the size and form of the plants and the habit of the variety. A good deal depends on the latter. For example, *Niphetos* is a capricious breaker, and must be pruned with a special knowledge of its habits. *Maréchal Niel*, again, should hardly be pruned at all, and can hardly be forced into blooming in continuity or even succession in pots. On the other hand, such Roses as *Devoniensis*, *President*, *Souvenir d'un Ami* and many others can be bloomed again and again during the summer season by the treatment here indicated. With the aid of glass and moderate heat, the evergreen character and ever-blooming qualities of Tea Roses are fully developed and maintained, and where these are provided in well-lighted houses there is no reason why Tea Roses in plenty should not be cut all the year round.

The development of Tea Rose culture in pots is daily rendering this consummation so devoutly to be wished more easy of attainment. And when our morning Roses will become as much a neces-

sity as our morning papers, due credit will perhaps be given to Mr. George Paul and other pioneers and fosterers of the successful culture of Tea Roses in small pots that have done so much to make Roses every day in the year less a luxury for the very few than a necessity for the many, and a pleasure within the reach of all. D. T. F.

Baroness Rothschild and Mabel Morrison Roses.—We have lately been cutting some fine flowers from these two Roses, especially from plants of the first named on their own roots. The individual flowers are large and delicately shaded with such a soft pink as only the subdued light of autumn can bestow on them. Mabel Morrison has been very beautiful, but not so well able to stand against the winds and rains which generally occur late in September. Nevertheless, its flowers are most acceptable.—J. C. C.

Rose Solfaterre.—This old-fashioned Rose is not now found in many lists. Like *Cloth of Gold*, I suppose it has in most cases died out. I have a plant of it growing on my cottage that must be considerably more than twenty years old, for it has been there long enough to extend its branches to a height of 20 feet, and in another direction to nearly 50 feet. It flowers freely in June, but after that it does not produce many flowers. It is, nevertheless, valuable on account of the freedom with which it grows. It is, however, not so hardy as some other climbing Roses.—J. C. C.

KITCHEN GARDEN.

VEGETABLE CROPS.

NEVER before do I remember a better season than this has been for vegetables. During the early part of the summer the weather was cool, with frequent showers of rain, conditions which were highly favourable for getting out the plants and giving them an early start, and this they got, which enabled them to bear the drought when it came without suffering, as the roots had penetrated and forced themselves well down in the earth. Cauliflowers received a little check, but the soaking rains which we have had improved them, and they are now turning in grandly, especially that very fine kind, *Veitch's Autumn Giant*, which is by far the best Cauliflower for this time of year, as it is not only large and solid, but is very mild and delicious in flavour, and may always be depended on for turning in well. *Couve Tronchuda*, or *Portugal Cabbage*, is also a most valuable vegetable for this time of year, and should be largely grown, as it produces big loose heads, which, when cooked, are exceedingly tender and marrow-like, and more delicate than the best sorts are in the spring. Where many make a mistake when growing the *Couve Tronchuda* is in not using it before frosts set in, which, as it is somewhat tender, affects it in such a way as to make it strong and spoil the rich flavour. Celery at one time looked as if it would be greatly injured by the maggot, but the plants have got over that, and are now growing very fast, the rain having benefited them much by making the air cool and soaking the soil about their roots, and thus starting them off. It is the practice with some to earth up Celery early, but it is a bad plan, as should the weather set in dry after, the plants suffer from want of moisture, and they cannot be watered without washing the soil into the hearts; neither does rain reach them like it does with the trenches left open. Instead of earthing up, it is far better to run a piece of bast matting round each just below the top, so as to tie them up and keep the stems together, when by-and-by they can be moulded and blanched quickly before they are wanted for use. Onions will soon be ripe, which they are when they leave their hold freely, and should at once be pulled, laid thinly on the ground in full sun to dry, and finish before being taken in and stored for the winter. The land where Onions have been grown on comes in admirably for Cabbages, but it should first be prepared by being heavily manured and

dug, and the plants then dibbled in drills drawn with a hoe at a distance of 2 feet apart, and the plants set about 20 inches asunder. S. D.

NEW AND OLD TOMATOES.

We are getting overdone with varieties of Tomatoes that are not only no improvement on old varieties, but positively retrogressive, both as regards cropping and other good properties for which Tomatoes are grown. None exhibit any real advance on the old Smooth Red grown thirty years ago. I well remember the fine crops of this which we used to ripen on south walls in an old-fashioned garden in Middlesex, but few at that time would eat them. Now all classes grow and eat Tomatoes in an endless variety of ways. In this locality they form a daily article of diet, both as a vegetable and a salad. Even artisans grow them on the low walls that divide their little plots, and it is interesting to hear them sum up the merits of new *versus* old kinds. One remarked the other day that he had invested in a packet of President Garfield, and found that the produce went to the top of the wall before it showed a bloom; while his old Smooth Red, side by side, cropped to the ground. Raisers of new Tomatoes seem to only keep in view two extremes—one, great, coarse fruit, with deep furrows; the other, the smallest berry that can pass muster for a Tomato. If we must have new varieties every year, let us at least encourage the useful before the ornamental in the case of a plant which we grow mainly for culinary purposes. Hathaway's Excelsior is one of the good old sterling sorts, or rather selections from the large red and the smooth, and the evener it is in outline the better. There is really no gain in having a sort that produces fruit weighing from 1 lb. to 2 lbs. each, for of such fruit only a limited number can be produced. Varieties that yield fruits weighing from 4 oz. to 6 oz. each are better. Tomato culture is so simple that one can scarcely fail. The plants should be got up early in the season; they should be gradually hardened off, and should show fruit before they are turned out of the pots in May in order that they may get the longest season of growth possible. The ground in which they are planted should be firm, so as to check exuberant leaf growth. When the fruit is set and swelling, liquid manure is necessary, *i.e.*, if the weather is hot and dry, and that is what suits Tomatoes. Excessive moisture ruins them. Their growths should be kept thin and evenly trained on the walls, and heavy rains should be warded off by means of glass copings. In favourable seasons in the southern counties Tomatoes ripen well in the open ground, but they do best on a wall, or even under a glass covering, and they in all cases well repay that attention. JAMES GROOM.

Gospot, Hants.

Good Potatoes.—Mr. Wildsmith complains, and perhaps not without reason, that our lists of Potatoes are growing unduly large, and he recommends that they be reduced rather than extended. I fear this is a practical impossibility; many new varieties are being raised, and the bulk of them will, no doubt, be put into commerce, and it too frequently happens that old varieties are re-named. Thus there was growing in the Chiswick collection this year Ashtop Fluke, which in its old form is only the Lapstone, but at Chiswick it was simply Woodstock Kidney. I am afraid that Clarke's Pride of the Market and his Main Crop Kidney will, like Wormleighton Seedling, not be distinguishable from Magnum Bonum. I see, by your report of the new Potatoes at the Crystal Palace, that Welford Park Kidney, Productive, and Beacon are seedlings from Woodstock Kidney. I compared the last-named with them at the Crystal Palace, and I could not detect any difference in appearance, and I think that with a season or two's growth they will be nothing more nor less than Woodstock Kidney. Lord Beaconsfield cannot be distinguished from Snowflake. The new variety Snowdrop is to all intents and purposes identical with Snowflake, as first introduced to

this country. It might be an accidental seedling, but in its growth and form and colour of tuber it is indistinguishable from Snowflake. I should say it is a good strain of this variety, which has run out of late years. I may state that if Mr. Wildsmith will refer to the schedule of prizes of the International Potato Show he will find that the promoters no longer offer prizes for particular varieties, and word their classes in the most comprehensive language. I do not know who would be venturesome enough to draw up a list of Potatoes that "under any and every condition are simply execrable." Will Mr. Wildsmith draw out a list of varieties that he thinks should be publicly repudiated by the committee? He must have had certain varieties in his mind's eye when he penned this sentence.—OBSERVER.

Tomatoes out-of-doors have plenty of green fruit on them, but they want autumn sunshine to give them colour. The best way is to cut them with a good portion of stem attached and hang them up in any warm position under glass or near hot-water pipes, where the most forward will soon assume a beautiful colour. I may add that even the smallest green fruits make an excellent preserve; in fact, that is probably the best way of turning them to good account.—J. G. H.

Pragnell's exhibition Beet.—I have only one fault to find with this, and that is it is too coarse. I always considered that the roots of it which Mr. Pragnell exhibited were rather too large, but now that I am growing the variety I find that small roots of it are very scarce. Its colour is fairly good and the quality first-rate. Baking is preferred to boiling both in the case of this and other varieties, especially when large. For an early supply the above Beet is serviceable, but if grown for a main crop it should not be sown so early as smaller growing varieties.—I. M.

Walker's Perpetual Pea.—I have grown this for a late supply, and find it fully deserves all that has been said in its favour. It is not much liable to mildew, branches freely, crops to within 4 inches of the ground, and continues in bearing a very long time. With us it continues to yield till destroyed by frost, and at no time has it exceeded 42 inches in height. In appearance the pods and Peas resemble those of Veitch's Perfection, but it is quite a distinct variety, and is preferred to that still popular sort. Tomtits are unusually destructive among green Peas this season.—I. M.

"OUR BANK."

THIS is the name which the men in the garden have given to a large heap of soil, the result of collecting all the refuse of the garden into a heap and allowing it to remain until it has become sufficiently rotted to be in the condition of mould. They call it a "bank" because the supply never gets exhausted, for while we are using up one heap another is in preparation. However, by whatever name it may be called, it is capital material for many purposes. Being for the most part vegetable mould, there are but few plants which refuse to grow in it. This rubbish heap is conveniently situated to receive all the refuse of the garden, and having plenty of space we make one heap receive all the gatherings for one year. This is then turned over and put into shape; another heap is then commenced by the side of it to which is taken all the refuse of the kitchen garden, such as Cabbage and Cauliflower stumps and leaves, Pea and Potato haulm, annual weeds, sweepings of walks and clippings of hedges, as well as the refuse from the potting bench—in fact, this is the receptacle for everything that will in a reasonable time become decomposed, and it is astonishing how quickly such material rots into mould. The only objection to its use is that wherever it is employed a good crop of weeds is sure to be the result. We do not, however, mind that, as, having but a very thin stratum of good soil for our vegetable crops, we are glad to use it in order to increase the depth. Moreover, we do not find it to introduce more weeds than ordinary farmyard manure, and even

if it did, the value of this refuse is more than a set-off against the weeds, for even if I could get permission I should not on this large estate know where to go to find its equal for so many purposes. We are just now overhauling our heaps and turning over for the last time the one ready for use, which contains one year's collectings from a kitchen garden two acres in extent. By a competent authority it is estimated that this heap contains fifteen cart-loads of rich fertilising material, and it simply cost nothing but the labour involved in turning it over twice.

We are just now preparing to start a fresh heap. That which has been collected during the past year will be turned over, and that part of it which was first brought together will already be far advanced in a state of decomposition; the roughest and freshest material will be placed in the centre, and that which is most decayed will be put on the top and outside. About this time next year the whole of it will be turned over, when it will be found fit for use for any purpose for which it may be required. The same process is repeated from year to year; therefore the actual refuse of the garden is converted into a useful and valuable fertiliser. There are many gardens in which the soil is poor and thin that would be benefited by converting their refuse into manure instead of allowing it to be taken out of the way altogether. Where there is not space to devote to it in the way I have described, the next best plan would be to char it. To do this some little attention to the fire is necessary to prevent anything like burning. There is not much fear of a conflagration; the nature of the materials will prevent that; but still, if the fire is at any time neglected after a body of heat is obtained, the material will waste faster than is desirable. Therefore, watch the fire, and as it finds its way through at different places cover it up again with some more material. Occasionally it may be desirable to uncover the fire altogether and rake down to the bottom some of the half-burnt rubbish and by a little management start the fire again on the top; the lower part all round will take care of itself.

This plan has much to recommend it, as it effectually destroys the vitality of all seeds and perennial roots, and the charred refuse is invaluable for use amongst crops of all kinds. For the covering of seed beds and for earthing seedling plants it is most serviceable. For this purpose it should be sifted before it is used. As a dressing for the kitchen garden, where the soil is heavy, it is better than animal manure if used alternately with it, *i.e.*, one year manure and the next burnt refuse. When run through a rather fine meshed sieve it is a capital renovator for exhausted lawns where the Grass is thin and the soil poor. In such a case a thin layer should be laid on in November and another early in February. J. C. C.

PROPAGATING.

Propagating herbaceous plants.—Most herbaceous plants are propagated in spring, which is perhaps the best time when they have to be increased by division, as, being then starting into growth, they may be cut through, or dug up and pulled apart, and multiplied to almost any extent. There are some, however, that do not admit of such treatment, among which may be mentioned the *Alstroemerias*, the tuberous roots of which go down into the ground to such a depth that they cannot be reached without digging up the plants bodily, and disturbing the whole soil about them to search and pick out the parts that will grow. Instead of doing this, the best way is to save or procure seeds which they bear freely, as almost every flower left sets, and the pods fill and ripen long before winter begins. The seed may either be sown now or left till the turn of the year, when it is a good plan to sow and raise the plants in small pots, as then they can be transferred to the bed or border where it is intended to grow them without suffering a check. If the seed is put in now or later on out-of-doors it should be done where the plants are to stand, so as to avoid transplanting or any interference after they are up, of

which *Alstroemerias* are very impatient. Pentstemons are best struck from cuttings, which should be put in now in pots and placed in a close frame, where, if shaded and kept moist by syringing, they will soon root, and may be wintered in any cold house or pit protected from hard frost. Antirrhinums require just the same treatment if named or choice sorts are to be saved, as, like Pentstemons, they often get killed during hard winters, or become so crippled that they rarely break strongly or do well the following spring. Pansies and Violas may be divided and increased in that way, or cuttings may be made and dibbled in under handlights, or in any frame where they can be kept close for a time, as they root very easily.—S. D.

Echeverias.—During the summer many of these will have produced a number of offsets, and if separated from the parent plant at taking-up time, and dibbled in shallow boxes of soil, they will make good plants for bedding out in spring. During winter they will require scarcely any water. Echeveria seed should be sown by Christmas, otherwise the young plants will be too small for use the following season. Sow in well drained pans of sandy soil, just covering the seeds with sand, and place them in a temperature of about 60°.—T.

Propagating Carnations.—In corroboration of what M. Sisley says (p. 201) upon this subject, I may mention that, looking through Messrs. Low's nurseries the other day, the wonderful vigour of the winter-blooming Carnations in pots was remarked, and the question put, "Are these from layers?" Mr. Casey's reply was, "Every plant here has passed through my hands as a cutting; we find plants thus obtained in every way preferable to those from layers." This I believe to be the experience of both English and American market growers.—J. C., *Byfleet*.

Perpetual Carnations.—Mons. Sisley is wrong in supposing that perpetual flowering Carnations are propagated by means of layers at Slough. These are invariably propagated there and elsewhere by cuttings. It is the florist Carnations and Picotees only that are propagated by layers. The main stock of all the principal growers is propagated in that way. The late Mr. Norman, of Woolwich, propagated more of his plants by cuttings than anyone known to me; but he owned that it was a much more troublesome process than layering.—J. DOUGLAS.

Grafted Lilacs.—A great objection to these is the number of suckers which they continually produce; therefore, if possible, strike them from cuttings. Young shoots put in about midsummer root readily in a close frame, but do not grow any more till the following spring. *Hibiscus syriacus* does well grafted on pieces of its own roots. On a sunny wall *Weigela* seed ripens thoroughly, from which young plants can be raised in great numbers. *Rhus glabra laciniata*, and, indeed, most of the other kinds, can be easily increased by means of root cuttings.—T.

Begonias belonging to the Rex section are propagated in two ways—one being to take off a leaf, make several incisions through the principal ribs, and lay it on a pan of soil or on a bed of Cocoa-nut refuse, when young plants will be produced from the cut portions and also from the base of the leaf; the other way is to cut up the leaf into wedge-shaped pieces, commencing at the stalk, and carrying the cut outwards to the edge; if done in this way each piece will have an equal proportion of the more solid part around the stem. These wedge-shaped pieces are then dibbled into pots as cuttings, and the same treatment is accorded them afterwards as is given to the others, but, after a careful comparison of the two methods, I am convinced that the first-named is the best. Success is more certain, and the number of plants that can be propagated is greater than by any other way.—ALPHA.

Bedding Calceolarias.—There is no time like the present for striking cuttings of these; if put in now in a cold frame they root well and stand the winter, provided they are kept from frost.—T.

IS MILDEW CONSTITUTIONAL?

HAS it ever been clearly and satisfactorily demonstrated what the causes of mildew are? Some plants seem to be constitutionally more susceptible to its attacks than others apart from any atmospheric influence or difference as regards root action. This seems apparent from two or three examples that have come under my notice particularly this season. Of these the first is that of a Peach tree which was badly attacked about midway along our Peach wall, the only specimen we have with a trace of mildew on it, its neighbours to the right and left of it being perfectly free from this fungus. The border right through is the same, and there is no perceptible difference in the growth of this particular tree from that of the others. Its shoots were fairly strong without being sappy, and up to the time when it was attacked it was to all appearance in a very flourishing state. Again, two Violas are growing side by side in a border; one is white with mildew, and on its neighbour, almost touching it, there is not a speck. Another instance may be found amongst the inmates of the rosery; flowers of sulphur are needed for *Maréchal Niel*, *Cheshunt Hybrid*, and others, whilst such varieties as *Homère*, *Catherine Bell*, and *Rêve d'Or* keep very clean. Once more, how many bad cases of mildew do we get on the Nectarine in proportion to the Peach? Not more, I should say, than two in twenty. Now, there can be hardly a doubt that the first appearance of mildew, or, to speak perhaps more correctly, the condition of the plant most conducive to its reception, mainly arises from an abrupt check to its growth brought about by a sudden and continued decline in the temperature, often accompanied by sunless weather. Root action in such cases continues active for a time until the ground cools, but external influences will not permit a corresponding activity in the growth of leaves and branches, and there is an inability to throw off the juices coming up from below. We see this result both out and indoors—outside whenever a spell of dull cold weather visits us during summer, and again towards the latter end of September; in side if, during such dull, sunless weather, a steady, growing temperature is not maintained sufficient alike to suit root action, and also to admit, if necessary, ventilation to preserve a sweet and healthy atmosphere. We can account for mildew if we neglect the necessary duties under glass, and also when circumstances beyond our control bring about the same grievance out of doors; but when the line is so sharply drawn with different varieties of the same species, it is rather difficult to understand, unless, indeed, each variety is ushered into the world with its own particular constitution. E. B.

SHRUBS FOR FORCING.

WHERE a constant supply of flowering plants is maintained during winter and early spring, the majority will consist of subjects that have to be forced more or less in order to get them in bloom early in the season. Many hardy shrubs force readily, and are then very useful for decorative purposes; their blossoms are clean and pure in colour when grown under glass, and fair sized bushes of some things may be had at a time when the bulk consists of such subjects as *Cyclamens*, *Cinerarias*, and bulbs of different sorts, all of which are in their way beautiful, but in many cases need a few larger specimens intermixed therewith. The amount of success attained in forcing shrubs will greatly depend upon the preparation which they have undergone beforehand and on the weather of the preceding summer. It is useless to expect satisfactory results where the plants have been grown in damp, shady spots, as under these conditions but few if any flower-buds are formed. Whether kept in pots or planted out, a good open position must be accorded them and one well exposed to the sun, in order that the wood may be thoroughly ripened as early in the season as possible. Where early forcing is practised the best results are attained by having two sets of plants, one to be forced one year, the

other the next. In choosing plants for this purpose select those with short, stout growths, firm in texture, compact in shape, but not too much crowded with little branchlets, which are often too weak to flower.

If shrubs for forcing are obtained in a small state and grown on until large enough for the purposes required, the best way is to plant them out in moderately good soil, leaving sufficient distance between them for sun and air to have full play. They should be transplanted every year, as in that case large masses of fibrous roots are formed, and the plants may be taken up without injury. To inattention to this failures may often be traced, as if the roots are long and but few in number they are certain to sustain some damage in potting, and then the tops do not flower satisfactorily. By many the different plants are kept in pots and plunged out of doors, but we prefer to grow them in the open ground, and pot them up rather earlier in the season than is often done. By the early part of November all are in pots and set in a sheltered position on beds of coal ashes, as they are then thoroughly established before forcing commences. In the event of very severe weather the pots are protected by a quantity of decayed leaves. Large bushes of such things as Lilacs, which are only grown to supply cut blooms, are simply taken directly into the forcing house, placed on the ground, and a quantity of partially decayed leaves are put over the roots to keep them moist. As they go out of flower they are taken into a cool house instead of standing them out of doors, as is often done. The advantage of this is that the foliage is preserved in its entirety instead of being cut about by cold winds. In making a selection of shrubs for forcing the following are worth attention:—

LILACS.—For small or medium-sized plants the Persian is best; it flowers more freely in a small state than the different varieties of the common kind, but in the form of large bushes these latter are well worth growing, as when in bloom they are very handsome. Of the Persian both the white and the coloured sorts force equally well, and the same may be said of the common Lilac, of which the white double-flowered variety is very pretty. The Guelder Rose (*Viburnum Opulus sterile*) cannot be forced to flower satisfactorily very early in the season; the end of March is quite as soon as it can be depended upon, but when in flower it is very distinct from all others and presents an imposing appearance, especially when grown on clear stems and allowed to tower above its associates. The Almond, Peach, and double-blossomed Cherry force well, as does also the beautiful rose-coloured *Prunus triloba*, while little gems in this class are the red and white varieties of *Prunus japonica*, a small, but upright growing shrub, the slender branches of which are studded with comparatively large rosette-like flowers. *Deutzia gracilis* is in great demand as a subject for forcing, and deservedly so, for it may be had in bloom by the first days of the year, and even small plants of it in 5-inch or 6-inch pots produce flowers so freely as to be a mass of white. The double flowered variety of *Deutzia crenata* is much later, but under glass produces its spikes of pretty flowers in great profusion.

SPIRÆA THUNBERGI.—This is one of the easiest of all subjects to force. It is a small growing kind, with linear leaves and slender arching shoots. The flowers individually are small, but they are borne in great numbers along the branches, and are then very pretty.

FORSYTHIA VIRIDISSIMA flowers naturally so early in the season that but little forcing is necessary in order to induce the blooms to expand. This is rarely employed for decorative purposes in the greenhouse or conservatory, but as seen last spring in the shape of bushes about 4 feet high and profusely flowered, we thought it a very desirable shrub for that purpose.

MAGNOLIA STELLATA, OR HALLEANA.—This pretty small growing kind forces well, as does also another little-known shrub, *Neviusia alabamensis*, whose clusters of stamens, which constitute the most attractive part of the flower, are less

tinged with green than when they expand in the open air later in the season.

AMERICAN PLANTS, as they are commonly called, supply a great number of subjects for forcing. The most frequently employed are *Rhododendrons*, striking plants at all times when in bloom, and if not too much hurried, the early kinds flower readily. Among *Azaleas* the evergreen *amœna* does well, and with ordinary care may be depended upon to flower every spring. The different varieties of *Azalea pontica*, whose showy blossoms are produced before the leaves, are as conspicuous indoors as later in the open ground, but the most useful is the Japanese *Azalea mollis*, of which there are now several varieties ranging in colour from pale sulphur to deep rose and dark orange. Treated as pot plants, these *Azaleas* flower profusely; we have had some grown in this way for years, and each spring they are the admiration of everybody. After being hardened off the plants are plunged in a sunny border and liberally supplied with water during the summer. The result is that each shoot is terminated by a plump flower-bud ready to burst into beauty on the return of spring. Pot culture is not absolutely necessary, however, as when a suitable spot exists they give equal satisfaction when planted out. *Andromeda floribunda*, with its white wax-like bells and dark green, neat looking foliage, is very pretty in spring and forces readily. *Kalmia latifolia* and *angustifolia* cannot be had in flower very early, but when in that stage they are handsome, decorative plants for the conservatory. Of these two the narrow leaved is the first to expand its blossoms.

The above remarks regarding the *Kalmias* may also be applied with equal force to *Zenobia speciosa*, the hoary variety of which (*pulverulenta*) is by far the best for forcing, as under glass the foliage is almost of a dazzling whiteness, and the flowers are larger than those of the typical kind.

Of the above the principal attraction is their flowers, but there is one well worth forcing for its foliage alone, and that is the variegated *Negundo*. It cannot be forced very early, but by the middle of March its beautiful foliage is in perfection. Both in the shape of small bushy plants or as taller subjects towering above its associates it is equally effective.

ALPHA.

BOOKS RECEIVED.

Hardy Perennials and Old-fashioned Flowers, by J. Wood, 170, Strand, London.
Tomato Culture, by G. Roberts.

CATALOGUES RECEIVED

H. Cannell & Son's (Swanley) Autumn Catalogue of Florist's Flowers, Roses, Bulbs, &c.
Ormiston & Renwick's (Melrose, N.B.) Dutch Flower Roots.
J. Yates' (Stockport) Continental Flowering Bulbs.
J. King's (Coggleshall) Imported Bulbs.
New Plant and Bulb Co.'s (Colchester) Lilies, Orchids, and Bulbs.
W. Bull's (King's Road, Chelsea) Retail Bulb List.
G. Cooling's (Bath) Bulbs and Spring Roots.
Wood & Ingram's (Huntingdon) Bulbs, &c.
Samson & Co.'s (Kilmarnock) Autumn Catalogue.
S. Brown's (Weston-super-Mare) Bulb and Flower Roots.
Cannon & Reid's (Aberdeen) Hyacinths, Tulips, &c.
E. G. Henderson & Sons' (St John's Wood) Dutch Bulbs.
Barr & Son's (King Street, Covent Garden) General Bulb Catalogue.
Hogg & Wood's (Coldstream and Dunee, N.B.) Dutch Flower Roots.
A. Jeffkins & Co.'s (Westerham) Dutch and other Bulbs.
Young, Oakenhead, & Co.'s (Cork) Autumn Catalogue.
P. Foster's (Stroud) Hyacinths and other Dutch Bulbs.
C. Turner's (Slough) Dutch Bulbs.
W. P. Laird & Sinclair's (Dundee) Dutch Flower Roots.
J. Jefferies & Son's (Clonacree) Bulbs and Hardy Plants.
Daniels Bros.' (Norwich) Illustrated Catalogue of Bulbs, &c.
Dobie & Mason's (Manchester) Flower Roots.
The Liverpool Horticultural Co.'s Hyacinths, Tulips.
Hooper & Co.'s (Covent Garden, London) Bulbs, &c.
Goldsmith & Co.'s (Westminster Bridge Road, London) Dutch and other Bulbs, &c.
Henry Middlehurst's (Liverpool) Flower Roots.
Keynes & Co.'s (Salisbury) Roses and Grape Vines.
Barr & Son's (12, King Street, Covent Garden, London) Bulbs and Plants.
Carter's (237 and 238, High Holborn, London) Hyacinths, Tulips, Crocus, Narcissus, &c.
Louis Van Houtte's (Ghent, Belgium) *Azalea indica*, Camellias.
F. R. Pierson & Co.'s (Tarrytown, New York) *Lilium Harrisii*.

GARDEN DESTROYERS.

Tomatoes and wasps.—I have more than once read that if Tomatoes are grown in a greenhouse orinery wasps will not touch any fruit growing therein. I have also more than once shown that the statement is incorrect; I have proved it to be so quite lately. We have some Tomatoes growing and fruiting in one of the vineries, and wasps attacked the Grapes at such a rate that we had to put the Grapes in bags to preserve them from their depredations. Who will give us a remedy for keeping wasps out of houses other than covering up the ventilators with muslin or fine meshed net?—J. C. C.

Black Vine weevil.—Persons who plant Vines in borders outside their vineries, as is so much recommended by Mr. H. J. Clayton, should be on their guard against the black Vine weevil (*Otiorhynchus sulcatus*), and prevent it from harbouring in the hay or straw with which the stems of Vines so planted are frequently covered where they pass into the house. Two Vines planted in a border outside a small greenhouse, into which they were introduced through openings in the brickwork, the spaces between the stems and the bricks being packed with hay, were found early in the spring to be attacked by these insects, and search was made for them in vain until the gardener thought of the hay, which, on examination, was found to contain four of these weevils—two at each Vine. The hay should be soaked in tar or the hole filled with clay to prevent the insects hiding there.—G. S. S.

Leaf-eating insects.—In perusing Mr. Hudson's remarks on Crotons in THE GARDEN (p. 268), I see that he speaks of an insect similar to, but smaller than, red spider. It is about this insect I wish to enquire. I raised a quantity of tuberous Begonias from seed early this year, and all went well with them till about the middle of June, when they appeared to be much eaten, as if by thrips. They were carefully looked over, but only a few thrips were to be seen—scarcely enough to account for the severe manner in which the plants were injured. They were therefore placed in a pit, where they received successive fumigations every third or fourth day for about a month, when they appeared to look more healthy, and we flattered ourselves that all insects on them must be killed. Accordingly, they were all put back into the house (a span-roofed one, running north and south) and given plenty of ventilation. They had hardly been there a week, however, before it was seen that all the young leaves, as they unfolded, were much eaten, exactly as if by thrips. They were again carefully looked over, but no thrips were to be seen on them. I, therefore, procured a small pocket microscope, and by the aid of this the real offender was revealed. It was a small white insect, smaller than a red spider, and scarcely visible to the naked eye. The house was then fumigated with tobacco cloth every other night for a fortnight, but with no good result. Therefore some sulphur was procured, and mixed up with milk and tobacco water, the pipes heated, and the mixture painted on them; they were then syringed until the house was quite filled with steam. This was repeated five or six times in a fortnight, but apparently without effect, as the insects were still to be seen through the microscope, and as lively as ever. I have now turned the whole of the plants out of doors, and had the house thoroughly cleaned preparatory to filling it with Chrysanthemums. I may just mention that three weeks ago I planted another house with Tomato plants, and last week seeing the tops of four or five of them look shrivelled, they were examined, and found to be infested with the same small insect. If Mr. Hudson or any of your other subscribers can give us any information respecting this insect, and how to exterminate it, I shall feel greatly obliged.—J. H., *Sussex*.

Aphides.—In the article on the destruction of aphides in THE GARDEN of September 22 I wish to make the following corrections: Mr. G. B. Buckton's monograph is published by the Ray Society, not the Royal; instead of "the golden-eyed or long-winged fly," read "the golden eyed or lace-winged fly."—G. S. S.

QUESTIONS.

5065.—**Rhododendrons from cuttings.**—Will some one kindly say whether *Rhododendrons* will grow readily from cuttings?—T. W.

5066.—**Sweet-scented Roses.**—Will any of the readers of THE GARDEN kindly name and describe the flowers of three dozen sweet-scented Roses for forcing in pots? the object is to have them all very fragrant; no Teas to be included among them.—CONSTANT READER.

5067.—**Heavy Pine-apples.**—Can anyone favour me with any information as to the weight of the heaviest smooth Cayenne Pine-apple that has been exhibited at any of the Royal Horticultural Society's meetings at South Kensington, or at any of the provincial shows?—P. C. H. S.

5068.—**Seaside trees and shrubs.**—Will some of your readers kindly give me the names of half-a-dozen hardy evergreen shrubs, half-a-dozen flowering shrubs, and a dozen trees (some of them evergreen) that will do well close to the sea and exposed to the north and north-east blasts?—F. B., *Cork*.

5069.—**Red spider.**—Is there any other means of clearing plants of red spider than syringing or sponging? It is rather a difficult task to sponge such hairy-leaved plants as Cucumbers and Melons, and I find continual syringing, to keep them in check, injurious to the health of the plants.—READER.

5070.—**Nectarines cracking.**—What is the probable reason of Nectarines on a south wall always cracking before they are ripe? They are large, fine fruits, but almost every one is split down one side, and then earwigs get in and spoil them, and they have to be gathered half ripe. The wall is exposed to a side wind from the north-east; soil, gravelly.—A. J. C.

5071.—**Buddles globosa.**—Ought this to be pruned in autumn or not? and, if so, in what manner? We have one, planted last autumn, growing against a wall facing the south-west. It has grown quite large and has very fine leaves, but has not yet flowered. Perhaps pruning would induce it to flower, or how should it be treated for the attainment of this object?—A. J. C.

5072.—**Platygonia Kämpferi.**—Have any of your readers fruited this plant? It was sold to me as a hardy ornamental, fruit-bearing climber, and a pretty climber it is, but the flowers fail to produce any fruit. I suspect it is a dioecious Cucurbit, and I have only one of the sexes. My plant is in an unheated house, and when its shoots are allowed to trail on the ground it emits tuberous-like roots at every joint.—J. M., *Charmouth, Dorset*.

5073.—**Lapland Kale.**—Can any of your correspondents give me any information on a Kale that is called either Lappen or Lapland Kale? I had about thirty plants of it sent me from Timbury, and I can find nothing about it in books. Some account of its growth and history will be deemed a great favour. Perhaps some Timbury correspondent will be able to give some information respecting it, as it came from that district.—T. H. BALDING.

5074.—**Early Tomatoes.**—Tomatoes are now very much in demand, and what I want to know is, how to get them early this incoming spring. Will some of your readers kindly assist me with advice as to how this is to be effected? I would like to have them ripe by the beginning of April. When should I sow in order to produce them by that time? Would it be better to strike cuttings than raise them from seed? Perhaps by so doing fruit might be got earlier.—T.

5075.—**Araucaria imbricata.**—Some very fine specimens of this *Araucaria*, about 60 feet in height, growing in a sheltered situation, rather damp, and on red sandstone bottom, are getting into bad health without any apparent cause. They are very much inclined to produce a thick coat of Moss all over them; then they lose their leaves and become unsightly. Can any of your readers assign any likely cause for this, and can they suggest any remedy?—O. S. A., *Bandon*.

5076.—**Temperature of Orchid houses.**—I should be thankful if some competent cultivator would kindly inform me of the temperature at which the various compartments of Orchid houses should be maintained. For example, what ought to be the average winter temperature for the *Odontoglossum* house, the *Cattleya* house, and East Indian house? Handbooks seem somewhat vague on these points, and my gardener is not a little puzzled in trying to carry out the instructions given by various writers.—SCOT.

5077.—**Dendrobium crassinode seedling.**—Going through Mr. Gough's collection of Orchids at Birdhill the other day, I found a large seed-pod on this *Dendrobie*. The specimen was not many years old, and not remarkably vigorous; there was nothing unusual, indeed, to indicate why fertilisation had taken place now more than at any former time. Would some of your readers tell me the best medium in which to sow the same, the probable time occupied in germination, and any other similar information gained from previous experience by any of your correspondents?—W. J. M., *Clonmel*.

5078.—**Making a pond.**—I wish to make a pond in my garden, 30 yards long by 15 yards wide, but as our soil is light and sandy, and no clay is available in the locality, I am perplexed as to how best it may be rendered water-tight at the bottom and sides. Could it be cemented, or would concrete be best? If so, what is the method usually employed? My idea is to grow in it some of the rarer of aquatic plants, and to make a rockery around the margin. I should be very glad to hear of anyone who has overcome a similar difficulty, as his experience would be useful to me and others interested in the culture of aquatic and alpine plants. Any idea of the method of procedure, materials, and probable cost of the undertaking would be welcome.—WATER LILY.

ORCHIDS.

Orchids at Penllergare.—Amongst many well-grown things I found here the other day some very fine specimen Orchids, which looked excellent in leaf, and must be grand when in flower. An *Aerides odoratum purpurascens* was one of the best plants of the kind I have ever seen. It is about 11 feet in height, and has upwards of thirty branches or side growths; as a rule, it produces annually from eighty to ninety spikes, with from fifty to sixty blooms on each. It is growing in a large basket in a humid house, and the enormous quantity of fineroots which it has produced is very remarkable. *Vanda cœrulea* is 3 feet high and very healthy. *Teres* is over 4 feet in height and an excellent plant, the finest indeed in point of clean, luxuriant growth I can remember seeing. *Dendrobiums* of various valuable sorts are well grown, especially *D. pulchellum*, which has made very fine growths in baskets. *Cypripediums*, particularly *C. Parishii* in a pan, is a large and fine plant, and one which promises well for bloom. The common *C. insignis* is grown in quantity to supply cut flowers, and probably there are none more useful for that purpose. The Dove plant (*Peristeria elata*) has acquired large proportions. Some of the most useful of the *Cœlogynes*, *Cattleyas*, and *Phalenopsis* are growing luxuriantly and are very fine plants, and *Odontoglossums* and other cool Orchids are equally well managed. It is evident, indeed, that many of these fine plants must have been objects of beauty and interest long before Orchids were as fashionable as they are at present. They indicate, too, to what perfection the ordinary size plants, now so plentiful in many gardens, may be brought in years to come. So far as I could make out, the main conditions under which they are grown are a sweet, humid atmosphere, a rough open mixture for root development, and particular cleanliness in the way of foliage.—CAMBRIAN.

Dendrobium Wardianum. *D. crassinode*, and allied species.—These, the best of all deciduous Dendrobes, have now quite completed their growth. After they have done so they should not remain a day longer in a growing atmosphere and temperature, owing to their tendency to start into growth again. The plants ought to be placed in a warm greenhouse temperature and be kept dry at the roots.—J.

Dendrobium formosum.—This is a fine evergreen species belonging to the nigro-hirsute section; but some of even our best growers of Orchids find it difficult to keep it in good health for many seasons in succession. It is a plant that does not require very large supplies of water, even during the growing season. In winter it must not have more than sufficient to keep the bulbs from shrivelling. It is now flowering freely with us suspended near the roof of the Cattleya house. It makes good growths in teak baskets, in which there is a little fibrous peat and Sphagnum. A liberal proportion of clean potsherds and charcoal should be mixed with the peat. The roots grow freely over the sides of the baskets, and do better there than in immediate contact with the peat and Sphagnum.—D.

Cattleya gigas.—Looking over a good collection of Orchids the other day, a large healthy plant of this beautiful *Cattleya* was pointed out to me with the mournful remark that it could not be prevailed upon to flower. The treatment the plant had received was that under which flower sheaths ought to have been produced. It is evident that some varieties flower much more freely than others. I bought half-a-dozen plants of it some three or four years ago; the whole of them flowered well last year, and they have again done so this season. The last flower truss is now going off, and the plants must be kept comparatively dry at the roots and in a much cooler house until they show signs of starting into growth again. During the resting period they should be kept near the glass roof, and they should also be near the glass while they are making their growth. The resting temperature should be from 50° to 55° as a minimum, and while

making their growth it ought to be 10° higher.—J. D.

Disa grandiflora.—The editor of the *Orchid Album*, commenting on a very fine spike of this, with no fewer than twelve flowers on it, sent to him by Mr. Speed, of Chatsworth, remarks that this *Disa* ought to be grown in a low temperature; in fact, under the same conditions under which it is grown at Chatsworth. I have seen it growing there in a greenhouse amongst Heaths and other plants. I tried when at Loxford Hall to grow it under exactly similar conditions as I saw it at Chatsworth, but failed, although I gave it close personal attention. Mr. John Ward, when gardener to the late Mr. F. G. Wilkins, of Leyton, likewise tried to grow it under the same conditions, but also failed, and Mr. Ward did not usually fail, even with difficult plants. Other good growers near London have failed with it. Plants of it may grow and flower for a few years, but they do not increase in size as they do at Chatsworth, nor as I saw them in the Botanic Gardens at Glasnevin under the care of Mr. Moore. I fancy where this *Disa* succeeds the climate is naturally moist. The home of the *Disa*, on Table Mountain, at the Cape, is very frequently enveloped in mist, showing that there its natural conditions are a moist and cool climate. It ought to be grown in pots half full of drainage in a compost of peat and a little Sphagnum. Where it does well the surface of the compost is clothed with growing Sphagnum.—J. DOUGLAS.

Cattleya Gaskelliana.—Whatever may be the precise name of this new *Cattleya*, its extreme beauty cannot be questioned. Whether it be a variety of *C. Mossiae* or not matters little so long as it is really a valuable garden plant and one quite a desideratum, inasmuch as its flowering season fills up the gap between the *gigas* forms and the true autumn labiata. *Cattleya* flowers may now, therefore, be had the whole year round. There are, of course, good, bad, and indifferent varieties of Gaskell's *Cattleya*, and those who have only seen inferior varieties of it have branded it as a poor plant. Last week some wonderfully fine blooms of it came to us from Messrs. Backhouse's, of York. They consisted of some half-dozen forms, all exceptionally fine, but two or three better than the others—in fact, the finest we have yet seen of this *Cattleya*. These flowers were very large, much broader than ordinary forms of *C. Mossiae*. The sepals and petals were of remarkable substance, and in colour a delicate lilac-mauve. The lips were broad and ample, frilled at the margins, and coloured with an intensely rich amethyst. The flower of this *Cattleya* is bold, inasmuch as the sepals and petals fall back, though not too much, their firm texture supporting them. The plants from which these flowers were cut are very large, one being fully 3 feet across, and numbering 150 bulbs, with fifteen leads and eleven flowers. Some of the others consist of forty, fifty, and sixty bulbs. These plants had undergone the usual treatment accorded to *Cattleyas* at the York Nurseries—i.e., they were grown in a house fully exposed to sunshine, with not a particle of shading material on the roof, whereby the growths become well ripened, and consequently flower freely.

OBITUARY.

Henry Hooper.—We have to record the death of Mr. H. HOOPER, of the Vine Nursery, Bath, which took place suddenly the other day at the age of 49. As a raiser and enthusiastic cultivator of all kinds of hardy florists' flowers, Mr. Hooper was widely known, and he took a peculiar interest in the Pansy, Carnation, and Picotee. Of these he was a most successful exhibitor. For years he has sent collections of these flowers to the metropolitan and other shows, from all of which he generally carried off first prizes.

William Tegg, third son of Mr. James Tegg, the gardener at Bearwood, died on August 2 last, at Sydney, New South Wales, aged 26.

NOTES OF THE WEEK.

Sale of forest trees.—An important sale of seventy acres of young forest trees will take place on the 10th and 11th inst. in the Windlestrawlee Nurseries, Edinburgh, belonging to the Lawson Company, owing to the expiration of lease. The forest-tree work of the nurseries will be carried on as usual in the other nurseries of the Company.

Duthie Park, Aberdeen.—This new park, given to the town of Aberdeen by Miss Duthie, was opened by H.R.H. Princess Beatrice on the 27th ult. Its extent is about 44 acres, and it lies in the valley of the Dee. The site it occupies is pleasantly undulated, sloping to the bank of the river, which forms one of its boundaries. The ground was originally studded with fine trees and these, as far as practicable, have been allowed to remain. A lithographed isometrical plan of the park, from the *Aberdeen Evening News*, has been sent to us. It necessarily shows the park in its crude state, just as it had been planted. It shows, moreover, the bald ugliness of a fortification-like mound or coign of vantage, an unpardonable absurdity in a town park. On the plan it appears to rise from a flat surface, unclothed and unhidden by tree or shrub growth. Such coigns of vantage on a tame surface require to be skillfully dealt with so as not to appear inappropriate or ridiculous. From our point of view also the place is cut up with far too many useless walks, which must incur much expense to maintain. The water, too, is frittered away into petty ponds; whereas one bold stretch of lake picturesquely disposed would have had a far better effect. The plan also shows a huge bridge of masonry and iron spanning a pool which could seemingly be stepped across. A simple wooden bridge, such as those in Birkenhead, Battersea, and several other London and provincial parks would have been, we think, more in keeping with the place. A fine feature is a broad expanse of greensward, occupying some thirteen acres in the centre of the park. The trees seem to be admirably grouped, and altogether form a striking contrast with the other portions. We, of course, gather these observations from the plan—the place itself may be somewhat different.

Insects (E. N. T.).—Your caterpillar is the larva of the pale tussock moth, *Dasychira pudibunda*, a common species.—G. S. S.

Short notes.—I like the short notes in THE GARDEN and hope to see more of them. Mr. Gilbert's chapters written on a post card are excellent.—J. H.

Books (E. Hinderlich).—We know of no work on the subject you mention. There is, however, some part of McIntosh's "Book of the Garden" devoted to it.

Celery grub (A. P. H.).—The leaves which you send are badly injured by this grub. The most effectual remedy is removing the infested parts by hand-picking and burning them.

Fungus (F. B. Darlington).—The name of the fungus is *Agaricus vulpinus*, often mistaken by persons unacquainted with fungi for the true Mushroom. It is probably unwholesome.—W. G. S.

Lobelia (J. Roberts).—We cannot judge of your seedling without seeing it growing. The best way to judge of its merit is to obtain the finest of a similar colour, grow the two side by side, and note the result.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of fruit.—M. G. Pim.—Beurre de Capiaumont.—S. K.—1, Dutch Collin; 2, Alfriston; 3, unknown; 4, Seckel Pear; 5, Comte de Lamy.—D. S. T.—In no way different from Muscat of Alexandria.—P. Thomson.—1, Kerry Pippin; 2, Devonshire Quarrenden; 3, Warner's King; 4, Golden Spire.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—Constant Reader.—1, *Begonia semperflorens*; 2, *Eupatorium Fraseri*; 3, *Selaginella uncinata*; 4, specimen insufficient of *Orchid*.—Sanguinea.—*Lonicera sempervirens*.—J. H. M.—*Atriplex hortensis* rubra (Purple Orach).—R. V. & Son.—1, *Silphium trifoliatum*; 2, *Helianthus decapetalus*; 3, *H. orgyalis*.—W. F.—*Justicia speciosa*, *Eupatorium Fraseri*.

No. 621. SATURDAY, OCT. 13, 1883. Vol. XXIV.

This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

A CHESHIRE GARDEN IN AUTUMN.

WE are told from the Meteorological Office that an anti-cyclone is forming over England—in other words, the barometer is at set fair. This in autumn and in Cheshire is not nearly so desirable as it sounds, for the clay soil is sure to be very wet, and there is sure to be with the anti-cyclone a dead calm. The fog hangs till it comes down in a thick drizzle, but before the sun is nearly visible all is fog again. The smoke, after rising a little way and finding no indication which way it ought to go, descends in showers of blacks, from which the country is generally thought to be exempt. There seems to be a competition amongst the leaves and flowers which can hold the largest number of water-drops to pour upon anyone who dares to touch them, and this state of things lasts all day, and day after day. Westerly gales and storms of rain are bad enough here, but neither is nearly as bad as an anti-cyclone. Gardening under these conditions is not agreeable. One's first impulse in walking along the narrow paths which divide the flower borders is to order everything to be dug up which can pour a shower bath down your neck—say over 6 feet high; so Rudbeckias and such like giants have greatly increased the rubbish heap to-day. Still, in spite of frost which killed the Dahlia flowers on the night of the 1st of October, and in spite of gossamer webs, which now are at their worst, there is a good deal of colour left in the garden. So much has lately been said about autumn flowers, that I will only mention a few, some of them not so common as they deserve to be. I should be disposed to give the first place to

PERENNIAL ASTERS, as they are without doubt at present the greatest ornament to my garden, where they are represented by more than a hundred kinds; not that all these are worth their room, but they have been and still are being collected for comparison and selection, and some of the best are by no means common. It is, however, useless at present to mention names, for if I recommend an Aster, some one else will say that he has bought it and considers it worthless, and we should be speaking of entirely different flowers by the same name. It is true that I have done my best to get Dr. Asa Grey's correct names from Kew, but it is quite another thing to persuade the gardening public, and, above all, the nurserymen, to adopt them. As I have often said, Asters must be bought by sight and not by name till a better state of things prevails. Sunflowers—I mean the perennials—of course still play an important part in garden decoration, but they are tiresome, for some of them are so late that they never flower at all here. The single multiflorus lasts well. I find that a rooted shoot taken off in early spring makes by autumn a stalk 7 feet high, and carries a hundred flowers 6 inches across, but some of these do not break again at the base, and it is better to cut one or two down before flowering to ensure a stock. This statement will surprise some gardeners who may have had plants in the same spot for years producing a forest

of stalks, but such is the difference of soils, and besides my one-stalked plants branch all the way up; but the best late Sunflower here is the tall black-stalked *H. latiflorus*. The flowers are small, but produced in great abundance; the habit very good, and the flowering continued as long as the weather allows anything to flower. *Phygelius capensis* has been very good this year, as it generally is after a mild winter, and is still full of flower. *Melanthus major*, which has now survived two winters in a peat bed sheltered by a wall, is conspicuous with its splendid leaves, like giant leaves of Silver-weed. It never attempts to flower, but the leaves are enough. Of the *Colchicums*, though the double purple does well here, I cannot succeed with the double white. I hear it used to do splendidly at Aldborough, so I conclude it wants a drier soil or more warmth in summer than I can give it. It is one of many cases in which white-flowered varieties seem to have different requirements from the type.

TRICYRTIS NIGRA is now in flower. I have never been able to flower it before, but I by accident planted it under the shade of a large Yew tree facing the south. There are no tree roots in the soil in which the plant grows, but the shelter makes it the driest spot in my garden. *Anemone alpina* and *sulphurea*, which never flowered here before, have both flowered this year in this same bed. It is said that one of these dies of lime, and the other for want of it, but both have exactly the same soil here. *Lythrum alatum* is another plant which becomes gayer as the autumn advances, probably because it likes wet. It is a plant which I always expect to be killed in severe winters, and keep cuttings in a frame for fear of losing it. Another conspicuous plant is a fine hybrid of *Dianthus superbus*. It has not the fringed flowers of the ordinary kind, but is much more floriferous, and of a bright rose colour. I believe it comes true from seed, but it makes plenty of shoots from the base.

PITYROSPERMUM ACERINUM, the plant and the name both from Hale Farm Nursery, is another autumn flowering plant of considerable merit. It increases slowly, and is not a common plant. It bears spikes of tufted white flowers, like those of an *Actæa*, and goes on late into frosts. I wish I could end with a good word for *Lilium auratum*, but the late flowering varieties, which are now struggling to open their buds, were not meant for open-air cultivation in Cheshire. Perhaps if the summer had been warmer, and they had received no check, they might have done better. As it is, I shall distribute these late bulbs amongst my southern friends, and keep only those which flower before the middle of July.

Edge.

C. WOLLEY DOD.

THE APPLE CONGRESS.

It is satisfactory to note that the great Apple show at Chiswick is likely to prove a success. It is patronised not only by those who seek information, but also by the general public, though it must be admitted that there is but little in a display of Apples to attract those who are not fruit growers. The committee told off for confirming and rectifying the nomenclature still continue their work—a formidable task in the case of such a vast gathering. As was expected, there is a large percentage of unknown, or rather local, varieties to which names known to all have not and probably never will be given; neither would it be desirable to do so, seeing what a host of sorts uni-

versally acknowledged to be first-rate are in cultivation. The committee will deserve credit if by their exertions they can reduce the synonymy, which is in a most confused state. The work is being prosecuted day by day, and in the process some interesting facts come to light. For example, the name Golden Pippin does service for a multitude of dishes in the show, but comparatively few contained the genuine variety, Yellow Ingestre and Golden Harvey being among others substituted for it. If the whole of the exhibition can be gone through thus systematically by the naming committee, and the result of their labours efficiently reported, as it should be, the congress will not have been held in vain. That there is a prodigious quantity of varieties of Apples now in cultivation throughout the country is evident by this exhibition alone, and that there are far too many is also apparent. If a judicious reduction of sorts could be carried out as satisfactorily as the question of synonymy will apparently be, it would be a great boon, but any kind of abridgment must be done most deliberately. A large number of varieties of Apples must always be grown so that every particular climatic condition may be complied with as well as the important one of soils but scores of worthless sorts might be well expunged from the lists—worthless because surpassed by sorts of better quality, and it should be one of the aims of this exhibition to point out, which are the best and most profitable kinds to grow.

The official report of the committee, which we await with interest, will, we understand, give the correct name of every sort of Apple sent to the exhibition, together with its synonyms and by whom shown. For this purpose Mr. Barron and his staff have drawn up lists of the contributions of every exhibitor, classified according to the counties. It would perhaps be too much to expect that in every case the correction of the committee will be heeded; for who among the nurserymen, for example, would care to admit that such and such a variety had been distributed by them under a wrong name. We should like to see the report embody lists of sorts best suited for large and small gardens, the most suitable stock for each, the form best adapted for their growth, and the best kinds for particular localities, whether they be sheltered or exposed, inland or on the seaboard.

The question of limitation with regard to a model collection for a garden of a given size is of course not easily settled, as individual requirements have to be complied with. But there are numbers of amateurs who would welcome lists of sorts most appropriate for small gardens with a short description of each variety, its quality, use, and order of ripening. In going through the exhibition one cannot fail to be struck with the enormous collections of sorts shown by many of the exhibitors both nurserymen and private growers. One can well understand such great trading firms as Veitch, Bunyard, the Pauls, Cheal, Lee, and others growing large collections in order to supply their multitudinous demands from all parts, but the case is different in private gardens where only the best should be admitted. Of course a collection to meet the demands of a great household must be large, and such are the collections from Frogmore, Burghley, Sherborne, The Deepdene, Wycombe Abbey, and others, but they are probably not a whit too large. In the case of the Royal Gardens, Frogmore, we know that the col-

lection, consisting of upwards of 150 sorts, shown by Mr. Jones is not redundant. When Mr. Jones first took charge of the Royal Gardens there were only about 70 sorts of Apples at Frogmore; since then he has doubled the collection as regards sorts, and, moreover, finds it necessary to keep continually augmenting it by new sorts, including seedlings raised on the place in order to meet the supply required for the great household at Windsor. One of the principal outcomes of this congress should be, we think, a complete type collection for the Chiswick gardens, which in future should be the recognised standard for all matters concerning the nomenclature of Apples. Not that the collection as it now is is at all a meagre one; on the contrary, Mr. Barron furnishes the largest and finest collection in the show, numbering, as it does, no fewer than 270 distinct sorts, all legibly and correctly named, each label also indicating the stock and form of tree best suited for each sort. Having regard to the comparatively small space for open-air fruit culture at Chiswick, this collection is among the most remarkable in the whole show. Type collections of not only Apples, but all other fruits grown at Chiswick, would make the garden what it should be, and it would then stand in the same relation to pomology as Kew does to botany.

The exhibition will remain open till the 18th, and gardeners in particular would do well to inspect it. They will see some wonderful produce, from trees of every shape and form. Especially noticeable is a grand collection from cordon-trained trees at Barham Court, Maidstone—a form of training not half practised enough in gardens of limited area. It would serve but little purpose to enumerate in detail the exhibits from each particular county, as only an approximate idea would thus be obtained of the Apple-growing districts. Thus, in some of the counties wholly unrepresented we know there are admirable Apple orchards of great extent. Again, because there is not a single exhibit from Ireland it must not be inferred that Apple culture there is not extensively carried on. Naturally, the metropolitan counties show most numerous, and we notice that the nearer the gardens, orchards, and nurseries, the larger the collections therefrom. Among the sorts that seem to attract general interest are Lane's Prince Albert, Saltmarsh's Queen, Peasgood's Nonsuch, and Washington, the latter shown by Messrs. Bunyard. Our comments on the show will be resumed after the committee have completed their work of naming and correcting.

NOTES FROM THE ISLE OF WIGHT.

Rosa berberifolia.—I forward to you a few blossoms which are interesting to me in different ways. The first is a specimen of *Rosa berberifolia*, and at last it gives me hope that I may be able to grow it on its own roots in the open ground. But this is by no means the only cause for interest about it. I could not say how many times I have failed with this most difficult Rose, and I had all but given it up in despair, when my lamented friend Harpur Crewe paid me a visit in the spring of last year. He considered that success was not altogether out of the question, and so I essayed once more to manage the Rose. Messrs. Paul & Son, of Cheshunt, sent me two good plants from their greenhouse, and my friend followed his ideas about one of them, and I took the other in hand. I consulted Lindley's "Monograph," and the result of his curious recommendation was that I killed my Rose in a fortnight. It is there suggested that "the soil in which it grows wild being salt may

afford a hint to those who may have the opportunity of cultivating it." But I found the hint to be valueless, and I should say that salt does not agree at all with the constitution of *Rosa berberifolia*. Harpur Crewe took a different line. He surveyed the whole garden and carefully considered all questions of soil, shelter, aspect, elevation, and such like that could possibly bear upon the matter, and when he had done this he planted the Rose with his own hands. It is true that last winter the Rose seemed to be for a long time in jeopardy of life, but I watched it from day to day and helped it so far as I could. In the early spring I had the satisfaction of seeing that life was not extinct in it, and since then it has shot out on every side, and become a flourishing bush. The first blossom has opened to-day, and it is only a matter of infinite regret to me that I cannot send it off to Drayton-Beauchamp Rectory with many congratulations. As this is denied to me, I forward the Rose to you. It is well-nigh the last Rose of summer, and therefore below the level of the glories of spring. But if the plant does pull through the coming winter, it will be a glorious sight in April or May of next year. The crimson splash on the bright yellow petals is quite unique in my acquaintance with Roses, and if it were not so I should still set great store upon it. I am only one out of many who lament that Harpur Crewe has been taken away from us, and I am glad to have a reminder of his skill and great love of plants continually before my eyes.

Lilies in the sun.—My second flower is beyond a doubt the last Lily of summer—*Lilium auratum*. It is, of course, not first-rate on account of the lateness of the season, but I think the leaves which I enclose may perhaps show you that Lilies can be grown in the sun as well as in the shade. A few weeks ago I could have supplied ocular evidence that the foliage does not suffer in the least or become of a sickly hue.

Caryopteris mastacanthus.—The third of my specimens is a blossom of a sub-evergreen shrub, *Caryopteris mastacanthus*, which was recommended to me by Messrs. Veitch. They got it from China, and it is most delightful at this time of the year; in fact, it looks like a bit of May imported into October. It is covered all over with light blue flowers, and they are slightly fragrant. It has the additional recommendation of growing very easily on a north wall. I may also say that a small cutting which was struck in the spring is quite an ornament of the greenhouse, and covered all over with bloom. Few pot plants could be prettier just now. I am sure this delightful shrub ought to be widely known.

St. John's, Ryde.

H. EWBANK.

FLOWER GARDEN.

HARDY AUTUMN-FLOWERING PLANTS.

CONSPICUOUS amongst these, especially in the Isle of Wight, are the hardy Fuchsias belonging to the small-flowered section, such as *F. gracilis* and *F. Riccartoni*. Of these I have lately seen very large bushes, covered with thousands of blossoms, that withstand rain better than flowers of a more erect habit of growth. Some of the ordinary greenhouse Fuchsias with medium-sized flowers, like Madame Cornélisson, Guiding Star, and other old favourites, also flourish in the Isle of Wight, forming large bushes, which in autumn are very effective. Hydrangeas, too, with large pink heads make fine objects in mixed beds and borders, and also in the shape of groups on Grass. Pampas Grass, with its elegant plumes, and *Tritoma Uvaria* form striking background plants. Perhaps the best, and certainly the most popular, of autumnal flowers is *Anemone japonica*, both pink and white, large clumps of which are very beautiful; and the same may be said of the New Zealand Veronicas of various sorts now in full bloom. Myrtles, covered with innumerable little heads of white flowers, likewise help to make gardens in the Isle of Wight and on the south coast gay; and amongst plants of humbler growth *Schizostylis coccinea*, with its brilliant spikes of *Gladiolus*-

like flowers, is very striking when seen in the shape of good-sized clumps. Amongst fine-foliaged plants none can compare with *Ampelopsis Veitchii* in its autumnal dress; it clings so closely to walls as to need no nailing, and when grown in full sunlight the tints assumed by the leaves are intensely bright. Among what may be called everybody's flowers may be mentioned single Dahlias; these look well both in masses and in the form of single specimens. When pegged down flat they send up quantities of brilliant flowers that defy the effects of such rains as would tarnish and spoil flowers of less substance of petal. Some of the early flowering *Pompones Chrysanthemums*, such as the well-known variety called *Model*, are now in good condition, and summer-flowering *Chrysanthemums*, or *Marguerites*, are still in great beauty. Stocks, *Pentstemons*, *Antirrhinums*, and herbaceous *Phloxes* keep on flowering most persistently; the heavy rains that have washed the flowers off ordinary bedding plants do not seem to hurt the hardy section; in fact, the more growth they make the more flowers they produce, and as long as sharp frost keeps off a good supply of flowers will be procurable in gardens where plants of the kinds just alluded to are grown in quantity. Not the least welcome, too, are border Cloves and Carnations, young plants of which are now sending up a goodly show of flower-spikes, and their flowers are exceptionally large and fragrant.

Gosport.

J. GROOM.

ROSE DAFFODILS.

MR. DUNDAS asks me (p. 288) to favour your readers with an exact description of the great Rose Daffodil. I think his own description of a double Daffodil which he possesses, viz., "five perfect flowers inside each other," must have been this variety. It will be found figured in Parkinson ("Paradise," edition 1656, p. 101, fig. 6) as *Pseudo-Narcissus aureus*, syn., *roseus Tradescanti* (John Tradescant's great Rose Daffodil), and the figure shows it almost as regular as a *Camellia*. It is described as follows, "This prince of Daffodils (belongeth primarily to John Tradescant, as the first founder thereof, that we know, and may well be entitled the Glory of Daffodils) hath a great round root, like unto other Daffodils, covered with a brownish outer skin or peeling, from whence riseth up four or five somewhat large and broad leaves of a grayish green colour, yet not fully so long and large as the next following Daffodil, from the middle whereof riseth up a stalk almost as high and as great as it, bearing on the top (out of a skinny husk) one fair large great flower (the bud before it break open being shorter and thicker in the middle, and ending in a longer and sharper point than any of the other Daffodils) very much spread open, consisting of smaller and shorter leaves than the next, but more in number, and thicker and rounder set together, making it seem as great and double as any Provence Rose, and intermixed with divers yellow and pale leaves, as it were in rows one under another. It abideth long in flower, and spreadeth by standing long, to be the broadest in compass of any of the Daffodils, but falleth away at the last without giving any seed, as all double Daffodils do." Here, then, is a most exact description, and no doubt this Daffodil exists at the present time in the same character.

The next Daffodil to which Parkinson refers is Mr. Wilmer's great double Daffodil, of which he says that "it doth so nearly resemble our ordinary English double kind, that I do not find any greater difference than the largeness both of leaves and flowers and the stateliness of growth, and that the leaves are somewhat longer and broader than the former." There are several other double Daffodils described by Parkinson. It will be seen, therefore, that there are thus two large double Daffodils approaching the Rose in shape, and, I believe, it is quite possible to select these from large groups of double Daffodils, and so separate the sorts. I have a good many clumps of both these varieties which have thus been singled out and brought together.

In most of the Dutch and many English catalogues there is a double variety offered as *Tratus cantus*, which I take to be a rendering of *Tradesant*. I have bought large quantities of these *Tratus cantus*, but found few of the *Rose Daffodil* amongst them. Mr. Barr kindly gave me a few bulbs of the Rev. John Nelson's great *Rose Daffodil*, which that collector had singled out, and I have no doubt Mr. Barr or Mr. Ware could supply the true *Rose Daffodil*. It is, however, interesting to hunt them out for one's self, as pointed out in my former note. There is another *Rose Daffodil*, even larger and more double than either of the above, *N. lobularis grandiflorus*, but its very dwarf habit greatly mars its beauty. The flowers of this variety are so large and heavy that a shower of rain breaks them off, the stalks not being able to carry so great a burden.

WM. BROCKBANK.

Brockhurst, Didsbury.

SPRING-FLOWERING BULBS.

THE time has arrived when attention must be directed to Dutch and other bulbs and their uses. The autumn catalogues of bulbs contain lists of suitable subjects from which to make a judicious and useful selection. Take the *Snowdrop*, *Crocus*, *Tulip*, *Scilla*, and *Hyacinth*, for instance, and what a charming display can be made with these. In my opinion, no garden is complete without its permanent bed or line of *Crocuses*. Many a bed and border can have a margin of these if only a little care be exercised at the time digging has to be done. Last spring I planted one of these permanent lines, and this is how it was done: The soil (mostly a good yellow loam) was taken out to the depth of 10 inches, and at the bottom of the trench 3 inches of good decomposed manure was laid. On the top of this was put an inch of fine sandy soil from a potting bench, and on the top of this a line of good sound *Crocus* bulbs was planted, mixed colours being used—yellow, blue, striped, white, and edged; then 2 inches of siftings from the potting bench were put on the bulbs, and the trench filled up with loam. Though planting was not done until the beginning of January, it was surprising how strongly these bulbs grew, and how grandly they flowered; and next spring they will be certain to make a fine display. This is one of many ways in which permanent plantations of *Crocuses* and other bulbs can be laid down. *Snowdrops* can be used for forming permanent patches; one of the prettiest ways in which *Snowdrops* can be used is making a border and carpeting it with *Sedum acre*. *Scillas* and *Tulips* do well planted out in patches, but some care is required that they are placed in good soil, so that they may have some chance of establishing themselves and making a good start. *Hyacinths* that have been grown in pots, if planted out so soon as their flowers wither, will last a long time, provided they be planted with care. They cannot be expected to do well if planted in any odd corner, without due provision for their well-being. It is customary to fill beds with *Hyacinths* and *Tulips*, so as to make the garden look gay in spring, and prevent that nakedness common to many gardens at this season of the year. *Hyacinths* are sold in certain varieties of dwarf growth and early-flowering character, and these make charming beds. When they are lifted from the beds, they are generally planted out in a kind of nursery or reserve ground, and then they come in very useful for cutting from the following season. And so with *Tulips*; for there are certain varieties of the early-flowering section which can be obtained at a moderate cost, and which make charming beds, and afterwards come in usefully in various ways. Then there is the gorgeous *Anemone fulgens*, one of the earliest of spring flowers, a plant that requires to be put into a good sandy loam, where it does well and blossoms freely. *Triteleia uniflora* is a pretty white-flowered spring plant, that makes pretty patches in the second row of a mixed border.

This is such a large subject that it seems only possible to touch the fringe of it. But, as many persons do something in the way of window gardening, we may be excused if we say a little

about the adaptability of spring-flowering plants for window boxes. It has been said of window boxes, within and without, that "they are to the medium house natural pictures of merit beyond the Rubens which garnish the walls of a millionaire." Without depriving themselves of the service of any of the old kinds of plants they have been accustomed to, yet how suggestive of usefulness are flower roots. Those household names, *Tulips* and *Hyacinths*, should everywhere become "window facts," to delight those within, and all passers-by without. For front rows in window boxes, an edging of *Scilla bifolia* or *S. sibirica* can be employed; *Bulbocodium vernum* or *Crocuses*, with *Triteleia uniflora* or *Jonquils* as a second line, with stately *Hyacinths* for a central line, and at the back *Solomon's Seal*, *Polyanthus*, *Narcissus*, *Spiraea japonica*, and *Touneisol Tulips*, all of which afford pleasing contrasts. Then a few bulbs of *Ixia*, *Sparaxis*, *Gladioli*, &c., dotted amidst the summer *Pelargoniums*, would make a pleasing combination. But many modes of employing these plants will suggest themselves to the intelligent cultivator.

R. D.

WINTER DRESSING FLOWER BEDS.

FALLING leaves driven hither and hither by October gales remind us that the time has arrived for making a general clearance of summer flowers and putting beds and borders in order for the winter. But ere it is too late allow me to protest against the practice of denuding hardy plants (or rather such as would prove hardy if left alone) of their old foliage under the plea of trimness. It is a pitiful sight to see *Tritomas*, *Ferns*, *Phloxes*, and numerous other beautiful plants cropped off as closely as a freshly shorn sheep, and that at a time when they ought to be husbanding up strength to withstand the winter. I am fully aware of the difficulties that lie in the way of making a distinction between what is to be removed and what is to be retained. It is a too common practice at this season to employ unskilled workmen to give the garden a general clear up, the orders being to make all neat and trim for the winter. These instructions they implicitly carry out; of this I am convinced from daily experience. Already I see plenty of gardens divested of all flower-stems and stalks, and such leaves as have put on the faintest tint of autumn colouring. The great spreading leaves of *Peonies*, the stalks of *Delphiniums*, or the flag-like leaves of *Alstroemerias* all go together to the rubbish heap, whether the proper time has arrived for cutting or not. Is, therefore, the wild luxuriance of plants left to Nature's keeping to be wondered at? Plants that almost refuse to grow under the most assiduous care often grow freely if undisturbed. It is the misdirected zeal that does the mischief—the study of tidiness in preference to the wants of the plants cultivated. Were some bright exceptions not to be found where the wants of hardy plants are well understood, and at the same time the neatness and order that should mark the difference between a garden and a wilderness clearly defined, one would despair of the good resulting from instructions so often given in *THE GARDEN* to let Nature have her way. Old foliage is Nature's own protector for the roots and crowns of plants in winter, and, therefore, should be left until young growth pushes up in spring. It should be added to rather than diminished, and made to look neat and trim by means of a covering of evergreen branches

J. GROOM.

Celsia cretica is a good autumnal flower for mixed borders. It withstands heavy rains and gales of wind that bring many more showy flowers to an abrupt termination. During the heat of summer I thought but little of this *Celsia*; our soil being dry, it seemed to do little else than form seed-pods, and I considered it to be an overpraised plant, but lately it has redeemed its character by sending up a continuous succession of spikes of golden blooms that defy all weathers. It is a plant of easy culture, and one which grows luxuriantly in any fairly good soil. Seedlings of it raised under glass in spring, and planted out as

soon as large enough, develop into fine clumps, and flower freely as long as outdoor flowers are procurable.—J. GROOM, *Gosport*.

EARLY FLOWERING CHRYSANTHEMUMS.

To this class of *Chrysanthemums* a good deal of attention has been devoted during the last two or three years, as with but little care they may be relied on to maintain a supply of flowers from the end of the summer until the regular *Chrysanthemum* season comes in. It is by no means an easy matter to have plenty of flowers all the year round, yet these *Chrysanthemums* help to bridge over what has always been rather a trying time, most of the summer blooming plants having lost their beauty by the middle of September. These *Chrysanthemums* all belong to the *Pompone* section (though some are large for that class), except one, viz., *Mdme. C. Desgrange*, a large flowered kind, partaking somewhat of the character of the Japanese race. All of the early flowering sorts make pretty little plants that succeed in 5-inch or 6-inch pots, and when in flower are very useful for decorative purposes. They can also be grown into good sized bushes either in pots or planted out in the open ground. The latter yield a quantity of cut flowers, but if in pots and removed under glass just before the blooms commence to expand the latter are much purer in colour than those produced out of doors, especially white kinds or those nearly white.

IN MIXED BORDERS and similar places large masses of these *Chrysanthemums* when in bloom are very effective. The flowering season depends to a great extent upon the time at which they are struck and their subsequent treatment, for though some kinds may be had in bloom by June, yet they can be retarded till September. The first in flower will be those struck in autumn, and the others from cuttings taken late in the spring. There are now a great number of varieties, but those mentioned below will be found among the best. White flowers are always so much in demand that it is of them I first propose to speak. *Madame C. Desgrange* is a large flower 6 inches or nearly so in diameter if disbudded, but far more effective when grown naturally, some of the blooms even then being 3 inches or 4 inches across. *Virginia* is a pure white, remarkably floriferous variety; *La Petite Marie*, a dwarf habited kind, with flowers like those of the later and now well known *Mademoiselle Marthe*, white, with, when out of doors, a tinge of yellow in the centre; *Madame Jolivat* is a stiff-growing dwarf kind, with flowers midway in size between those of a *Pompone* and *Mdme. C. Desgrange*; under glass only are they pure white in colour. Yellows and kindred shades include *Précocité*, a fine rich golden yellow, the flowers of which are 2 inches in diameter; habit dwarf; one of the earliest; *Hendersoni* with flowers very small, button-like, but borne in great profusion; colour yellow, sometimes tipped with brown; *Inimitable*, a globular flower of a bright amber colour.

OTHER KINDS are *Adrastus*, not so early as some of the others, but one of the best as a border plant, and equally effective under pot culture. Out of doors the blooms, which are rosy purple, are produced early in autumn. *Cassy*, a stiff-growing kind, has pretty little flowers white tipped with lilac. *Delphine Caboché* is reddish mauve and very early. *Frederick Pelé*, bright crimson tipped with yellow, is dwarf and a free flowerer. *Lyon* is a pleasing shade of purple and one of the best of that tint. *Souvenir de M. Ram-pont*, brownish with orange shade, is a very free grower, but nevertheless dwarf.

THE COLOURS of these *Chrysanthemums* vary to such an extent according to the conditions under which they are grown, that it is impossible to define their tints too closely; for instance, a variety called *nanum* is out of doors bluish, yet under glass pure white. Though all those just named can be had in bloom in succession till others take their places, yet there are a few that form as it were a stepping-stone between the two. They include *Aigle d'Or* (bright yellow), *Bolide* (yellow)—

both Pompones; the white, golden, and rose Trevenna; Sœur Melanie, a medium-sized flower, pure white in colour, and a very popular sort; and Mr. Murray, a violet-purple, medium size. Lady Selborne and Elaine, both white flowered Japanese varieties, also flower early. ALPHA.

CLOVE CARNATIONS AT EDINBURGH.

In the Inverleith Cemetery, near Messrs. Dicksons' Pilrig Park Nurseries, Edinburgh, we saw last week "solid" and beautiful tufts of the old crimson Clove 5 feet through, and they were full of good flowers and buds. Mr. Simpson, the superintendent, said they had been in flower for over eight weeks, which seems surprising to those who observe the plants about London. The fine glaucous tufts, composed of three or four plants three years old, were worth a good place if they never flowered; but they were pretty and fresh in bloom when the bedding plants were past—destroyed by the cold rains. The soil—a very sandy loam—must suit them admirably, the plants forming broad, beautiful masses, and improving from year to year. It is difficult to imagine a plant giving a better result in a cold northern climate, where even the hardest deciduous trees have a poor time of it. It is pleasant to think of what might be done in such a place with the Carnation, if any special pains were taken with culture and arrangement. What a "Carnation show," too, could be made of such material! All the single pips ever staged would not give so good an idea of the beauty of the plant as half a dozen tufts of different kinds grown as well as these. The only ugliness possible with such plants is in the staking, but that may be avoided by the use of branching twigs placed among the plants or slender spiral wire stakes, not showing above the tops, as we too often see. To show the vicious tendency of the teaching of the florists—i.e., those who lay down rules that these flowers should be formal in outline and smooth in petal—we may say that a gardener in a Scotch place of some importance said to us, respecting the old Clove, that it was not a good Carnation, illustrating his idea of a "good" one by a poor stiff kind that grew near, not much more than half the size of the Clove. This "good" kind will no doubt disappear like many of its kindred—noticed by few—while we venture to prophesy that the Clove will remain with us till people begin to see through the nonsense of such arbitrary rules. Unhappily, they are harmful as well as nonsensical, and were partly a cause of the poverty of our flower gardens. For the false idea has been pretty well sown in the public mind that the only way to enjoy these beautiful hardy things was through an elaborate culture (in pots frequently), and by the understanding of a set of pedantic rules. If the men who made these had themselves been modelled in the shape of a round door knob, they could not have originated a set of rules more directly antagonistic to every charm and law of nature as manifested in the plant world, and to every beauty of form revealed to the artist through patient study of her types.—*Field.*

Christmas Roses without fail.—Christmas Roses are all very well in pots, especially where they cannot be well grown out of doors; but the best place for the plant is in the open garden. A hardy plant of the hills of Europe, it wants no coddling, but it does not like to be splashed with dirt and cut to pieces with wind in a bare clay border. In its native hills it has some comfort from surrounding bushes or from its own companions, denied it in the prim garden border, where every leaf is removed, and all shelter too. A green or mossy bank, or a nook in a bed of dwarf evergreen shrubs, or grouped with evergreen herbaceous plants, or a colony on the sheltered side of a bold rockery, are among the positions that best suit it. Where such do not occur, cover a few tufts with a hand-glass or a cloche. The plant is so good in form, and so welcome in winter, that it deserves to be treated in several ways in almost every garden. 1. In pots for early

and certain bloom, in frames or the cool greenhouse, as described by "J. C. C." in last week's *Field*. These do well for the hall or house in a light position, and are very useful for the cool greenhouse. 2. In good borders for cutting; the plants not to be taken up for blooming, but protected by sashes, hand-lights, or cloches. The bloom of these would come in after the plants in pots in the cool greenhouse. 3. The wholly open-air culture described above, combined with tasteful grouping and arrangement. These would come in last and in greatest profusion, and in years of ordinary mildness would show a fine handsome bloom. Arising from a carpet of Grass or Moss, the flowers would not be dirty, as they too often are in the common dug border, which is the mark and disgrace of the gardener up to the present day. The positions chosen should be warm and sheltered, with clear headway for the winter sun. 4. The same culture as group 3, only in cool and shady positions, north banks, or under north walls, including some tufts in a cool wood. These would come in last of all; and in the case of a severe winter and violent storms damaging the blooms of the more favourably placed sets, give a good chance of another fine bloom.—R.

Tuberous Begonias.—These do well planted out-of-doors in beds and borders. Out of 300 which I planted in November last, laying them on their sides, I only lost ten. No protection whatever was given them. I planted the borders in which they grew with spring-flowering plants and Pinks, leaving the bulbs to come up between them, which they did in June, and very strong they were. I quite believe that, stored in a dry cellar in winter like Potatoes, and planted out in April, we could depend on four months flowering wet or dry, but they do best in dry, sunny weather. Their culture is so simple that anyone can grow them. A visit to Messrs. Laing's, Stanstead Park, Forest Hill, just now will show what kinds are best to plant. I have grown tuberous Begonias now some years, and I can see year by year that they are growing in public favour. All who have seen my little garden admire my Begonias, and ask, "Are they planted out?" "Yes," I reply, "and have wintered in the open ground, too." Begonia flowers stand well in a cut state indoors, and there is no disfiguring the beds and borders for cuttings, as is done in the case of Pelargoniums.—ALFRED AGEER, *Westgate Street, Bury St. Edmunds.*

SHORT NOTES.—FLOWER.

Freesias.—I am much obliged to your correspondent (p. 278) for his short notice about these desirable bulbs. I have sown the few seeds I had, or should have had much pleasure in sending some to him.—DELTA.

Linaria bipartita splendida.—This pretty purple-flowered annual produces small Antirrhinum-shaped flowers in abundance and continuously all through the summer. It forms compact tufts, charming masses of bloom. There are three or four other species and varieties all well worthy a place in gardens.—R. D.

Single Dahlias.—We appear to be only in the beginning of the single Dahlia question. Some of the new colours are very lovely. A friend tells us that he saw some plants the other day 9 feet in height at Greenhithe. Well flowered at such a size they must be very handsome. Some good system of taking them up and flowering them in the greenhouse until Chrysanthemum time is desirable.

Clematises.—No known greenhouse plants could match as regards beauty the grand display of Clematises seen this year, particularly in loamy soils. Not only are many house fronts and porches covered with densely set blooms, but a great display is made in many places by covering dead bushes and tree stumps with them. By far the most gorgeous and free-flowering appear to be the rich velvety purple C. Jackmanni and varieties closely allied to it.—J. O'B.

Monstrous Gladioli.—I send you a bloom of a seedling Gladiolus, which, as you will see, has as many petals as three ordinary flowers; the most remarkable thing is the blooms are produced in pairs, so that the spikes are not one-sided like others, but bloom all round. Owing to an accident the spike in question is not quite so fine as I had it last year; the blooms are not double like the one sent, but very fine. Have you seen anything amongst Gladioli like it before?—ROBERT FRISBY, *Worden Hall, Preston.*

*A singular monstrosity indeed, and one which we have not seen before. It is remarkable that the occurrence should be persistent. It seems to be a fusion of at least three flowers into one.—ED.

Golden-rayed Lily.—Imported bulbs of this Lily often show great differences in the colour of their flowers. So many of them come so nearly white that they are most disappointing. During the last three years I have, however, been more fortunate, having found a source from which I can procure bulbs that produce flowers worthy of the name. This seems to me to be the only way to avoid disappointment, but I was several years in finding it out.—J. C. C.

Lilium auratum bulbs.—Some very fine home-grown bulbs of this Lily have been brought to us by Mr. Collins. One of these bulbs measured 16 inches in circumference, and was very heavy for its size, a proof of its soundness and good quality. Mr. Collins states that such English-grown bulbs as these are likely to be produced in large quantities, the secret of their production having been solved. Hitherto, none or very few home-grown bulbs have been sold, but there is no reason why sound bulbs of this Lily should not be produced in this country and sold instead of imported bulbs from Japan, which often turn out unsatisfactory.

Successional sowings of annuals, such as Candytufts, are hardly as much practised as they should be; as a rule we get a blaze of bloom and then a long dreary flowerless time; whereas if a few patches were sown at intervals of a month or so we would get a long succession, and where cut flowers are in request plants of such easy growth could hardly come in at a wrong time. In cool autumn weather, too, they last much longer in perfection than in summer. A good bed of Mignonette sown late to come into bloom at this time yields a supply of heads for cutting until frost closes the floral season out of doors.—J. GROOM, *Gosport.*

Carnations amongst Roses.—My experience of Carnations agrees with that of Mr. Knight (p. 277), and especially as regards the perpetual or Tree Carnations, i.e., those that make a bush of shoots and do not develop a climbing habit. How does Mr. Knight manage to grow them amongst Roses? I have always found them require almost different soil from Roses. In a light soil on gravel over chalk they formed grand bushes with me, each a yard or two across, and having from 100 to 150 blooms open at one time. Chrysanthemums did equally well in the same soil, Elaine, Mrs. Forsyth, Christine, Beverley, Mrs. George Rundle, &c., producing sheets of bloom. In a Rose soil Carnations barely live with me; I can only grow them in light, sandy patches. Even amongst Tea Roses, when the Roses thrive the Carnations do badly, and vice versa. A sunny, breezy situation, a soil as light and pliable as an ash heap, a plentiful dressing of leaf-mould rotted to powder, or old hotbed manure, a climate as dry as possible in winter, and judicious watering, and weak liquid manure in summer are conditions which exactly suit the perpetual Carnation as a border flower. On chalk hills or downs, where no damps rise and hang about in winter, the perpetual Carnation and the Antirrhinum ought to be made a feature in the garden.—J. DUNDAS.

Autumn flowering plants.—My garden is now quite gay with bloom, and yet I am obliged to cut large quantities for decorative purposes. The Cactus Dahlia is the most beautiful plant I have. I do not use Pelargoniums or Lobelias, Calceolarias, Ageratums and a host of other summer blooming plants, but go regularly in for surpassing my neighbours with a good effect in autumn. Of white and pink Japanese Anemones I have two large beds, and I also grow Paragon, Beauty of Cambridge, Pantaloon, Union Jack, and lutea grandiflora, single Dahlias; Algerian Marguerites in quantity, all colours; Coreopsis lanceolata, Pyrethrum uliginosum; a late planting of Gladiolus ramosus, which are very fine now; the black Dahlia in quantity; Mrs. Sinkins Pink, which has been perpetually in bloom since May; and Nicotiana affinis, a large clump, the perfume of which is delicious at night, and the flowers are very lasting in a cut state. Three varieties of Paris Daisies planted out are in perfection, as is also Leptosyne maritima; this, I fancy, should be

perennial from its root formation. The blooms are as good as those of any yellow single Dahlia and more lasting when gathered. *Iberis gibraltarica hybrida* is producing a second crop of bloom now, a sterling good plant. I have, moreover, some nice flowers of *Anemone fulgens* from a May planting, both double and single, the pretty little bouquet Dahlia, White Aster, and some Clove Carnations.—WILLIAM BAYLOR HARTLAND, Temple Hill, Cork.

Gold-laced Polyanthuses.—As the time is now fast approaching when these will have to be prepared for exhibition, I should like to have the opinion of both northern and southern florists as to what markings really constitute a show flower in the gold-laced section. I find amongst growers of this favourite spring flower great differences in opinion in reference to this matter; for instance, Duke of Wellington, a sort sent out a few years ago, is considered by Middleton florists to be a coarse, good-for-nothing sort for show purposes; while in the south it is considered by some to be an extra good kind. On looking through a grower's garden in Cheshire last spring, I found a seedling in bloom considered by the grower to be good, and he ought to be a judge, having been very successful at Manchester National Show. The flower in question had a black ground, similarly formed to that of Exile, was very well laced and cut through, good colour, with a ridge or swelling round the eye. Shortly after seeing it I sent a flower to another noted grower of the same type (viz. with the ridge or swelling round the eye), and, to my dismay, received an answer stating that it was useless as a show flower, owing to the ridge just mentioned. Now, I have a quantity of them, and should like the opinion of our southern friends and others in the midlands on this point. I would also like to know if Pearson's Alexander is yet in commerce, and, if so, where it could be obtained true.—CHESHIRE.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 294.)

HYMENOPHYLLUM.—This charming genus forms the basis of the group generally known as Filmy Ferns—a group at all times and in all stages most interesting, but when laden with condensed moisture truly fascinating. *H. tunbridgensis* and *Wilsoni* are indigenous to Britain, but the majority of *Hymenophyllums* come from New Zealand, Tasmania, and Chili, where they have a climate naturally humid, and from the East and West Indies, where they are found on mountains at high elevations, and where, consequently a low temperature, shade, and moisture—all indispensable to their well-being—are constantly present. Moisture they must have, as the delicate fronds of many species are so membranaceous, that if exposed to drought or sunshine for even a very short time they would completely shrivel up; and, as regards heat, its consequences are equally disastrous, as an hour or two of a dry, heated atmosphere would be quite sufficient to ruin plants which for years may have grown vigorously. They are all particularly well adapted for Fern cases, where tastefully arranged on rockwork made of porous material and intermixed with pieces of Tree Ferns or logs of partly decayed wood they have a charming appearance. Their requirements as regards light and heat are easily satisfied, and one may almost say that no place in a room is too dark for them, although in order to grow them to perfection a good subdued light with absolute protection from sunshine is necessary. On account of their requiring extra shading and moisture in greater abundance than any other class of Ferns, *Hymenophyllums* are hardly manageable unless kept by themselves. Where grown in sufficient quantity to fill a house a naturally shaded spot should be selected for it in a place where the ground can be dug deep enough to allow the walls to be built sufficiently high without glass in the sides. A Filmy fernery should represent a natural ravine covered with a glass roof. In such

a structure fluctuations of temperature and atmospheric conditions are greatly minimised and artificial heat is altogether unnecessary. It has been proved beyond doubt that *Hymenophyllums*, including even those from the East and West Indies, not only bear, but thoroughly enjoy a temperature much below that of their native habitats. I have even seen in this country the New Zealand species, *crispatum*, *demissum*, *dilatatum*, and *flexuosum*, *caudiculatum*, *fuciforme*, and *pectinatum* from Chili, and also the West Indian *asplenoides*, *polyanthos*, and *sericeum*, all growing together embedded in solid ice; yet when thaw set in they were found to be uninjured, and although nearly four years have elapsed since this happened, their growth has not been checked in the least. Without, however, having recourse to such an extreme, it is generally admitted that they enjoy a few degrees of frost, and that, as a rule, when once established they are easy to cultivate. Mechanical watering overhead should in the case of Filmy Ferns be discarded altogether—a remark particularly applicable to all species with hairy or tomentose fronds, such as *arginosum*, *hirsutum*, *hirtellum*, *lineare*, *obtusatum*, and *scabrum*, which, although very fond of moisture, suffer greatly by being wetted overhead.

SYRINGING.—If sometimes during hot weather, when great difficulty is experienced in keeping the temperature sufficiently cool, it is thought advisable to give the Fern case a very slight syringing, the hairy species should always be carefully avoided. The water used for that purpose should be perfectly pure and only rain water at the temperature of the case, or nearly so, should be used, as *Hymenophyllums* frequently watered with hard water, which always contains a certain amount of lime, very soon lose their vigour. But if the case, house, or whatever the structure devoted to their culture may be, is sufficiently well drained, so as to allow for frequent waterings over stones, Moss, walls, &c., that will be found sufficient, and it will not be necessary to have recourse to syringing at all. With the exception of *pulcherrimum*, all *Hymenophyllums* are of creeping habit, and, therefore, they succeed on the surface of a rock or under the Moss which covers it. All of them have a dislike to having their rhizomes, which in all cases are of a slender and somewhat shining character, buried at all under the loose ground in which they delight to grow. Indeed, the soil is only a matter of secondary importance, as it has been found that any material, if sufficiently porous, free from any impurity, and possessed of moisture-retaining qualities, is suitable for their growth, although most of them thrive well in a mixture of sandy peat with a little loam, numerous small species of broken sandstone, and an additional sprinkling of coarse crock dust, the whole being made light and permeable, and under no circumstances capable of becoming sour by the abundance of water which it has to receive. They are propagated but slowly, a fact which no doubt accounts for their prices keeping rather higher than those for ordinary Ferns. I have only seen seedlings of *Hymenophyllums* once, and, although these were when I saw them five years old, they were very small indeed, and hardly showed their true character. They are, however, commonly increased by division of the rhizomes, an operation which is safe enough, although one which requires some little patience. Draughts must be carefully avoided at all times of the year, and air should only be sparingly admitted into the case.

H. ABRUPTUM.—A very pretty dwarf West Indian species, with broad, blunt, glossy, once-divided fronds of curving habit. These seldom exceed 2 inches high, and form a lovely dense carpet on trunks of trees and rocks, which they completely cover, and give them quite a mossy appearance. The stalks of the fronds are very wiry.

H. ARGINOSUM.—This is a pretty, tomentose, and very distinct New Zealand species, with thrice-divided, dense, ovate fronds produced abundantly from extremely small rhizomes, which delight in finding their way through a piece of Tree Fern or some very rough peat. These fronds average about

6 inches in length by 3 inches in breadth, and are covered on both sides while young with a peculiar pubescence, but when old it assumes a brown or tawny colour. Special care must be taken to keep the foliage of this species dry.

H. ASPLENIODES.—A charming little Fern from the West Indies, of an extremely delicate-looking habit with narrow, glossy, undulated, sometimes slightly divided very transparent fronds, rarely exceeding 6 inches in length; these somewhat obtusely lobed fronds are produced in great abundance from exceedingly fine wiry rhizomes, which grow freely on Tree Fern stems. They have a very pendent habit, and the plant has an appearance altogether distinct from that of any other *Hymenophyllum*.

H. CAUDICULATUM.—This Chilean species is undoubtedly one of the handsomest and most striking *Hymenophyllums* in cultivation. Its very translucent and somewhat broad fronds, of an erect and curving habit, are produced more freely than in most other plants belonging to the same genus; they are smooth, three times divided, and attain a height of sometimes 12 inches and 15 inches; the ends or points of the pinnules are lengthened out into narrow segments, thus giving a graceful appearance to the plant, which is all the more striking on account of the fronds being borne on broadly-winged stems, also very transparent. Although an uncommonly strong grower, and not at all delicate as to its diet, it likes half-decayed Sphagnum and peat best. It is also one of the few species not averse to being watered overhead.

H. CHILOENSE.—A real gem amongst Filmy Ferns, and a native of Southern Chili, where it is said to form a dense carpet over rocks and trees alike. Its pretty little fronds, which seldom reach more than 2 inches in height, are twice divided and broad at the base; they are of a dull green colour, with very conspicuous dark veins covering the entire surface of the pinnæ. They are borne on exceedingly slender stalks, the rhizomes being also extremely fine.

H. CILIATUM.—This very handsome and free-growing West Indian species is particularly fond of Tree Fern or half-decayed wood. The fronds, which are dense, broadly ovate, and bipinnatifid, seldom measure more than 4 inches in length; they are slightly hairy throughout, especially at the edges, and borne on short stalks broadly winged at their base.

H. CRISPATUM.—One of the prettiest among the numerous New Zealand species. The fronds, which attain from 6 inches to 8 inches in length, are of erect or curving habit, and triangular in shape; they are quite crisped, rather dense, of a deep dark green, although quite transparent and borne on stalks winged to the base, the edges of which are everywhere wavy. It is one of the easiest to grow, and one which produces fronds in great abundance.

H. CRUENTUM.—This thoroughly distinct and pretty Fern is a native of Southern Chili. It has very little of the aspect of a *Hymenophyllum*, as its seaweed-like curving fronds, which are produced sparingly from very fine rhizomes, are broad, undivided, somewhat lanceolate, sometimes measuring 4 inches in length by 2 inches in breadth; they are extremely translucent, undulated or waved at the edges, and beautifully veined. They are of a decumbent habit, and are borne on long and wiry stalks. Another peculiarity also belonging to this curious species, and which greatly adds to its beauty, is the brownish rosy colour of the old fronds, which remain on the plants for a long time.

H. DEMISSUM.—Undoubtedly the most decorative, as well as the easiest grown, of all the New Zealand species, and so well appreciated that it is found in every collection where any attempt at Filmy Fern growing is made. It is about the largest in the genus and a fit companion for the Killarney Fern, with which, under cultivation, it is generally found. Its fine fronds, which are three times divided, smooth, and of a lively green colour when young, turning with age to the deepest dark

green colour generally measure from 15 inches to 20 inches in length by about 5 inches in breadth at their largest part. They are somewhat of an elongated triangular shape with an inclination to become incurved with age, and are adorned with finely divided segments about $2\frac{1}{2}$ inches long; they are borne on tall, erect, wiry stalks, but the weight of the foliage causes them to become gracefully arched. No Hymenophyllum is more effective than this species, which does not at all mind being wetted overhead, and which has produced several very handsome varieties, the two most distinct of which are

H. NITIDUM or nitens, as it is sometimes called, and flabellatum. In the former variety the fronds are much more erect than in the type, and smaller in all their parts; they are also more finely cut, and instead of the pinnae being smooth they have a very crisped appearance, produced by a contraction which is natural to them. The fronds of this variety seldom exceed 8 inches in height, while those of the variety

H. FLABELLATUM sometimes attain 12 inches or even 14 inches in length, and differ from the typical species principally in shape, which is much more lanceolate; they are also more finely divided; the pinnae, being set far apart, give it a loose, and also a very elegant appearance. The foliage of this variety is of a peculiarly glistening bright green hue, and of the same tint both in young and old fronds. PELLEA.

Onychium japonicum.—This is one of the prettiest of hardy exotic Ferns. Being of moderate and compact growth, it is suitable for window culture or for planting on rockwork in a cool greenhouse. It is nearly hardy, but liable to be killed or much crippled in severe winters. It therefore requires some slight protection when growing in the open air.—J. C. B.

Asplenium flabellifolium.—When recently visiting the Sidcup Nurseries I noticed a very ingenious way of bringing this extremely pretty slender-growing New Holland species into use. There it is grown with complete success in rustic cork baskets, of the most ragged part of which it takes possession in a wonderfully short time, showing to perfection its lovely fronds, about 15 inches long, with fan-shaped pinnae, proliferous at their extremities; the latter form a downwards growth of remarkable aspect. This species is so distinct that no collection should be without it. This is by far the most effective way of dealing with this little gem, which, when grown in pots or even trailing on the ground in a Fern case has a weedy and unprepossessing appearance.—G. S.

Adiantum tinctorum.—Although an old inhabitant of our gardens, this is a plant seldom found true to name in collections. Even when some prettily tinged Maiden-hairs are seen with this name attached to them it is wiser to examine them closely if possible than trust to the labelling, as, in the majority of cases where *A. tinctorum* is required, *A. rubellum* is supplied instead, not from any deliberate attempt at deception, but from sheer want of knowledge on the part of growers who cannot distinguish the one from the other. Yet in habit they are quite distinct; the fronds of *A. tinctorum* are bipinnate, with rounded pinnae, rosy red when young, turning bright green as they grow older; they are supported on much more minute stalks than those of *rubellum* and not so upright; the general appearance of the plant is much more compact, although formed of more slender materials; the rosy hue of the young fronds is never so deep as in that of *A. rubellum*.—G. S.

Ceterach aureum.—Finely grown plants of this rare Fern are grown in Messrs. Laird's nursery, near Edinburgh. It is like a magnified form of the common British *Ceterach*, with thick leaves about 3 inches across and about 9 inches long. This Fern is grown under glass, but without heat, and would probably prove hardy in the milder parts of the country.—C. M. O.

Adiantum trapeziforme (Leo).—The frond sent is from a plant evidently suffering from the effects of an atmosphere too close and too moist, which always, but particularly in autumn and winter, affects the *Adiantums* with broad pinnae, especially *A. trapeziforme*, *macrophyllum*, *Seemannii*, *Sanctæ-Catharinæ*, and *brasiliense*. Less moisture in the house suits them best at this time of year.—G. S.

PLANTS IN FLOWER.

Anemone fulgens.—Some blooms of this brilliant hardy flower come from Mr. Hartland's nursery, Cork, which, considering the late season, are excellent. Good-sized masses of this flower in the autumn border would light up the surroundings more than any other hardy flower we know.

Shamrock Pea (Parochætus communis).—When the flowers in the alpine garden are decreasing day by day, it is pleasant to find this sturdy little creeping perennial in bloom for the second time, as it is now at Kew. Its large turquoise-blue flowers are very handsome, and they have a very pretty effect, just overtopping the trilobed leaves. Though a native of Nepaul, it is perfectly hardy in light, warm soils in thoroughly drained spots.

Carnation Ernest Albert.—Among some flowers sent by Mr. B. Hartland, Cork, is a beautiful new Clove Carnation bearing this name. It is the most perfect flower of the race we have seen, and our correspondent says it is a perpetual flowerer, in proof of which he mentions that he has been cutting blooms from one seedling plant since July last. The colour is a deep velvety crimson and the perfume all that could be desired.

New single Dahlia.—Mr. Westland has sent us from Witley Court one of the most remarkable single Dahlias we have seen. The flowers measure some 4 inches across, each with about eight florets, which are $1\frac{1}{2}$ inches broad and quite oval-shaped. The colour is a rich maroon-crimson, broadly edged with orange-red—a striking combination of colours. Mr. Westland states that the markings are constant, the habit of growth good, and of moderate height. This is the stamp of seedlings that are real acquisitions.

Castor-oil Plants and Marguerites.—One of the prettiest effects in Battersea Park at the present time is a bed of the dark purple-leaved variety of Castor-oil Plant intermixed with white Marguerites (*Chrysanthemum Halleri*). The elegant and pure white Daisy-like flowers, in contrast with the bold dark foliage, have a fine effect, which is enhanced by a fine background of Evergreens, including some variegated Aucubas. This bed has long been attractive, and will continue to be so until damaged by frosts.

Smilax tamnoides.—This is one of the most elegant evergreen climbers one can have against a wall in the open air. Its thick, glossy, heart-shaped leaves always look beautiful, and just now its beauty is increased by the elegant racemes of white blossoms that are borne profusely on the slender branches. These sprays are very graceful, and admirable for filling vases, though perhaps the perfume would be too strong for some. It is sent to us by "St. Brigid" from the Hill of Howth. It likes a sheltered corner and a moist soil.

Fuchsia Mrs. Rundle.—Some cut blooms and a small plant of this beautiful new Fuchsia have been sent to us by Mr. J. Green, Thorpe, Norwich, which show admirably its usefulness for decorative purposes at this season of the year. It seems to be related to the variety named Lord Beaconsfield, but is an improvement on that kind. The flowers are $2\frac{1}{2}$ inches long, with pale flesh-tinted tubes, while the corolla is a bright reddish crimson. It is a most profuse flowerer, even small plants in $2\frac{1}{2}$ -inch pots carrying a dozen or more blooms.

Nerine Fothergilli major.—One of the finest floral sights that I have ever seen was a group or rather houseful of this brilliant bulbous plant in Baron Schroeder's garden, at The Dell, Egham. The dazzling effect of such a display may be gleaned from the fact that there were no fewer than 161 spikes of expanded flowers. Some of the plants measure 2 feet across, and bear over a dozen spikes, though only in 12-inch pots. I was unfortunate in not seeing this glowing display under the effect of sunlight, which it is said so much enhances its brilliancy. Mr. Ballantine has certainly discovered the proper way in which to treat this plant, which, strange to say, is sel-

dom seen elsewhere in creditable condition. The plants here of this *Nerine* flower for weeks together, during which period no other plants can surpass them in splendour.—E. S.

Scarlet dwarf Dahlia.—"J. C. T." again sends us blooms of his new Dahlia, and with them some of the sort called Glare of the Garden, with which we compared his seedling last week. Now, when we see the two together, we observe that they are widely different as regards colour, our correspondent's seedling being a dark velvety crimson, the other a bright scarlet. The flowers, too, are larger, and the florets more recurved. It is seemingly distinct from any sort we have seen, and if dwarf, robust, and floriferous will prove to be a useful plant for forming low masses in beds.

Iris scorpioides.—This pretty autumn and winter-flowering plant is now in full flower in the Hale Farm Nursery, Tottenham. It is a species not much cultivated, though one of the oldest of garden plants, having been grown in Gerard's time. All who see it in flower admire it, the large singular, shaped blooms, only a few inches above the ground being coloured with purple and gold. On these dull autumn days it is pleasant to find such a brave flower in the open border, and all who care for hardy flowers should obtain a few bulbs of it.

Androsace lanuginosa.—Some beautiful flowering sprays of this little Himalayan plant, sent to us by Mr. Ware, show admirably what a desirable alpine it is for the rock garden in autumn. In the Hale Farm Nursery, Tottenham, there are now large healthy tufts of it in full flower on the rockery where it has been attractive for some time. It bears Verbena-like heads of deep mauve-coloured flowers, which, associated with the silvery foliage, produce a charming effect. It requires a well drained spot where the foliage would be free from excessive moisture during winter.

A variegated American Aloe is now in full bloom at Sibald's Holme, Wisbech. The flower-stem is $17\frac{1}{2}$ feet in height, and carries twenty or more horizontal branches, bearing bunches of golden bloom. The plant showed flower last May, after which the flower-stem grew rapidly, and the buds burst fully open about a fortnight ago. The late Mr. E. W. Cooke, of Glen Andred, sketched an Aloe grown in the same grounds, and an engraving of it was given in THE GARDEN, December 18, 1875. The present plant is similar to that just referred to, and is between ninety and 100 years old, having been in Mr. Peckover's possession fifty years. As the former Aloe wasted and died three small plants or suckers rose round it, each miniatures of the old plant.—W. P.

Double Meadow Saffrons.—Some charming blooms of these sent to us by "St. Brigid," Hill of Howth, remind us of the value of these hardy bulbous plants for the autumn garden; yet, strange to say, they are comparatively neglected. In old gardens one sometimes sees them, but they do not often find a place in modern ones. All the varieties are beautiful, and particularly the forms of *Colchicum autumnale*, of which the variety sent and the double white are most to be recommended. The pretty tessellated kinds, such as the old *C. Parkinsoni*, are likewise most desirable; nor must the fine *C. speciosum*—the giant among Meadow Saffrons—be omitted. These, properly placed, would enliven many a garden during the dull autumn days. They have a pretty effect, and when planted on lawns the bareness of the flowers is relieved by the Grass.

Land agent's English.—We take the following from a land agent's account of a place to sell in Surrey. The language is very beautiful, though strange: "Adjoining the gardens the slopes are entered by rustic stone steps, and present a great richness of pristine decoration, through which is a winding walk, now on a terrace level, and then undulating at ease, increasing to developments of steep declivity, the whole sheltered by grand forest trees and natural undergrowth in all its tangled beauty, including a long succession of ferneries, &c. From these one emerges into the meadows, which contain huge boulders of rock and several phenomena of immense attraction, grand specimens of forest Beech and Yew trees growing on the tops of rocks standing out in separate huge blocks, and which, with their surroundings, form unique embellishments."

TREES AND SHRUBS.

DOUBLE WHITE BRAMBLE.

(RUBUS FRUTICOSUS POMONIUS.)

OF the multitude of varieties that exist of the common Blackberry there are three only that can be recommended as ornamental garden plants, and these, owing to their spreading and picturesque growth, are particularly suitable for planting as isolated specimens on lawns. They consist of the double pink (roseus fl.-pl.), a kind which produces a profusion of small rosette-like flowers of a beautiful pink colour; the Parsley-leaved, or laciniatus, a well-known variety, with elegantly cut foliage; and the double white, of which an illustration is herewith given. This variety is particularly beautiful, its flowers reminding one more of miniature clusters of *Aimée Vibert* Rose than of those of a Bramble. Its blossoms, being semi-double and pure white, contrast charmingly with the foliage, which is of a paler hue than that of other Brambles. Like others of its race, it thrives anywhere, and often in places where no other ornamental plants would grow. Trained against a wall it is a fine object, and its vigorous growth rapidly covers a large space. It is useful, too, for screens, but its proper position is, as has been said, on a lawn where it has free scope in which to develop itself in all directions. In such a position it soon makes a huge symmetrically shaped bush, which from early summer till late in autumn is covered with bloom. It thrives in any soil, but where it has its choice seems to prefer a light warm one, judging by the fine specimens of it that have been brought to us from time to time by Mr. Stevens from his garden at Byfleet. It has been long cultivated in gardens, and appears to have originally come from Italy. There are other semi-double white European Brambles, but this is the best. It is also known in some gardens as *R. fruticosus albus plenus*.

W. G.

New hedge Privet.—To the list of plants adapted for hedges may be added *Ligustrum ovalifolium*, the oval-leaved Privet. I saw a very fine hedge of it not long since, very dense, and forming an excellent screen. It bears cutting back, is very hardy, and soon breaks into growth again; but it should not be cut in too late in the season.—R. D.

THUJA GIGANTEA AND LOBBI.

I WAS pleased to read Mr. Webster's remarks on *Thuja gigantea*, which, in my opinion, is one of our most reliable and hardy Conifers, and one which is not nearly so much planted as it should be. It should be known to all who have exceptionally cold localities to deal with that this *Thuja* is possessed of exceptional frost-resisting powers, being in this respect quite on a level with the American *Arbor-vitæ*; indeed, as regards hardiness, I question if any Evergreen can be found to surpass it in ability to withstand long periods of severe frost. I speak with some

cold or poor, so that grafted plants will often thrive well where seedlings would fail to give satisfactory results. This is especially the case in damp, low-lying situations or in heavy, cold moisture-holding soils, such as those in which many of our most attractive Conifers refuse to grow vigorously. There are two seasons of the year when

GRAFTING may be performed—spring and summer, but I always preferred August to any other time, as the grafts get well hold by autumn, and if the plants are sheltered in a cold frame they have all the winter before them before being planted out, for although at rest as regards actual growth,

the complete union of the graft with the stock is carried on and perfected so that the one seldom shows any inclination to get rid of the other when the sap again moves quickly; whereas, in the case of spring grafting, which must be performed in a warm, close house, unless the hardening off is carried out with extreme care, many of the plants cast their scions just when they should be starting into growth. Ordinary side grafting is, I think, the best method, the stocks being potted up either in autumn or spring. It seems strange that *Thuja gigantea* and *Lobbi* should still be regarded by so many as synonymous, for although there are certain points of resemblance between them, they are sufficiently distinct to enable even the uninitiated in coniferous nomenclature to distinguish them without much trouble. Even in a young state they present such decided points of difference in growth as to strike the eye at



Flowering spray of double white Bramble. Drawn August 20.

authority upon this point, as I have seen *Thuja gigantea* thriving in much colder climates than our own, and where the greater portion of the coniferous trees in which we delight cannot find a home. In Switzerland and in many parts of Germany, very few Conifers or indeed Evergreens withstand the severity of what too often proves to be a semi-arctic winter, but *Thuja gigantea* has declared itself to be thoroughly reliable, and is a great favourite with planters there, so that I should suppose that we might rely upon it not suffering even in the coldest portions of the British Isles. Mr. Webster, I see, recommends that it be increased by means of seeds and cuttings; the ordinary method pursued on the Continent is grafting, taking *Thuja occidentalis* as the stock, as it is found that larger plants are formed in less time than from cuttings, and that the natural vigour of the stock fits it for any soil, however

once; and as they advance in years and stature they diverge more and more widely as regards general appearance. *T. gigantea* is altogether of more massive growth than *Lobbi*; it does not, as a rule, spread so much at the base, and is not at all a good tree for screens, whereas *Lobbi* is one of if not the best for that purpose. I have long thought that it is about the best Evergreen that can be employed for a screen, as it combines in a remarkable degree great hardiness with rapidity of growth, intense verdure, never changing in the least in colour all through the year; whereas the *Arbor-vitæ* turns brown in hard weather and has a most dingy appearance, not at all pleasing in dull days in winter; it also bears clipping quite as well as that well-known and much employed Evergreen. After what I have seen of *T. Lobbi*, I would never plant *Arbor-vitæ* for

BOUNDARY SCREENS when I could get the other, and those who might see the hedges and screens made of this Conifer in Admiral Egerton's garden, St. George's Hill, Byfleet, would, I feel sure, be ready to agree with all that I have here said in its favour. In planting a hedge of Thuja Lobbi the great point would seem to be to employ young, thrifty plants not more than three years old which have never been weakened or in any way drawn by being unduly crowded in their nursery quarters. Such plants make, if well planted and tended, thick hedges, which in the course of a few years become so close at the base as to be quite chicken-proof. When, on the contrary, older specimens are used, such as have stood together some years in a nursery, there are almost sure to be gappy places here and there at the bottom, which detract considerably from the beauty and utility of the hedge or screen. I do not know whether T. Lobbi is so hardy as gigantea; I have not met with it often on the Continent where the climate is so very severe, and consequently cannot speak so confidently of its ability to resist frost as of the latter; but I should imagine that there is but little to choose between them, seeing that both are equally distinguished by never changing colour under the sharp test of a severe English winter. J. C. B.

TREE WOUNDS AND COAL TAR.*

BARK once injured or loosened can never attach itself again to the trunk; and whenever wounds, abrasures, or sections of loose bark exist on the trunk of a tree, the damaged part should be cut away cleanly as far as the injury extends. Careful persons have been known to nail on to a tree a piece of loosened bark, in the hope of inducing it to grow again, or at least of retaining on the young wood its natural covering. Unfortunately the result produced by this operation is exactly opposite to that intended. The decaying wood and bark attracts thousands of insects, which find here safe shelter and abundant food; and, increasing rapidly, hasten the death of the tree. In such cases, instead of refastening the loosened bark to the tree, it should be entirely cut away, care being taken to give the cut a regular outline, especially on the lower side, for if a portion of the bark, even if adhering to the wood, is left without direct communication with the leaves, it must die and decay. A coating of coal tar should be applied to such wounds.

LOOSENED BARK.—It is necessary to frequently examine the lower portions of the trunk, especially of trees beginning to grow old, for here is often found the cause of death in many trees, in large sheets of bark entirely separated from the trunk. This condition of things, which often cannot be detected except by the hollow sound produced by striking the trunk with the back of the iron pruning knife, arrests the circulation of sap, while the cavity between the bark and the wood furnishes a safe retreat for a multitude of insects, which hasten the destruction of the tree. The dead bark should be entirely removed, even should it be necessary in so doing to make large wounds. Attention, too, should be given to injuries to the bark caused by the fall of neighbouring trees. These may remain hidden for years, and are often only detected by the peculiar sound produced by a blow of the pruning knife. Cases of this nature require the treatment recommended for the last class.

CAVITIES IN THE TRUNK.—Very often when a tree has been long neglected the trunk is seriously injured by cavities caused by the decay of dead or broken branches. It is not claimed that pruning can remove defects of this nature; it can with proper application, however, arrest the progress of the evil, and in such cases should always be resorted to. The edge of the cavity should be cut smooth and even, and all decomposed matter or growth of new bark formed in the interior should be carefully removed. A coating of coal tar should

be applied to the surface of the cavity, and the mouth plugged with a piece of well-seasoned Oak, securely driven into the place. The end of the plug should then be carefully pared smooth and covered with coal tar, precisely as if the stump of a branch were under treatment. If the cavity is too large to be closed in this manner, a piece of thoroughly seasoned Oak board, carefully fitted to it, may be securely nailed into the opening and then covered with coal tar. It is often advisable to guard against the attacks of insects by nailing a piece of zinc or other metal over the board in such a way that the growth of the new wood will in time completely cover it. These operations resemble, if such a comparison is admissible, the fillings performed by dentists, and with the same object—to check the progress of decay.

COAL TAR, a waste product of gas-works, can be applied with an ordinary painter's brush, and may be used cold, except in very cold weather, when it should be slightly warmed before application. Coal tar has remarkable preservative properties, and may be used with equal advantage on living and dead wood. A single application without penetrating deeper than ordinary paint forms an impervious coating to the wood cells, which would without such covering, under external influences, soon become channels of decay. This simple application then produces a sort of instantaneous cauterisation, and preserves from decay wounds caused either in pruning or by accident. The odour of coal tar drives away insects, or prevents them, by complete adherence to the wood, from injuring it. After long and expensive experiments, the director of the parks of the city of Paris finally, in 1863, adopted coal tar in preference to other preparations used for covering tree wounds. In the case of stone fruit trees it should, however, be used with considerable caution, especially on Plum trees. It has often been observed that the bark of fruit trees of this class has suffered from the application of coal tar, while on Apples, Pears, and trees of that class it may be applied with perfect safety. It must not, however, be supposed from these remarks that coal tar cannot be used on the Plum or other stone fruits. On the contrary, there is no substance which can replace it in the treatment of large wounds on these trees; but, as has been said, it should be used cautiously, especially in the case of young trees, and should not be allowed to needlessly run down the trunk, and it is well to remember that the more active a remedy is the greater should be the care in its application. The practice of leaving a short stump to an amputated branch, adopted by some to prevent the loss of sap, although less objectionable in the case of coniferous trees than in that of others, should never be adopted. Such stumps must be cut again the following year close to the trunk, or cushions of wood will form about their base, covering the trunk with protuberances. These greatly injure the appearance and value of the tree, and necessitate, should it be found desirable, the removal later on of such excrescences, wounds two or three times as large as an original cut close to the trunk would have made.

Street trees.—There is no aspect of vegetation in connection with towns more interesting than that of trees in streets. In the towns of Cardiff and Penarth, where many new streets are being formed and old ones extended annually, trees are planted on each side as the work goes on, and those put in a few years ago are now quite ornamental in character. The system is alike applicable to town or village. One of the prettiest rural villages with which I am acquainted in Scotland has its streets lined with trees. This is Thornhill, in Dumfriesshire, where they were planted many years ago under the direction of the Duchess of Buccleuch. In the park at Nottingham the fine lines of trees introduced along the sides of the road have induced many to build villas and take up their abode there. What attractions would the famous promenade at Cheltenham possess were it not for its tree-lined sides and leafy archway? Walter's Road, in Swansea, too, is one of the prettiest in South Wales; the houses here seem nestling amongst

the street trees; deprived of these, the masonry would be seen uninterruptedly from end to end. Other instances could be given where charming effects have been produced from this kind of planting. The best form of street trees is those with tall stems and nicely formed graceful heads. Limes and Elms are favourite kinds for such work, and these have been largely used, but there are many other kinds which might be employed with equally good effect.—CAMBRIAN.

5075.—*Araucaria imbricata*.—The state of the Araucarias, described by "O. S. A.," p. 305, is similar to that which may be found in nine cases out of ten where this tree has had time to reach even a much less size than those named—50 feet; and the same holds good of *Cedrus Deodara* and *Wellingtonia gigantea*, both of which, as well as the *Araucaria*, may be looked on as failures in this country in all but a very few places, for although these trees usually go on a few years with a flush of vigour that promises great things, their well-doing is so short-lived as not to leave it for future generations to arrive at a conclusion as to their merits. It is a pity that such is the case, for the *Araucaria* is so distinct in every way, the *Cedrus* so elegant in habit, and the *Wellingtonia* of such mighty associations, that no wonder every one planted them; but there is often a grain of consolation in these trees failing to grow in the positions where placed, for as frequently as otherwise they have been planted with no more thought or judgment as to suitability of position than if tree-planting was an operation only just come into existence. The Moss described as growing on the *Araucarias* is an evidence of much moisture in both soil and atmosphere, as well as of stagnation in the growth of the trees. When reduced to this condition, anything that could be done is not likely to improve them.—T. BAINES.

INDOOR GARDEN.

THUNBERGIAS.

THERE are several stove species of this family well deserving of more general cultivation than they receive. They are evergreen climbers of vigorous habit, and particularly suited to a large house where their free, vigorous growth has scope for extension, as it is under such conditions that their pendent branches and handsome flowers are seen to advantage. In small structures where there arises the necessity for a continuous use of the knife to keep them within bounds, they have little chance of displaying their natural habit of flowering more than sparingly, and it is on this account most likely that the plants get an indifferent reputation, hence their being comparatively seldom met with. Most of the species worth growing can be raised from seeds, but as these plants, in common with many things of a vigorous habit, do not often produce seed under cultivation, it is necessary to obtain imported seeds when they are raised in this way, and, as they propagate readily from cuttings, it is well to confine the details of their increase to such method. After the plants have been cut in during winter and have again broken into growth, when the shoots have reached a length of 4 inches take them off with a heel and insert them singly in small pots, drained, and half filled with sandy soil, the remainder all sand; keep them moist and close under a propagating glass in a temperature of 70°; they will root in a few weeks; then remove the glass, and as soon as the little pots contain a fair amount of roots shift to others 6 inches or 7 inches in diameter. It is not of much consequence whether peat or loam is used to grow them in, as from their free habit they will succeed in either; although, as I have before said in speaking of vigorous habited stove subjects, where good loam is obtainable they generally bloom freer in it than in peat. Use the soil in a rougher condition than is necessary for weaker rooted things. The plants, being climbers, as they get fairly into growth will need a stick each for support; keep them in a brisk stove temperature where

* Translated from the French of A. des Cars by Charles S. Sargent, Professor of Arboriculture in Harvard College, U.S.A.

they can receive a pretty full amount of light and air during the middle of the day and no more shade than requisite to keep the leaves from scorching. Syringe freely in the afternoons at the time the house is closed, and pinch out the points of the shoots when they have attained the length of 3 feet to cause them to break out several branches.

ALL THE KINDS are comparatively quick growers and the plants will bear moving into 10-inch or 11-inch pots by the end of June, treating them in other matters as before, and training the shoots on the rafters, or whatever position they are intended to occupy; possibly some flowers may be produced towards the end of summer, but it is the following season that the display may be looked for. By the middle of September cease syringing and shading, give more air and less water to the roots, so as to discourage growth and gradually bring them to a state of rest; a night temperature of 60° or 65° through the winter will answer. About the commencement of the year cut out the weak shoots should any exist, and later on when growth has begun move the plants into 16-inch or 18-inch pots, or even larger, if a large space has to be covered with their branches. As the summer advances treat as advised the preceding season and keep the shoots loosely trained to the position they are intended to occupy, allowing their lateral branches to hang, in which way the flowers are seen to so much better advantage than when tied in too closely. As the pots get full of roots give manure water freely. Instead of confining their roots to pots they may be planted out, but even where a large space is available for head-room it is not advisable to have the bed in which they are turned out too large, or they get almost unmanageable. When the flowering is over cut back the shoots so far as necessary, and in the spring, when growth is about beginning, turn those that are in pots out, removing some of the soil about the upper portion of the ball, replacing it with new, and as soon as the roots have fairly begun to move manure water must be freely used, without which, unless much larger pots or tubs are employed than necessary for most things, on account of their vigorous habit, they will not have enough sustenance to keep them going in a way necessary to make the requisite growth. Where planted out, remove a portion of the surface soil in spring and replace it with new. Most of these *Thunbergias* will last longer where they have a bed of soil wherein to extend moderately, as their rapid formation of roots, even with a liberal application of manure water, quickly exhausts the limited quantity of soil a pot holds; consequently, when confined to pots it is necessary to propagate sufficiently often to keep up a supply of plants to take the place of those it becomes necessary to discard.

The under-mentioned kinds are the most desirable: *T. laurifolia*, a pale blue-flowered species from Malacca, with handsome foliage and a strong, rambling habit of growth; *T. Harrisii*, another pale blue kind, which has a yellow eye that sets off the flower very much; it is similar in habit to the last named sort, and comes from Madras; both flower in summer. *T. chrysops*, a native of Sierra Leone, has flowers of a blue or violet shade, produced in summer or autumn. *T. fragrans* is a white bloomed species, and, as its name implies, fragrant. It comes from India, and flowers in the summer. *T. alata* has yellow flowers produced in summer or autumn. A native of India. *T. coccinea*, from Trinidad, bears scarlet blooms, which, like those already named, appear in summer. As will be seen, the whole of these from the countries to which they are indigenous are really stove species, and it is no use attempting their cultivation unless a suitable temperature is at command.

INSECTS.—Those that attack most heat-requiring plants will live upon *Thunbergias*, and must be dealt with when they make their appearance in the usual way by washing, sponging, and syringing.

T. BAINES.

Fuchsia Lord Beaconsfield.—However small a collection of *Fuchsias* may be, this variety

should be found in it. Plants of it which start into growth naturally in a cool greenhouse will in an ordinary season be in flower in July, and will be getting out of bloom by the end of August. If the seed-pods are then picked off and liquid manure given twice a week, they will again start into growth, and will bloom through the late autumn and early winter months, but I may add that young plants struck late in the spring and grown along freely are best for this purpose.—J. C. B.

LILAC CHARLES X.

Now that preparation for forcing flowering plants for winter are being made, we would remind those who do not know this beautiful Lilac that it is the very best that can be had for that purpose on account of the large size of its flower trusses, and the



Lilac Charles X.

pure whiteness of the blossoms when forced. It is, moreover, a very free flowerer, a flower truss being produced on every terminal growth. This Lilac may be had in bloom at Christmas, and by placing batches of it in heat at intervals, flowering specimens of it may be obtained in continuous succession until it flowers in the open air in May, when it is also among the finest coloured varieties. Owing to the facility with which the flowers of this variety may be blanched, their large size, and sweet perfume, there is a great demand for it, and it is consequently imported in large quantities from the Continent, but there is no reason why home-grown plants should not be equally good for the purpose.

SERICOGRAPHIS GHIESBREGHTIANA.

This handsome *Acanthad* is another of the select number of plants whose time of flowering occurs during the autumn or winter months, and on which account it is especially valuable. Its bright red tube-shaped flowers are produced freely from the points of the shoots of the current season's growth. It has a somewhat erect habit, but by attention to stopping in the younger stages of growth it assumes a bushy form. It is one of those quick growing plants that are usually propagated annually in the spring for flowering in the ensuing winter, a mode of treatment by many considered preferable to that of growing the old plants on a second season, although by the latter course it can be had in a larger state. It forms a handsome object in the stove during the dull season, and the flowers when cut will stand fairly

well if the previous treatment of the plants has been such as to enable them to attain all the strength of which they are capable.

CUTTINGS made from the young shoots, which the plants after blooming will produce in ordinary stove heat, taken off in March and treated in the ordinary way in a moderately moist, confined atmosphere, will soon strike root; then put them singly into 4-inch pots, pinch out the points as soon as they begin to grow, and repeat this when a second growth has been made. Like other quick-growing plants, it is necessary to give it plenty of light, otherwise a weak condition is sure to follow. A single shift from the pots they are now in to those in which the plants are to bloom will be enough; this should be given them about the end of May; 9-inch or 10-inch pots will suffice, as when the soil gets full of roots they can be kept going by the use of manure water. A low pit where they can be near the glass will be the best place onwards after the second potting, giving air freely in the middle of the day, during which time the plants will bear a day temperature of from 70° to 80°, with from 60° to 65° at night. Syringe daily to promote growth and keep down insects, using a thin shade when the sun is very bright; the shoots should be again stopped as soon as the roots have got established in the soil. The treatment required through the summer will be of a routine character until September; then give more air and expose the plants to all the light possible with a view to solidifying the growth and checking a disposition to over-lengthening of the shoots. As the days get shorter reduce the temperature in the day, but do not keep them too cool, especially at night, as, in common with all stove subjects that flower in the autumn or winter, if deficient of warmth the blooms will be thin and indifferent. Keep the heads of the plants close to the glass from the time the flowers are formed, and if the pots are very full of roots use weak manure water once a week. After blooming, unless large specimens are wanted, it will not be necessary to keep more of the old plants than are sufficient to furnish stock for cuttings; keep them with the soil only a little moist through the time that intervenes from the flowering until they are again started into growth, during which period a temperature of from 55° to 60° at night will maintain them in health.

INSECTS.—This plant is not much subject to insects, but aphides, red spider, and thrips will sometimes attack it, for which fumigate with tobacco or dip in tobacco water.

T. B.

EXOTIC PERIWINKLES.

PERIWINKLES, or Vincas, belonging to this class are easily grown in any house devoted to a general collection of tender exotics. Their blooms in a cut state are most useful at this season of the year for decorating vases and other indoor receptacles, and from plants of a good size flowers can be cut with a fair amount of stem attached to them without injuring the plant itself. We have found these Vincas to keep best through the winter when not pruned till the time of starting them into growth comes round. The removal of the flowers will have given the plants a moderate foreshortening—enough for the time being; then they should be dried off moderately and rested like *Fuchsias*. If pruned hard back in autumn, Vincas are apt to die still farther back, and that even beyond what one could wish. All decaying foliage should be removed before it causes injury to the growths, of which they are very susceptible if not well looked after. Prune them when they are to be started into growth again in spring, and give the plants a good watering previous to shaking them out and repotting them in smaller sized pots. When active growth commences keep them regularly pinched as soon as each shoot reaches its second pair of leaves. Continue doing this till a compact, bushy head has been obtained. In six weeks from the last stopping their first blooms will begin to expand, and by this time the pots, after the last shift has been given them, should be getting well filled with roots. From this time onwards throughout the flowering season keep them well

supplied with water, of which they need a good deal. Occasional doses of diluted liquid manure will also greatly benefit them and make the blooms finer than they otherwise would be. We had once a fine specimen of *V. oculata* that had been for a time in a house without fire-heat just as it was opening its first flowers. Through fear of damp, we kept it too dry at the root, and that caused the blooms to be small and to drop prematurely. We therefore at once removed it into a warmer house and supplied it very freely with water at the roots. This soon altered the character of the blooms, which enlarged to the size of a crown-piece, two or three such blooms on the point of every shoot producing a striking effect. When in flower it is necessary to look the plants over every day, in order to remove all decayed or faded blooms. If this is not done, the buds oftentimes get affected before they open. As to soil, that best suited for *Vincas* is a light loam mixed with well-decomposed leaf-soil; where good leaf-soil cannot be obtained peat should be substituted, such as that which one would use for Ferns. In either case add a good amount of silver sand. At the time of potting do not press the soil too firmly around the old ball—no tighter than can be done by the hands alone, it being necessary that the roots should take hold of the fresh soil as rapidly as possible.

JAMES HUDSON.

HEDYCHIIUMS.

THESE stately herbaceous plants have not inaptly been called Garland Flowers, and they well deserve the name, as amongst them are some of the most beautiful and sweet-scented flowers we possess. They belong to the Natural Order Zingiberaceæ, and grow to a height of from 3 feet to 6 feet; the flowers are produced in the form of large erect spikes from the apex of the shoots that are formed annually from strong fleshy crowns, and which some time, after they have bloomed, have to be removed. They are strong growing plants that require a considerable amount of pot room, otherwise they do not acquire sufficient strength to flower well. They look best when grown to a size that will produce from three to half-a-dozen blooming stems yearly; being remarkably free growers, they soon attain dimensions that enable them to do this, and it is an easy matter to confine them within such limits, as the plants will bear dividing annually if required. Their propagation is by division of the crowns, which is best effected early in spring before the young buds at the base begin to move in the least. They should be turned out of their pots, and the roots so far as possible separated, retaining as many as may be to each of the old or preceding year's shoots; put these singly into 8-inch or 10-inch pots, according to the size and strength of the pieces. Good ordinary loam answers best for them, to which add a little rotten manure and some sand; they should then be placed in a temperature of 60°. It is not well to hurry them by too much warmth immediately after division; better let the roots have time to re-establish themselves before exciting top growth, or the shoots made the first summer will not be so likely to bloom. Give more warmth as the season progresses, but it is not necessary to keep them very hot. I have found that although they will bear a hot temperature, yet they will do with less warmth than many things that come from the same countries.

A COOL STOVE or intermediate temperature will answer well for them. Give plenty of water when they begin to grow; this is necessary, for though their leaves would not flag like those of many plants if too dry, yet their growth would certainly suffer to some extent. They will succeed best with more air than the generality of stove subjects want, and they need no more shade than is found necessary to prevent the leaves being scorched. When the young growth has reached its full size the stems may be observed to thicken towards the top previous to the emission of the bloom-spikes. The time of flowering is sooner or later during the summer, according to the heat they receive and the time growth begins.

They will stand, whilst in bloom, in a conservatory or cool house, where they will look well in association with other plants. After flowering place them through the autumn and winter in a temperature of 55°; the old stems that have previously flowered may each year be cut away about the time the young growth approaches its full size; up to this they assist the shoots that spring from their base. In the spring give pots 2 inches or 3 inches larger, removing some of the old soil and replacing it with new. The subsequent treatment needed will be to give more root room as required, and when the plants have got as large as wanted, they can either be divided into single crowns in the way advised or simply cut in two.

There are a good many kinds in cultivation; the undermentioned is a selection of the best: *H. Gardnerianum* grows to a height of 6 ft.; flowers yellow, one of the best; a native of East India. *H. angustifolium*.—Also a strong-growing species; it bears handsome red flowers. East India. *H. coronarium*.—A stately species with yellow flowers and handsome foliage. East India. *H. thyriforme*.—A beautiful white-flowered kind that grows to a medium height. This is from Nepal. *H. gracile*.—A dwarfier habited sort than any of the preceding, bearing very handsome white flowers. It wants a little more heat than most of the species. Found in Bengal. *H. longifolium* grows to a medium height and bears deep red flowers. From India.

INSECTS.—*Hedychiums* are little troubled with insects, their large smooth leaves not affording much harbour for them; red spider sometimes affects them, but can easily be removed by syringing with clean water. Should they become affected with scale, sponging is the best remedy.

T. BAINES.

GARDEN IN THE HOUSE.

SHRUBS FOR WINDOW BOXES.

THE season is now approaching when summer flowers in window boxes must be replaced by something of a harder character, and where window gardening is carried out the whole year round, either in pots or boxes, shrubs of an evergreen character play an important part during the winter and spring months. A brief list, therefore, of some of the most reliable may be acceptable to those who have not had opportunities of testing their respective merits, for it is not all kinds of even those whose growth is suitable that submit to the ordeal of lifting and replanting without showing any ill effects therefrom. Those that have a mass of fibrous roots are the only ones that will answer the purpose, and they must have in addition short, stubby growths, feathered to the ground with healthy foliage. Happily, most shrubs of an evergreen character are in full feather, so to speak, in winter, as if to compensate somewhat for the bare look of such as are deciduous. Amongst the following sorts are many that have variegated or mottled foliage, but plain green-leaved sorts are the prettiest. *Aucubas* of all kinds are most useful, their foliage being good, and they withstand dust and smoke better than most plants. If the precaution is taken when they are in bloom to artificially fertilise them, or even to plant the male *Aucuba* amongst the others, they will produce a crop of berries and be very ornamental. They should be placed under glass at this season to get their berries well coloured. Box of different sorts forms pretty, neat-growing shrubs, and, being exceptionally hardy, is suitable for exposed positions where tender ones fail. *Cupressus Lawsoniana* and its varieties are also very pretty, especially when young, being very graceful in habit of growth. *Cryptomeria elegans*, another handsome Conifer, is also beautiful in a young state, forming dense bushes, consisting of delicate growths, that rival Ferns in appearance, and which in winter assume a deep bronze tint that enhances their usefulness. *Euonymus japonicus*, and the many beautiful variegated varieties of it, are a host in themselves, being dwarf, bushy, and having an abundance of fibrous roots, the dark green shining leaves of *E. japonicus* looking ex-

trremely well along with the golden and silver variegated kinds, so that boxes filled wholly with *Euonymuses* look extremely well; and in seaside places, where the range of varieties that really flourish is limited, the *Euonymus* comes in for a very extensive amount of patronage. It not only lives in the salt-laden breeze, but puts on that glossy look which denotes luxuriant health. Golden Tree Ivy and the silver variegated variety called *elegantissima* make very pretty shrubs for window decoration. Some of the St. John's Worts, too, are very pretty, and do well in shady places. Hollies, in a young state, form pyramidal little bushes that make excellent central objects in boxes or vases. *Berberis Aquifolium*, too, is very pretty in a young state, having shining spring foliage of a deep bronze colour. In spring it also produces large bunches of yellow flowers. *Periwinkle*, both plain and variegated, forms valuable edgings, being of a graceful habit of growth. *Retinosporas*, having beautiful Fern-like foliage, are very suitable for window boxes. *R. squarrosa*, *R. ericoides*, *R. obtusa aurea*, and *R. plumosa* are amongst the best of this beautiful family. Small bushes of the common *Rhododendrons* are well adapted for winter gardening in boxes or pots; they form quite a mass of fibrous roots, and move well at any time. *Skimmia japonica* is one of the best of dwarf berry-bearing plants, bearing a profusion of brilliant berries that colour early in the season. The New Zealand *Veronicas* are also very pretty shrubby plants, producing purple or blue flowers during the winter months; but, even without flowers, they are well worthy of culture. *Yuccas*, too, are very effective plants in the shape of single specimens in vases, pots, or boxes, *Y. recurva* being especially graceful and useful for that purpose, while *Y. gloriosa* and *Y. filamentosa* form pleasing additions to any collection in which they may be placed.

J. GROOM.

DRUMMOND CASTLE.

A LATE September day, sad even for Scotland; wind, rain, and misty hills; the flowers gone from the Grass; the farmer absent from what ought to be his harvest field, led to a feeling that no beauty of landscape or charm of association can compensate for the absence of a fair sky and a genial ray as I went up that long and narrow avenue of Beech leading to Drummond Castle, the close trees of which, under the circumstances, intensified the gloom.

A house on a rock, graced with many Ferns and rich Ivy, one sees on the north side, and this is charming and appropriate to the spot—what one might expect in such a district. It would not be easy to find a more graceful example of "natural" rock gardening. It is only, however, on going to the south side of the house, where the ground falls rapidly and is supported by stately terrace walls, that all gloom is dispelled by the most brilliant array of blossoming climbers that ever clad grey stones with beauty. It would require little effort of the imagination to fancy oneself in some fairy-land of sun-bathed flowers a thousand miles south in a lap of the mountains. But our own land is as kind to flowers as any, if we only give it a chance. No Italian or French terrace garden could probably show the same high beauty at the same period of the year, whatever they might do earlier. The very coolness and sunlessness appeared to encourage and prolong the bloom. The shelter of the terrace, with the house behind, no doubt helps many things; but, beyond training, there is little artificial help, and the result is in a full sense the work of the climate. Not a bit of coping gives protection in any part.

It is a valuable privilege we have, of growing so many plants from other countries, that make our open-air gardens so beautiful in the fall of the year. Here now, when the leaves begin to colour on and fall from our own trees, and when even the Hairbell is past its best on the banks, we have a very paradise of flowers. If great cost or many glass houses were necessary to produce the effect, we have no doubt that some would have it all the same; but the fact that all may enjoy this fine plant beauty who have a patch of ground and

a wall is what makes it so precious a gift of pleasure and instruction. The plants here that give most flowers are nearly all as easily grown as our common Honeysuckle.

Loveliest of all the climbers here is the (in Scotland) well-known Flame Nasturtium (*Tropæolum speciosum*), which drapes these stately walls, as it does those of many a cottage in the same land. Its blooms are vivid here still, but for the most part past, and leaving after them many precious-stone-like purple fruits, that adorn the walls in a quiet and pretty way when seen near at hand. Admirable for walls as is this fragile and brilliant plant, it is seen to even greater advantage when a delicate shoot runs over a Yew hedge, leaving its arrows of colour here and there. Near it on the walls are many plants of the older and once better-known *T. pentaphyllum*, which has a graceful habit and many curious flowers, but lacks the brilliancy of colour of *T. speciosum*. It is, however, easily grown anywhere; whereas *speciosum* is established with some difficulty in our southern gardens. It is usual to discard the second best, or what is supposed to be so; but we think in this case it is an advantage to keep it, if only as a foil to the Flame Nasturtium. In the south now there is more success with *T. speciosum*, and at no distant day our gardens generally will be enlivened by its brilliancy in autumn. At least one other hardy *Tropæolum* should be added to these where the object is to have the climbing kinds, and that is the long-neglected *T. tuberosum*, which is very handsome in flower in autumn. The common showy climbing Nasturtiums of gardens grow high on the walls here, and add to the rich glow of colours. The whole of the *Tropæolums* are precious plants for our gardens, from the old and lovely Canary Creeper to the curious snake-like sea-green *T. polyphyllum*, with its yellow blossoms, so admirable for banks or warm borders. Nothing could surpass the rich flood of purple of the Clematis here—waves of solid colour, the flowers enormous in size. The cool hill air suits them admirably; but then they are good, as a rule, throughout Britain. Still we have never seen them retain the largest flowers with the profusion of bloom to such an extent as here. One huge white variety (*C. Anderson-Henryi*) was a wonder to see, with creamy white flowers a span across, crowding each other in the struggle for room and light, and forming a fine contrast with the purple kinds.

In the warm or temperate south, in the Riviera or Madeira, the garden lover sometimes makes himself a pretty hedge of Oak-leaved Geraniums; but, as one does not see them in the south of England, the surprise is greater to see them happy on the walls here, growing 4 feet to 7 feet high, with ample fresh foliage and many flowers. The warm and spicy fragrance and distinctly pretty foliage of these plants make them worth the trouble of storing in the winter, and placing in the open air in early summer. The plants are kept in the grown or tall form all the winter in the house on trellises, and carefully trained against the warm wall, they soon make fresh growth and flower freely, being in good bloom late in September. Along the with Oak-leaved Pelargoniums, the Ivy-leaved section, both in the double and single forms, are here tall and in free bloom on the walls, attaining a height of 4 feet or so.

Often as one sees the new, or nearly new, tuberos Begonias in a woe-begone state in the southern English gardens, it is surprising to see them here on the sheltered terrace with many large, fresh, and brilliant blooms. The cool, moist air suits them, no doubt, while the shelter of the walls is helpful. They are fine things, but few should be planted out-of-doors, and these under the best conditions. The old greenhouse Cobaea is many-blossomed on the upper part of the terrace wall, put out in early summer, and with it the curious Rhodochiton and most of our old half-hardy greenhouse and wall creepers, with the always faithful Gloire de Dijon and other Roses, and the crimson Tacsonia Van Volkemi, put out in the early summer.

Large borders of the common river Forget-me-not remind us of its superiority to the kinds

usually grown in gardens (the wood and alpine Forget-me-nots). It is charming in a peat or moist border, flowering long through summer and autumn. It should not be allowed to remain too long in the same border or bed. The tufts should be transferred to new ground every second year or so. It is valuable for cutting. It grows quite as well in a moist border as in water, and grows so freely that it would soon exhaust itself if not treated as above directed. By the waterside it has too many competitors to allow of its monopolising the ground to the extent which leads to exhaustion.

The charm of the place ceases in part with the terraces, for below them is one of those wonderful displays of "bedding out" in its cruder forms, which attained to their greatest glory (or degradation) near large Scottish houses. Plants in squares, repeated by hundreds and thousands; walks from which all interest is taken by the planting on each side being exactly of the same pattern; and plants "grouped" as if for an oil-cloth pattern. Bricks and oil-cloth and tiles we may arrange in such manner, but whether pictures and trees and our fairest flowers should be so put together is a question worth the attention of those with large and expensive places. The number put out is so great that the annual labour is a serious business. It is like planting the same big wood every year. Granting that the system is to go on, it might perhaps be possible to modify it. A mass of the large soft yellow *Calceolaria amplexicaulis* is good, but ten masses of the same plant do not enhance our enjoyment of it. The wasted space were better devoted to nine other single masses of flowers, or mixed groups of things equally beautiful.

If the whole of the level ground were treated in a free and picturesque way, the effect would be admirable. With free little lawns of grass and natural groups of flowering shrubs feathered to the grass; with Yuccas and bold plants among them, and many colonies and groups of hardy flowers in spring, early summer, and autumn, the contrast with the necessarily formal gardening of the walls and wall borders would be charming.—R., in *Field*.

MAKING A POND.

5078.—In making a small pond, such as that described by "Water Lily" (p. 305), unless where the sub-soil within a reasonable distance below the surface is clay, or at all events of such a nature as to hold water and where clay is scarce, it is best to make the whole of concrete, bottom and sides alike; even where clay can be readily had, unless the pond is formed of a much thicker body than that often looked on as sufficient, it only ends in disappointment; and in a clay-lined pond, unless there is a constant run into it, a long time elapses before the water ceases to be muddy and unsightly. Brick walls, with the inside coated with cement, are frequently used, but the cement generally cracks in severe winters or through the slightest disturbance of the walls, such as often takes place in severe frost. Nothing is equal to concrete made in the ordinary way of cement and sand, with clean shingle, clinkers, or bricks, broken somewhat smaller than road metal and mixed with it so as to give body to the work and economise cement.

Good concrete can be made of one part Portland cement to five of clean sand, and whatever hard material is used in the way advised with it must be quite clear from anything of a loamy nature. Where ordinary pit gravel that is coated with loamy matter is used in making concrete, unless washed clean previously, it spoils the work, as the loamy coating prevents the cement adhering closely. There is nothing better than good river or sea shingle. The material should be a foot thick in the bottom and 14 inches at the sides, where, as a natural consequence, the action of frost is most to be guarded against; the inside should be faced with about half an inch, composed of cement and sand alone. An artificial bit of water of this description may be made a most effective feature in a garden if taste and judgment are brought to bear in choosing the position, in the formation,

and in selecting suitable materials for planting adjacent to it, all of which require to be considered and dealt with according to the nature of the surroundings. If stone of the right description and sufficient size is comeatable in the neighbourhood, or, failing this, artificial material made, as it can be, so as to all but defy detection when mellowed by a few years' age, is rightly placed, the whole can be made in a way to leave little trace of artificial handiwork.

It is needless to say that anything approaching formality in the formation should be avoided, the outline being made sufficiently irregular without the unnatural abruptness often introduced into such work, and which betrays the hand so far as to be more objectionable than a simple circular or oblong receptacle constructed with no further object than holding water. T. BAINES.

RECENT PLANT PORTRAITS.

ANAGALLIS COLLINA ALBA COMPACTA (Regel's *Gartenflora*, plate 1125).—A pretty, compact-growing plant, producing with comparative profusion a number of isolated pure white flowers, with a yellow throat or centre.

PARRYA NUDICAULIS (Regel's *Gartenflora*, plate 1126).—A pretty and rather conspicuous flowered member of the family of the Cruciferae from the Arctic regions, bearing a bunch of rosy lilac flowers of good size on the top of a short stem, much resembling in appearance one of the smaller Primulæ, but the individual flowers more resemble those of one of the Stocks, being rather thin in quality.

ROSE PRESIDENT SENELAR (*Revue de l'Horticulture Belge* for October).—A rather coarsely reproduced portrait of an apparently fine dark Hybrid Perpetual Rose raised by M. Joseph Schwartz, the well-known raiser of new Roses at Lyon-Guillotière, France.

SALVIA BOLIVIANA (*Botanical Magazine*, plate 6714).—An exceedingly handsome Sage, bearing long panicles of handsome scarlet flowers. Closely allied to *S. rubescens*, figured on plate 5947 of this work, in the letterpress of which plate the name boliviana is given as a synonym; but beautiful specimens sent to Kew by Messrs. Henderson show the two plants to be quite distinct, and that now here figured to be the larger flowered and handsomer of the two. *S. boliviana* is also figured by M. Van Houtte (who first introduced it from seed sent to him by Warscewicz) on plate 1148 of his *Flore des Serres et Jardins de l'Europe*.

DENDROBIUM CARINIFERUM VAR. WATTI (*Botanical Magazine*, plate 6715).—An apparently shy-blooming and by no means showy Orchid, bearing a single medium-sized pure white flower, with a golden veined throat on the top of each stem. It is very nearly allied to *D. longicornu*, one of the commonest of Indian species, and is a native of the kingdom of Burmah.

KNIPHOFIA LEICHTLINI (*Botanical Magazine*, plate 6716).—This is a rather dull and pale flowered member of this family, which is perhaps better known under the name of Tritoma; it was sent from Abyssinia (of which country it is a native) by the well-known traveller, Schimper, to the garden of the Grand Duke of Baden-Baden, and the specimen here figured was sent thence to the Royal Gardens by the admirable cultivator whose name it bears.

GLYPHOSPERMA PALMERI (*Botanical Magazine*, plate 6717).—A very singular hardy plant, discovered by Dr. E. Palmer in North Mexico, and the type of a new genus in the Natural Order of Liliaceæ, closely allied to the Anthericeæ, which its flowers so strongly resemble as to be almost identical; in fact, in the tribe of Asphodeleæ it stands next to Anthericum itself.

ASTER DIPLOSTEPHIOIDES (*Botanical Magazine*, plate 6718).—This is said to be the handsomest and also one of the commonest of the alpine composite of the Himalayas, abounding in moist situations at various points along the southern face of the range from Kashmir to Sikkim at elevations of from 8000 feet to 11,000 feet in the north-west,

but going as high at 16,000 feet in Sikkim. The flowers are of large size and a clear lavender colour, borne singly on stout foot-stalks, and somewhat remind one of those of *Stokesia carynea*. The seeds of this handsome plant were gathered in Sikkim by Mr. H. J. Elwes, and sent by him to Kew, where their produce flowered profusely in May and June, quite equalling the finest specimens from their native country. The roots of this plant are extensively used in Kashmir in washing clothes.

JASMINUM FLORIDUM (*Botanical Magazine*, plate 6719).—An exceedingly pretty and free-flowering yellow Jasmine, a native of Japan and China, whence it was introduced by the Earl of Ilchester. It has also been described under the name of *J. subulatum*, and grows freely on a south wall at Kew without protection and flowers freely in July.

MONINNA OBTUSIFOLIA (*Revue Horticole*, first part for October).—A very pretty little greenhouse shrub from Peru, with spikes of deep blue flowers with a golden lip resembling in form a *Linaria*, which are succeeded by small scarlet oviform fruit. This plant was introduced more than fifty years ago, and first flowered in the Glasgow Botanic Garden, when it was figured in the *Botanical Magazine*, vol. 58, tab. 3122, in 1831, but has apparently for many years been lost to European gardens till recently re-introduced by M. E. André. It will be distributed next spring by M. G. Bruant, of Poitiers, Vienne, France, and will doubtless prove a welcome addition to our greenhouse or half-hardy shrubs, as its pretty spikes of deep blue flowers are very freely produced.

POTHOS CÆLATOCAULIS (*Illustration Horticole*, plate 496).—A singular looking member of the Aroid family, which was introduced from North-east Borneo by Mr. Burbidge, and has been provisionally given the name now appended to it by Mr. N. E. Brown from the curious manner in which each leaf overlaps and conceals the stem of the next above it, as it climbs up a board or the wall of a stove like a large-leaved and very close-growing Ivy. It cannot be finally named till it blooms, which it has not yet done in Europe.

ODONTOGLOSSUM LONDESBOROUGHIANUM (*Illustration Horticole*, plate 497).—An exceedingly handsome and showy Orchid, with spikes of good-sized flowers, of which the lip is bright golden yellow and the five upper petals barred with brown. It is a native of Mexico, whence it was introduced by Messrs. Backhouse.

CAMPYLOBOTRYS GHIESBREGHTI FOL. VAR. (*Illustration Horticole*, plate 498).—A fine double plate of this ornamental Mexican plant, which requires the temperature of a moist stove and rich soil to grow it to perfection. W. E. G.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

WHATEVER may be the aims and objects of this institution, and whatever good it may have done or intends doing, one thing is certain, and that is the majority of gardeners in England do not even know of its existence, and if they do, they know nothing of its history, its management, or its objects; and I uphold "Peregrine's" opinion in favour of making it the nucleus for the formation of a National Gardeners' Union conducted upon modern principles. To some people the idea of a union is inseparable from "strikes" and "lock-outs;" but the proposed new society should partake of all the advantages of unity combined with the "benevolence" which it at present possesses. A gardeners' union should and would, I have little doubt, be as successfully managed as that of the "Elementary Teachers" or "Amalgamated Engineers." All other trades have unions to protect the interests of their members, and procure them comparative comfort in the days of adversity, infirmity, and old age; but the poor gardener must remain poor, and probably eke out a miserable existence in his old days, often in the workhouse, in spite of his ability and care in the days of his strength. Few men are ever so fortunate as to acquire a competency in a gardener's situation. A salary sufficient to keep him and his family in a

respectable state is about as much as the majority of them ever have; saving is well-nigh impossible. Any number of clever gardeners may always be found out of situations through no fault of their own; and as they cannot afford to eat the bread of idleness, they must perforce take up work of some kind. Some go to the local nurseryman, others to the nearest manufactory, or any other employment that offers itself, often with the result that they cannot afterwards procure a situation "because they worked at a factory." Such a society as the one suggested would take up such cases as those through the secretary of the local branch. The aged and infirm would be maintained comfortably when unable to work, and the young and provident man would have his interests looked after in a way that is now impossible.

The local branches would also, at their meeting house, have a library of horticultural literature for the use of members, and much of their spare time would undoubtedly be spent there. If the remarks of "Peregrine" do nothing more than stir up some interest in the matter of the old institution they will have done good. But the idea of a union and benefit society is worth the consideration of every gardener in the country, and if put prominently before them would undoubtedly be accepted.

ANDREW FAIRSERVICE.

Mere Knolls, Monk Wearmouth.

GARDEN FLORA.

PLATE 409.

A GROUP OF HYBRID NARCISSI.*

EVEN in this the nineteenth century it is a marvel to many how astronomers can allude definitely and accurately to any one particular star in the blue vault above, and, in like manner, these beautiful "earth stars" among the seedling Narcissi are so thickly besprinkled and, to an untrained eye, so seemingly alike, that the wonder to an ordinary observer is how it becomes possible to distinguish one from another. In both cases it is easy when one has the knowledge. Of a certainty many Narcissi are very nearly alike, but not so similar as are many other things, animate and inanimate, which are, nevertheless, quite different. When the tourist meets a flock of mountain sheep they seem to him as "like as two peas," but the chances are that the sleek colley dog behind them does not think so any more than does the shepherd his master, and so those who best know the varieties of Narcissus may tell us how they vary. To my mind it is by no means difficult to see the variation in these hybrids, especially when they are grown in quantity in beds or masses, for, apart from their flowers, many of the kinds differ much in breadth or tint of leafage, or in time of blooming as well as in floral details. A man who can distinguish the differences in say a hundred varieties of Potatoes or the same number of Apples need have no difficulty in doing the same for these our favourite flowers of spring. And yet those who can point out by name any one of a hundred or more of unnamed show Roses will frankly tell you that the new seedling Narcissi are "too much alike." The truth really is that seedling Narcissi are quite as distinct as are named Tulips, Hyacinths, Gladioli, Roses, Pansies, or a dozen other groups of hardy flowers of which numerous varieties have been raised from seeds; but whereas all these have long been known, the hybrid Narcissi are of quite recent birth, one may the less wonder at their being less well known. The history of the hybrid Narcissi is a very interesting one, and as often happens, more often perhaps than horticulturists are apt to imagine, Dame

Nature seems to have been ahead of the gardener, and we find natural hybrids in the alpine meadows. Thus, Dr. Henon, who made a special study of the wild French species, tells us, "The station of Lattes, near Montpellier, is remarkable in that it offers many species mixed in the same meadow (*N. poeticus*, *angustifolius*, *biflorus*, *Tazetta*), as well as a considerable quantity of intermediate forms, varieties, or hybrids. In 1840, along with MM. Dunal, Delile, and Bouchet, I asserted that at this station might be seen all the passages from *N. poeticus* to *N. Tazetta* passing through *N. biflorus* without any appreciable line of demarcation. This assertion was at the time strongly criticised, but, verification being made on the spot with M. Delile, it was established that the fact was beyond doubt."

N. Bernardi has long been recognised as a distinct natural hybrid to be found in Pyrenean meadows wherever *N. poeticus* and *N. muticus* (J. Gay) grow together. It is a variable plant, according as the characteristics of either one or the other of its parents predominate. This variety was recently figured and described in THE GARDEN for the current year (Vol. XXIII, p. 594).

The late Dean Herbert seems to have been one of the first, if not actually the first, to raise hybrid Narcissi in our gardens, and in the *Botanical Register* for 1843, No. 38, several of his hybrids are illustrated, these having been raised in the Dean's garden at Spofforth. It is there stated by Mr. Herbert that many Narcissi which had been distinguished as species, and even by Haworth made into fresh genera, are never known to bear seed, and are hence regarded as mules. Mr. Herbert verified his own doubts on this head by raising hybrid seedlings from the wild Yorkshire Daffodil (*N. Pseudo-Narcissus*) fertilised with pollen of *N. poeticus*, the result being a plant which could not be distinguished from *N. incomparabilis*. All interested in the history of cross-bred Narcissi should read the paper on "Hybridisation" contributed to the *Journal of the Horticultural Society* (vol. ii, p. 1, *et seq.*), wherein the worthy Dean gives some very interesting particulars. Among other instructive remarks is one relating to the sterility of *N. odorus* (Campenelle) in cultivation or in its wild state, and this fact led to experiments being made which eventually proved that the Linnæan *N. odorus*—the genus *Philogyne* in all its variations—is simply a cross-bred or hybrid product between the common Daffodil (*N. Pseudo-Narcissus*) and the Jonquil (*N. Jonquilla*), such hybrids having been raised by Mr. Trevor Alcock near Carmarthen as well as in the Dean's own garden.

Another celebrated hybridiser of the Narcissus was the late Mr. W. Backhouse, of St. John's, Walsingham, who amongst others was successful in raising *N. lorifolius* var. *Emperor* and *N. bicolor* var. *Empress* Daffodils, while among the present group his hybrid variety of *N. incomparabilis* var. *Stella* is perhaps the best known. Although Mr. Backhouse's seedlings were comparatively few, yet amongst hybrid Daffodils his *Emperor* and *Empress* even yet reign supreme. Those interested should read his own account of his crosses as given in the *Gardeners' Chronicle*, June 10, 1865. Of all hybridists, however, Mr. Leeds, of Longford Bridge, near Manchester, has added most to our collections, many of his seedlings rivalling the choicest of all tropical Orchids in beauty, while at the same time they are perfectly hardy in our gardens. According to Mr. Barr, whose collection of Leeds' varieties is quite unique, "These new

* Drawn in Messrs. Barr & Son's ground, Tooting, April 29.



NEW HYBRID NARCISSES

hybrid Daffodils are the result of crosses between the different varieties of the Trumpet Daffodil and the varieties of poeticus on the one hand, and the Trumpet Daffodil and montanus on the other. Unfortunately, the gentlemen who produced such wonderful results, and made so many grand additions to a family already rich and varied, have left on record so little data, that we can but surmise how the work was accomplished. However, we know for certain that a cross between the Trumpet and poeticus Daffodils gives incomparabilis, Parkinson's Peerless Daffodil. Assuming, therefore, that this result is followed by crossing incomparabilis and poeticus, what is more natural to expect than Barri, which is simply a reduced incomparabilis? Then, again, cross Barri and poeticus, and we imagine the outcome would be Burbidgei, which is a poeticus with the crown somewhat larger and retaining the colours of the first hybrid, viz., incomparabilis. The Eucharis-like Daffodil Leedsii we think most likely a cross between Trumpet albicans and montanus. The most perfect of all hybrid Daffodils, viz., Nelsoni, would, we think, result from a cross between Trumpet bicolor and poeticus, or Macleai possibly assisted, as the Nelsoni's are large forms of Macleai, the most perfect of miniature Daffodils; besides the foregoing results in the production of hybrids there is amongst the new Daffodils of the Trumpet section great variety both in size and colour, which we conclude to be the result of seeding the varieties of the Magni-coronatae group.

"A remarkable feature in many of these hybrid Daffodils is the strongly marked orange-scarlet crown, which we imagine would come from poeticus poetarum; and others, again, have the crown dark yellow, light yellow, canary-yellow, primrose, silver white, and some apricot coloured. The late Mr. Nelson raised a few seedling Daffodils of considerable character, and had he lived a few more years he doubtless would have made valuable additions to this family. The Rev. Wolley Dod has for some years past been forming a collection of Daffodils. We hope he will bring some of his energy to bear on the hybridisation of this family, and from his personal experience tell us how all these beautiful modern varieties were made."

In the coloured illustration the artist gives us a delicious glimpse of the graceful form and soft pale beauty of three or four seedling varieties, all of which are most lovely, but a volume of coloured plates would not give us an adequate idea of their numerous new phases of grace and colour, and, after all, the best way of illustrating their utter loveliness is planting them in good soil and in suitable positions in the garden, so that every spring-time may bring their flowers to us in all their graceful reality. Among the late Rev. Mr. Nelson's seedling Daffodils there are one or two so distinct as to deserve especial notice. Perhaps the finest of all is N. Gertrude Jekyll, a bold beauty of the finest type, having a solid wax-like trunk and stout sulphur-tinted perianth segments. This variety was first illustrated and described in THE GARDEN, Vol. XXIII, p. 31, and is certainly one of the very finest of its race. Another little beauty of Mr. Nelson's raising is N. nanus var. albus, which may best be described as a pale sulphur-coloured variety of the N. nanus type, which eventually shades off into a nearly pure white flower. It is as rare as it is beautiful, and, like its larger companion from the Aldborough garden before al-

luded to, it is not yet in the trade. While remembering the beauty of these Nelsonian seedlings we must not forget that they were simply the result of careful seed selection, and not obtained as the result of cross-breeding. This being so, one cannot too forcibly beg of amateurs, in whose gardens Narcissi may naturally bear seeds, that they will try their best to raise seedlings, seeing that the results in Mr. Nelson's, as well as in Mr. Backhouse's, case were so exceptionally fine and distinct.

Planted out in good deep friable or sandy soil, these new seedling varieties are not only quite hardy, but they rapidly increase, and so form effective masses. If planted in a sheltered position so much the better, or the dry, harsh east winds shrivel their perianth segments and so impair their beauty, unless, indeed, their blossoms are cut in the bud stage and brought indoors to expand. So treated, or when grown in pots in the greenhouse, the exquisite beauty of their blossoms is much longer preserved. As to their great beauty as cut flowers we need not speak, since most visitors to the London flower shows of recent years will have noted it for themselves.

F. W. B.

SEASONABLE WORK.

THE ROCK GARDEN.

CAMPANULA GARGANICA is a charming plant for the base of a rock, and if planted partly under an overhanging stone, it will show itself off to considerable advantage, clinging, as it were, to the under surface of the stone. C. fragilis, often confounded with the Garganian Hairbell, is not so desirable for the purpose just mentioned, for its tendency is to hang, whereas that of the species in question is to grow in an upright manner. One great drawback towards this plant becoming more popular than it is, is its impatience of division, and the consequent necessity of propagation by cuttings. A bronze-flowered variety of the alpine Wallflower is very ornamental and of easy culture. Amongst Pinks, Dianthus alpinus, a diminutive rose-flowered kind, grows in calcareous soil; so also does the Cheddar Pink, D. cæsius, and upon walls. In Mr. Ellacombe's garden, at Bitton, we saw some fine examples of the Maiden Pink (D. deltoidea) growing on a high wall, and the pale-flowered variety of this Pink would be equally well adapted, we should think, for walls. Whether seedlings now appearing about this variety will come true to their parent, or revert to the type, has yet to be proved. Like the rest, it enjoys a lime soil. D. neglectus, the Glacial Pink, a beautiful species, is rather difficult to grow, that is if one does not give it the soil which it requires. It grows upon the primary rocks. We can grow it in loam, but it fails in limestone; but the soil it likes best should be analogous to that of its native habitat, that is, peat, loam, and granite gravel. The same treatment will suit the nearly allied, quite as beautiful, and earlier flowering typical D. glacialis. Epilobium Dodonæi is a plant of very easy culture, seedlings springing up around the parents. Really, according to stature ultimately attained, it ought to be classed amongst border plants, but flowering early in the year and upon its young growths until September, and its seedlings flowering too in their early stages of growth, it is well worth a place in the rock garden. It is interesting to note how a nearly allied species, E. Fleischeri, under cultivation adapts itself to a limestone soil, while in its native habitat it grows on a soil entirely free from lime; its relative, on the other hand, prefers lime. If ever there was an alpine Aster (Erigeron) worthy of cultivation it is E. glaucum, a hybrid variety. It is harder than the type and more abundant as regards flowering. Its blossoms, too, are quite as large as those of the type, and possess a charming rosy tinge. The flower-stems are not erect, but

decumbent, and while the type shows no sign of flowering until the approach of autumn, this flowers persistently from spring until autumn. The Heron's-bills are a genus worthy of more general culture than has hitherto been given them. Of the self-sowing group with finely divided leaves may be mentioned Erodium cheilanthes, E. petraeum, E. macradenum, and E. absinthioides. There are also two biennial Epilobiums worthy of culture, rather coarse in habit, with ovate leaves, deeply lobed at the base, which sow themselves freely.

FLOWER GARDEN.

THE weather must now be closely watched, as before the occurrence of frost anything likely to suffer from it should be protected. Already Alternantheras are beginning to feel the effects of the cold, but, with the exception of these, carpet beds are still looking well, and may, with shelter afforded at night, be preserved in fair condition for some time to come. Laurel branches, stuck in or laid lightly on them, form an excellent covering, but the best is that rendered by the use of mats or cloths, either of which, with a few sticks stuck in here and there to bear their weight, may be thrown over quickly and removed in the morning. Succulent plants, such as Echeveria metallica, and any others that are tender and slow to get up to any size, had better be lifted and repotted, and there are many plants besides with fine foliage which, if housed before being injured, may be made to render good service during the winter in large greenhouses or conservatories, where plants of such bold type are wanted. Among Pelargoniums, the first to feel the frost are the tricolors and variegated section generally, and, if wanted again, should be taken up at once, shortened back, and have the principal portion of the leaves stripped off, when they may be packed closely with their roots in earth in boxes or potted singly in small pots, and thus stored safely on any light, dry, airy shelf near the glass till spring. The green-leaved sorts are the next to require attention, and as year-old plants flower with more freedom than young ones, it is important that they be preserved, and if cut in hard it is surprising what a number may be wintered in a small space. In the mixed border, that grand herbaceous plant Anemone japonica is still gay, and holds its own in spite of the weather. The next things to come in are

THE CHRYSANTHEMUMS, which, as the buds are now formed and prominent, will be greatly benefited by a soaking or two of strong liquid manure. This is best administered by drawing up with a hoe a low ridge of soil around each, so as to form a basin-like receptacle, as then the roots get all without any waste. In cases in which it is thought desirable to fill up vacancies in borders it may easily be done by means of spare Chrysanthemums, which, being fibrous-rooted, may be lifted with large balls and replanted without much check. The best time to carry out the operation is during a dull, showery day, when, by watering heavily to wash in the soil, the leaves will continue fresh without any flagging. To support the stems a few weak sticks are all that is necessary, as the branches may be looped up and held secure with very little tying. Where

BULBOUS PLANTS, such as Hyacinths, Tulips, and Crocuses, are grown for the adornment of beds and borders, it is high time they were got in, in order that they may form plenty of roots before the tops begin to work. If the soil of the beds in which they are to be planted is at all stiff it should be deeply dug or trenched, and during the process have plenty of leaf-mould and sand worked well into it to help the drainage. This is an important matter with bulbs, for should they lay wet in the ground, many will rot. To prevent this it is a good plan when planting to place a little sharp sand around each bulb. The proper distance for planting Hyacinths in beds to produce a good display is about 6 inches, and they should be placed at half that depth in the ground. To show them off to the greatest advan-

tage, circular beds raised in the centre are best, and to hide the bare soil a carpeting of *Mentha gibraltarica*, or some of the dwarf spreading Sedums, forms a good setting. Tulips should be treated in the same way, as the fresh green helps to tone down and give fine effect to their gay colours. In borders Hyacinths and Tulips are the most telling in patches of three, which may be all of one kind or of distinct colours, according to taste, however arranged. They should be planted triangularly 6 in. or 7 in. apart, and at the same depth as in beds. As many bulbous and tuberous rooted plants get lost during winter and spring through digging and re-arranging borders, the site of each should be marked, either by means of a label or iron peg, in order that workmen may see where they are.

CLEANING WALKS.—The weather has been such of late as to cause walks and roads on which there is little traffic to be full of weeds. Many break the gravel to destroy these, and incur much needless labour thereby, as well as discomfort from having the surface rough. Common salt, such as is sold to farmers for dressing land, and which may be obtained almost anywhere at about 25s. per ton, will eradicate them when put on regularly and carefully. The time to put it on when it is most effectual is during dry weather, when by dissolving gradually and soaking in about the roots of the weeds, they soon lose their hold, and the sun scorches them up. The most economical way of applying salt is to dissolve it in a tub of water, and then pour the weak brine on through a fine-rosed pot so as to distribute it regularly; but however used, the thing to avoid is the injury apt to result to the edging if the salt or liquid is put on too close to it. In cases where Box is grown as an edging salt is dangerous, but the risk to grass verges is infinitesimal, as the principal roots being above ground, they are very much out of the way of its influence. One great advantage in using salt for the eradication of weeds, besides the time and labour saved, is the brightening effect it has on the gravel, as by killing all mossy growth, destroying *conferva*, &c., it seems to cleanse it right through, besides which it makes it bind all the firmer. We have heard of vitriolic acid being used to kill weeds, and we know that it does so thoroughly on lawns, where a single drop in the crowns of a *Plaintain* or *Daisy* will quickly burn them up. The worst, however, of the acid is that it is bad stuff to have anything to do with, for if not handled carefully it destroys any clothing it touches and blisters the hands. In kitchen gardens all walks should have dead edgings, as then they can be dealt with by means of salt, and always kept solid, bright, and clean at a very trifling cost.

PROPAGATING.

No time should now be lost in putting in such cuttings of stove or greenhouse plants as are to be increased, as if delayed longer it will be much better to wait till February. Cuttings of *Solanums* put in now, and potted off as soon as rooted, and placed in a light position, will make good plants to grow on for next season. Plants obtained in this way are from their floriferousness preferred to seedlings, besides which the cuttings may be selected from a few of the finest, and, if done carefully, may be so taken off as to in no way disfigure the plant. Store pots of seedling Ferns in their various stages of development will now require careful watching, as if allowed to form too dense a mass they are apt to fall a prey to damp, on the first appearance of which the young plants should be pricked off into other pots. Early in the year is the best time for sowing, the young Ferns being in a much better position to stand the winter than if sown later. Before sowing prepare some 6-inch pots by filling them to within 2 inches of the top with broken crocks, over which place a layer of fibrous peat, then fill up with soil consisting of equal parts peat and loam, with a slight admixture of sand, the whole being sifted through a sieve with $\frac{3}{8}$ -inch mesh and pressed moderately firm. Many sow on very rough soil, but in that case some difficulty is experienced

when it becomes necessary to prick them off; therefore, fine soil will be found most suitable. The spores grow most readily on peat alone, but in that case they are liable to be overgrown by *conferva*, which on loam are not so troublesome. All things considered, a mixture of the two is perhaps best. After the pots are filled give them a good watering, or rather water them several times with a fine rose till they are thoroughly soaked, then sow the spores. A good plan is to take a frond of each Fern in which the spore cases are just commencing to open, and lay it in a piece of clean white paper a few days before it is wanted. The spores when ripe will fall out, and the paper being white they will be readily recognised. The sowing should be done apart from the fernery, as Fern spores are always floating in the atmosphere, and a mixture would be the result. To prevent this, care must be taken to thoroughly wipe the hands after each kind is sown, and no more pots should be brought forward at a time than are wanted for the one sort. Sprinkle the spores as lightly as possible on the wet surface of the soil and place them in a close case, or a pane of glass may be laid on the top of the pot. They should then be kept always moist, and when water is needed it should be either sprinkled with a fine rose or the pots may be placed about half their depth in a pan of water which will percolate through the whole mass and give all a good soaking. This latter mode is to be preferred, as there is no danger of displacing the spores. It will be found as a rule that hardy Ferns do best in a greenhouse temperature, and temperate and stove kinds in that of a stove. In about a month the surface of the soil will be quite green with the growing spores. When that is the case they must be carefully watched, and if they commence to damp they must at once be pricked off, an operation which is best done in the following manner: Prepare some pots as for sowing, except that the soil should be put in them very lightly; then with a pointed stick take a mass about the size of the end of a lead pencil of the growing spores and place it on the surface of the soil; then press it lightly with the finger, and so continue till the pot is full, when it may be watered and returned to the case. They will require dividing and pricking off three or four times before they are ready for potting, and in that case large numbers of plants are obtained from a single pot. The above remarks regarding the season of sowing only apply to the evergreen kinds; the deciduous sorts should be sown when the spores are ripe, but the treatment required is the same in both cases. It is, however, not absolutely necessary to sow the spores as soon as they are ripe; many kinds will keep good for months and even years, but, on the other hand, some lose their vitality in a very short time. In the case of trees or shrubs that have been grafted, see that the grafts are not blown off, for even where the union is complete that part is weak for some time; therefore care must be taken that all are securely staked and tied, or in the event of storms the results may be disastrous.

INDOOR PLANTS.

FERNS.—Where there is a regular Fern house the atmosphere should at this time of the year be kept considerably drier than during the growing season, but sufficient water must be given to the roots, for Ferns above all plants cannot bear to have the material in which their roots are growing dry; where this occurs the fronds are sure to assume a sickly hue, out of which they rarely can be got until fresh healthy growth is made. One of the great mistakes committed in the cultivation of Ferns is giving them too much warmth; when so treated it has the effect of causing an undue extension of the fronds. The strong growers therefore get so large as to become unmanageable and smother the weaker ones, added to which it favours the increase of thrips and makes the plants much more susceptible of injury from fumigation or other means taken to destroy them too. The growth made in more heat than is necessary is of a character that will not stand

any length of time when cut. *Davallias* are very suitable for using in a cut state, and in the case of the deciduous kinds all the fronds can be so used after the season's growth is completed without material injury to the plants. Of all Ferns used for cutting none is such a general favourite as *Adiantum cuneatum*, but to have it in the best condition so that it will stand without flagging in bouquets, button-holes, &c., it needs to be especially prepared. This is best effected by giving comparatively little root room, so that the pots get thoroughly filled with roots, keeping the plants as near the light as possible whilst growth is being made with a considerable admission of air, and now letting them be as cool as they will bear. The fronds of all Ferns used for cutting will last much longer if severed from the plants and steeped completely overhead in water for a few hours before being used. Ferns that are planted out on rockwork and that are inclined to get too large may have this disposition checked a good deal by periodically cutting away as many of the older fronds, whilst still fresh and healthy, as appearance in the house will permit.

TREE FERNS.—*Dicksonias*, *Cyatheas*, *Alsophilas*, and similar species have a fine appearance when planted out, as they often are, in houses, but unless the structures in which they are grown are very large, it is a mistake to so treat them, for it much encourages the fronds to lengthen, and the whole growth of the plants to increase so fast, that they not only overshadow everything near them, but soon get too large for the houses they occupy. By liberal feeding with manure water these plants may be grown quite large enough to show their natural habit in pots or tubs half the size generally used, and if in place of planting the pots are plunged, the appearance will be quite equal to planting out without the disadvantages; and, moreover, it gives an opportunity of altering the position of the plants at will. Where Tree Ferns are getting too tall for the houses, instead of discarding them, as is frequently done, they can be shortened. If large wire baskets are made open at one side that they can be fixed round the stems, and these are filled with a mixture of *Sphagnum*, peat, and potsherds, or charcoal, and fastened to the stems at such heights as may be deemed desirable to shorten them to keeping the material moist, they will root into it sufficiently to admit of the trunks being sawn off immediately below the baskets. The present is a good time to commence with such plants, as they will at once begin rooting, and be much better established in it by next autumn, than if the baskets were fixed on in spring. It requires a year to prepare them before they are cut off, without which the succeeding lot of fronds formed come small.

CYCLAMENS.—Young plants of these raised from seed some fourteen or fifteen months ago will now be pushing up their flowers; a temperature of 45° in the night suits them. With *Cyclamens* it is necessary to be always on the look-out for aphides. Where seed was sown about midsummer the plants will shortly be ready for pricking out; they are best put in shallow pans filled with a mixture of peat and sand or where very good yellow loam can be obtained in addition to the sand a little leaf-mould may be used. Whatever soil is used we have found it necessary that it should not be adhesive, otherwise the roots get broken when removed to pot singly. Keep the young stock in an intermediate temperature near the glass, so that it may have plenty of light.

FUCHSIAS.—Old plants should be dried off, then pruned, and stored away in their winter quarters. Young examples raised from cuttings struck towards the end of summer ought to be potted singly and set within a few inches of the glass in an intermediate temperature, so as to keep them growing slowly through the winter without being drawn.

BERRY-BEARING SOLANUMS AND AUCUBAS.—Where a good stock of *Solanums* is prepared they are for some purposes during the winter more useful than flowering plants. If a portion were propagated early, and another lot struck in the spring, the latter will attain their colour to

succeed the former, and by this means a supply fully fit for use may be kept up from the present time until spring, as the late-struck plants will yet have their green berries. They are water-loving subjects, and whether grown through the season in pots or planted out and then repotted in autumn, the soil must be kept continuously moist, or the leaves become discoloured and the plants thin. Fumigate or dip into Tobacco water until the stock is completely free from aphides. The female forms of *Aucubas* grown in 6-inch or 8-inch pots standard fashion, with stems from 1 foot to 2 feet high, make excellent conservatory and room plants; where they have been well managed they will be now fully furnished with ripe berries, and may be employed along with greenhouse-flowering and fine-leaved subjects.

SARRACENIAS.—The mistake often committed with these is in growing them too hot and with insufficient light; an intermediate temperature is quite enough for any of the species or varieties. Even the different forms of *S. Drummondii*, which make growth in late autumn, are better kept now in a house where the night temperature is at 50° than in more heat. All the kinds, both species and varieties, require to be kept always moist at the roots, even in the winter time when at rest, but the different forms of *S. Drummondii*, through the fact of their being now growing, need especial attention in this matter. Thrips are the greatest enemies these plants have to contend with, and at this season, when there is necessarily less atmospheric moisture maintained, they usually are troublesome, getting under the recurved margins of the mouths of the pitchers. Sponging with Tobacco water or fumigating will kill them; the former is preferable provided the solution is not used too strong, so as to injure the pitchers, as it destroys both the live insects and their eggs. To those inclined to cultivate these interesting plants the names of the most desirable sorts may be an assistance. They are *S. Drummondii rubra*, *S. D. alba*, *S. flava*, *S. flava picta*, *S. purpurea*, *S. variegata*, *S. psittacina*, *S. Chelsoni*, *S. atrosanguinea*, and *S. rubra*. The flowers of the latter are as sweet-scented as the most fragrant Violets, which their odour is much like.

STOVE PALMS.—There is nothing gained, but rather the reverse, by allowing these plants so much pot room as they are frequently given, as it tends to their growing so rapidly as to get too large for the space available. Still, on the other hand, it is possible to err in the opposite extreme of insufficient root room; this applies more particularly to the large entire-leaved kinds, such as *Verschaffeltia splendida* and *Stevensonia grandifolia*, two distinct and handsome species for a large stove, and which, as they attain their full size of leaf, require good-sized pots, otherwise the foliage gets yellow and sickly in appearance. To this broad-leaved section, but much more compact, consequently not taking up so much room, belongs the yet scarce *Pritchardia grandis*, which may justly be set down as not only the finest dwarf Palm of the entire-leaved character, but one of the finest of the whole family. It is deserving of a place everywhere. Any specimens of the heat-requiring section of these plants that are suffering through insufficient root room may at once have larger pots. This, in all cases, is subject to their being kept through the winter in enough heat to induce regular root action, for if this cannot be secured it would be a mistake to move them. All Palms are not very particular as to the nature of the soil they are grown in, as most of the kinds will thrive in either peat or loam, light or heavy, but they seem to enjoy loam when it is of a heavy adhesive nature, provided the pots are well drained, but when grown in it, the dark colour in the leaves is not usually so apparent as when peat is used. Amongst the kinds of stove Palms that take up comparatively little room is *Chamædorea glaucophylla*, one of the most elegant kinds in cultivation. In habit it is like *Ptychosperma Alexandra*, with a head of elegant drooping leaves surmounting a straight bare stem, but much thinner than the *Ptychosperma*. There are few, if any, species that can be

grown with such little pot room as this kind, but with this, as with all other Palms, it is well to give it manure in either a liquid or a solid state, otherwise the leaves often assume a sickly hue, especially in the autumn, and in the case of those that are much pot-bound. When in this condition, therefore, and there is any deficiency of heat to keep up through the winter free root action, manurial assistance in this way should be given. *Cocos Weddelliana*, now well known for its beautifully arched slender leaves, will bear a much lower temperature than is generally supposed; something above that of a warm greenhouse, say from 48° to 50° will keep it in condition equally well as where more heat is used, with the advantage of its not so soon outgrowing the space at command. Any of the more tender Palms, such as the *Geonomas*, *Damænorops*, *Chamædoreas*, and others of a like nature, that have been placed for the summer in conservatories where the temperature is insufficient to preserve them in health through the winter should be at once moved to warmer quarters.

GREENHOUSE PALMS.—Where a large or medium-sized cool conservatory exists there are no better plants for permanent use than cool kinds of Palms, such as the *Kentias*, *Chamærops*, and *Coryphas*; the first-named of the above in particular are especially deserving of notice. *K. Belmoreana* and *K. australis* are handsome in all their stages of growth either in a small state or when more fully developed, their beautifully curved leaves being at all times effective. At no time are they more useful than through the late autumn and winter, when, associated with *Chrysanthemums*, *Camellias*, and such other flowering plants as may be in bloom, they produce a beautiful effect which few other forms are capable of. *Cordylina australis*, *Dasyliirions*, variegated *Yuccas*, and *Aralias*, which are now often employed for standing out of doors on terraces, or for grouping amongst other things that give a tropical effect during the summer season, and for conservatory use in winter, should be taken in before cold nights come on, for although these things are not particularly tender, still they are better out of the reach of frost, and they can usually be grouped amongst flowering and other plants in the conservatory at this season.

FRUIT.

PINES.—If the final arrangement of the plants for the winter months remains incomplete, a single day should not be lost in getting the different sections together, fruiters and recent starters, where they can have plenty of heat and light and successions in light, well ventilated pits where atmospheric moisture from the plunging beds is always present. If any of the beds require renovating, great watchfulness must be observed, as an excess of heat, now the pots are full of roots, might soon do serious injury. In all cases the tan or leaves should be well worked and fermented in an open shed, and where the mixing of the old and new together is likely to produce too much bottom heat, the latter may be spread over the surface of the bed, and the general turn over may be deferred until January. Be careful in the application of water to the roots, but supply it freely when the plants actually require it. Keep them free from suckers until the plants become strong enough to throw up fruit, and then in the case of ordinary kinds allow one sucker to each fruiting plant. Scarce or shy kinds may carry two suckers, and when the fruit is cut divest the old stems of their leaves; lay them close together in shallow boxes filled with soil, and plunge in the strongest bottom heat at command. Having done away with shading, give plants in all stages the benefit of the highest attainable temperature from sun heat by shutting up at 1 p.m. Make but little difference in the mean until the fine weather breaks, and then be prepared with suitable coverings for placing over the glass by night.

VINES.—Where the first crop of Grapes is obtained from Vines in pots, the house in which they are to be grown should now be ready for placing them in position. Wash the young canes with

soap and water, see that the drainage is right, and top-dress with old turf and bone dust. If bottom heat is to be applied to the roots, each pot should be elevated on a firm pedestal of bricks, so as to admit of the removal or renovation of fermenting material without disturbing the roots later on. Suspend the rods in a horizontal position over the fermenting material, start with a minimum temperature of 56°, and gradually increase it as the buds swell and show signs of breaking into growth. If the outside borders of early houses have been thoroughly moistened by the autumn rains, and top-dressing has been finished, get them covered up with dry Fern or litter, and place lights or shutters over and well above it for the purpose of throwing off rain, which will now have a tendency to chill the surface roots. Encourage the formation of internal roots by the removal of every particle of inert soil, and replacing it with fresh turf and bones, resting on good drainage. With some internal drainage is considered unnecessary, but this is a great mistake, as a well managed inside border will take 3 feet of water in the course of the growing season, and the quicker it is carried off the more healthy will the roots be. Houses in which Hamburgs and other thin-skinned Grapes are hanging will require nice management to prevent the berries from damping. Look the bunches over twice a week, discontinue sweeping and raking; remove pot plants of all kinds, at least if they require water, and keep the house dry, cool, and well ventilated. Where first-class autumn and early winter Grapes are in demand, Venn's Seedling should not be overlooked, as it sets, colours, and finishes well under Hamburg treatment, and keeps a long time after it is ripe. In a Hamburg house, from which we commenced cutting early in July, this delicious Grape is still hanging fresh and plump, never having lost a berry.

STRAWBERRIES IN POTS.—Although these plants will now require water less frequently, see that they have enough to keep the balls moist and to prevent them from shrinking away from the sides of the pots. The old system of drying off and stacking the plants in cones for the winter has been given up by the majority of growers, and the more rational mode of placing them in cold pits has taken its place; but here even they should be fully exposed to the elements by having the lights thrown off them every day when the weather is not wet or intensely severe. If plunged to the rims of the pots in Oak leaves or spent tan, free from worms, and regularly attended with water, they will retain their roots in a healthy state, and the foliage will be free from mildew and spider when they are taken in for forcing. Where cold pits are not available, Strawberry plants will winter well plunged in an open, but sheltered, place in the kitchen garden with skeleton lights placed over them for supporting Fern or mats in very severe weather. Here the latest kinds may remain, giving very little trouble until they throw up flower-stems in the spring, and tender kinds like British Queen and Sir Charles Napier will be more vigorous than they would be after passing three or four of the darkest months in a close pit or before open ventilators in a cold, arid house.

PEACHES.—Now that the Peach season is over advantage must be taken of every fine day for renovating the borders in succession and late houses, as it is of no use trying to grow first-rate Peaches where the roots are in an unsatisfactory state. It unfortunately too often happens that the proper period for lifting, which extends from the gathering of the last fruit up to the fall of the leaf, is allowed to pass away before this important matter receives attention, and when this is the case, very few, if any, new roots are formed before the trees are again excited into growth. Another important matter which is sometimes overlooked during the quiet time in this department is the watering of inside borders; hence the advantage of having portable roof lights, which can be taken off for a few weeks after the wood is ripe to expose the foliage to the cleansing influence of dew and autumn rains, and to insure a complete and even

soaking of every part of the border. If well drained and properly made, an internal Peach border can hardly be overwatered in summer, and certainly it should never be allowed to get dry in winter, neither should the buds be exposed to an exciting temperature after the leaves fall; but the chief aim should be thorough ripeness by the application of warmth and complete rest by exposure to the elements. We should then hear less of failures from young beginners, and bud dropping would be no more prevalent than it now is where trees are well managed on open walls. Next to the management of a Peach tree comes the importance of getting exactly what we want to manage, as it unfortunately happens that great confusion and incorrect nomenclature very often lead to serious consequences both to the vendor and the buyer by late kinds being placed in the early house and early kinds in the latest. To avoid or reduce the chances of falling into this difficulty a visit to the nursery before the leaves fall should always precede the purchase of young trees, as many of the kinds can be determined by their foliage. One section is without glands; nearly all the varieties have large flowers, and the trees are more or less subject to mildew. The next section, including many of the best varieties, may be determined by the leaves having round glands, and the last by their assuming the kidney shape. Equally important is the selection of the stock, as all the varieties cannot be induced to succeed on any one particular kind.

FIGS.—If the early pot trees are still standing out of doors no time should be lost in getting them pruned, cleaned, and tied into form, ready for starting, and as three-fourths of a year will elapse before the roots can be again disturbed, let the drainage be carefully examined and put right prior to top dressing with rich loam and rotten manure. If the house in which the trees are usually forced has been devoted to other plants, see that it is properly cleansed to free it from insects, place each tree on a solid pedestal composed of bricks or inverted pots, give water occasionally to get the soil moist, and keep the house thoroughly ventilated until the time arrives for shutting up in November. Proceed with the root pruning and cleansing of trees that are planted out in internal borders, as trees cannot be kept in a fruitful state where head room is limited and the roots are allowed to run down through the drainage or ramble beyond their prison walls. If pruning is considered necessary, let it be confined to a general thinning away of barren shoots which have reached the extremity of the trellis to make room for younger pieces now thickly studded with embryo fruits, barely perceptible, at the base of every leaf-stalk. Let the house be well ventilated and only shut up to shield the trees from sharp frost or to protect the roots in very wet weather. By this time the latest house will have been cleared of all the fruit that is likely to ripen well, and the trees will be the better for a course of steady firing to mature the young wood. Rub off all partially swelled Figs, wash well with the engine to clear off spider, and dress parts affected with a suffocating insecticide to prevent scale from spreading until the time arrives for winter dressing.

CUCUMBERS.—If any of the pits usually devoted to the growth of winter or spring fruit are still occupied with Melons, lose no time in getting the latter removed, as Melons after this late period are of little value, and the loss of a fortnight in getting weak Cucumbers started often affects them until after the turn of the year. Having so often directed attention to the importance of cleanliness, it is hardly again necessary to remind the young beginner that a pure atmosphere cannot be maintained where it is neglected, and without this and an abundance of light, also secured by keeping the glass clean, it is useless to expect good fruit from Christmas up to the end of March. If the pot system is adopted let the pots be well drained, and fill them quite up to the level of the rim with light, rich, turfy loam and leaf mould. Turn the plants out before they get pot-bound, otherwise they will have spider before they lose their seed leaves. Give plenty of moisture, but

avoid scalding steam, and maintain a bottom-heat of 85° to 90° until they get well established, when 80° will suffice for the winter. Where winter culture is not thoroughly understood, the planting-out system should be adopted, provided a good bottom-heat can be maintained in the chamber beneath the soil, and the plants are not so closely crowded together as is often the case where pots are used. Under either system their food, be it solid or liquid, must always be supplied at a temperature equal to that of the house. Insect enemies of all kinds must have no quarter, and mildew must be prevented from entering by good culture and light cropping in an efficiently heated and perfectly ventilated house.

ORCHIDS.

EAST INDIA HOUSE.—Now that the season has advanced so far, shading may be entirely dispensed with. We remove all our blinds and rollers now, and store them in a dry place for the winter. Many keep them up, and let them down to cover the glass when a keen frost sets in at night; this is very well so far as the covering of the glass is concerned, but the blinds become frozen or soaking wet, and cannot be rolled up early in the morning, and the plants are robbed of a few hours' light, when every ray is of advantage to them. For this reason we prefer to remove the blinds altogether. In ordinary weather the temperature should range about 65° at night, rising to 10° in the daytime, or even to 20° with sun heat. Atmospheric moisture, too, must be regulated by the state of the weather outside. Where it has been necessary to make the hot-water pipes very warm on cold nights to maintain a brisk temperature, the atmosphere will be rather dry in the morning; therefore the paths and stages must be well watered just before the top ventilators are opened a little. We have no water in the evaporating trough after this time. Pay careful attention to the different species of *Phalenopsis*. If they receive too much water now, the roots are likely to rot and the leaves to spot; on the other hand, they must not be allowed to become so dry as to injure the Sphagnum, else the plants will perhaps suffer too, as they have not pseudo-bulbs, like *Cattleyas*, to support the leaves. They ought at this time of year to be placed as near the glass as possible, but not, of course, so near that the leaves will be injured by frost. Up to this time we have had *Cattleya gigas* in the cool end of this house, where it has made very fine growth. This most beautiful species is well known to be shy in producing flowering sheaths, but we were told the other day that this is generally owing to the plants being kept too warm in winter. Some of the plants have, therefore, been placed in the cool house where the temperature falls as low as 45°; they are kept there until they start into growth in the spring, when it is found that such plants invariably flower well. Of course, they must have very little water while they are in cool houses. It is best, we imagine, to keep *Odontoglossum Roezli* in the cool end of this house; that is the way in which we treat it, and our plants make very fine growths during winter, and throw up flower-spikes in spring. *Lælia purpurata* that may be late in making its growth should be placed in this house; when necessary to water it be careful not to wet the young growth. *Calanthe veratrifolia* is now growing freely; we potted ours in good sandy loam, leaf-mould, and a little rotten stable manure a few weeks ago. The deciduous species, such as *C. Veitchi* and the *vestita* section, are now throwing up their flower-spikes. They lose their leaves as the flowers open, and as the decaying foliage is not attractive, we place the plants amongst Maiden-hair Ferns; they require but little water while they are producing their flowers.

CATTELEYA HOUSE.—About 55° is a good temperature for this house now. The quantity of water which any particular plant may require must be regulated according to the state of its growth; if making growth, it might cause a check if the plants were suffered to become too dry. Any of

the species that may have completed their growth should be watered with caution. The very beautiful *Odontoglossum citrosomum*, which does best in this house, should receive very little water indeed. When the growths are completed some place their plants in a cooler house to rest; they ought certainly to be placed in the cool end of the *Cattleya* house; 50° would be the best temperature for them in the winter. We have now the beautiful *Pleione*, which produce their flowers very freely. They are all of very easy growth, but we prefer *Pleione maculata*, its flowers with their rich crimson markings on a pure white ground being so delicately beautiful. Our plants have lost all their leaves, and the flowers look best against a green setting of Ferns or small-foliaged plants. They have been kept dry at the roots up till now, but as the flowers open we give them water rather freely. Pay attention to the different species of *Dendrobium* in this house, and as the growths are completed let them be removed to a cool, airy position in another house. Some of them, such as *D. Wardianum*, *D. nobile*, *D. Ainsworthi*, &c., will start into growth again if they are not removed as soon as they have completed their summer growth. Our largest specimen of *D. devonianum* started to make a second growth a month ago, and we must keep growing the plant on until that second growth is completed. The various species of *Vandas*, such as *V. suavis*, *V. tricolor*, &c., are still growing freely, a circumstance quite evident by the large healthy roots still thrown out from the main stem. While this is the case they must not lack sufficient water to keep the Sphagnum fresh. The Fox-brush *Aerides* (*A. Fieldingi*), *A. crassifolium*, *A. Lobbi*, &c., are now receiving the same treatment as the *Vandas*.

COOL HOUSE.—We find that the temperature of this house falls rather low on the mornings, following an outside temperature not far above the freezing point, but we do not trouble about artificial heat so long as it is not below 40°; better, however, it should not fall below 45°, as we have *Masdevallias* which do not like so little warmth, and our fine plant of *Cattleya gigas* is in the same house. It is getting late now for potting, but if any plants are in an unsatisfactory state at the roots, it is better to pot them than leave them in that condition all through the winter. The beautiful bright scarlet *Sophranotis grandiflora* will soon enliven us with its dazzling brightness. See that the plants are well exposed to the light; they do best on blocks or in small pans suspended from the roof. We have numerous spikes of the very popular *Odontoglossum crispum* and *Pescatorei* well advanced towards the blooming stage. They must be very jealously guarded from slugs, and green fly must be removed before the blooms open.

KITCHEN GARDEN

FROST may now be expected at any moment; therefore it behoves us to be on the safe side. Proceed at once to lift and lay in all autumn Broccoli; some break the leaves over the heart, but this is not sufficient protection; much the better plan is to lift the whole and lay the plants in thickly, having dry Fern at hand to throw over them whenever the frost sets in. Endive should also be lifted as it is required, say from three to four dozen weekly, placing it in the Mushroom house, plunged in any light soil, sprinkled over with powdered charcoal to prevent damping. Look over all newly planted Cabbage, and wage war against the Cabbage grub. Lettuces are sometimes preferred for salads to Endive; therefore lift them in quantities and protect them under glass frames. Keep up good supplies of Mustard and Cress by sowing thickly in boxes in heat. When up shift the boxes to a cool, airy vinery, where the plants will acquire the necessary colour. The seed should never be covered, but pressed down in the soil and sprinkled over with fine charcoal. Onions will now be mostly harvested; therefore the land can be at once utilised for Cabbages, Lettuces, &c. Dig and manure all vacant borders or quarters, laying the soil up roughly for the winter. There is nothing that sweetens all

soils so well as frost, which appears to quite alter their character, making the stiffest of clays like a bed of ashes. Keep up the stock of French Beans, and sow Fulmer's Early in small pots for shifting on to succeed those just potted. There is no enemy like thrips for damaging French Beans; therefore syringe them in the morning with the following solution: Procure one shovelful of fresh lime and half that quantity of soot, put them into a tub, and pour in say one gallon of water; then take an old broom and well mix them together; then add 40 gallons of clean soft water. In twenty-four hours skim it, and the colour will be like that of bitter beer. By syringing with this every morning you will kill, or rather drive away, the thrips, and at the same time add to the health of the plants.

KITCHEN GARDEN.

CABBAGE LETTUCES.

OF the two sections of Lettuce commonly cultivated—the Cabbage and Cos—some prefer the latter; but I think the majority of growers are in favour of the former, because, as a rule, it yields better returns than the tall-growing varieties. Some Cos Lettuces grow tall and produce a quantity of leaves, but they do not incurve or blanch naturally; they have to be drawn together and tied at top in order to blanch the centre and make them good for food, while the Cabbage varieties, if well grown, will turn in and fold their leaves over each other until they become quite firm and beautifully blanch and tender in the middle. We have no small growing Cos Lettuces; every one of them will run up to about 1 foot in height, and they furnish no great quantity of eatable matter until they are a good width; therefore they occupy a good deal of space. Not so Cabbage sorts. There are many—of which Tom Thumb may be taken as the type—which do not grow more than 4 inches in height, and a large number of little cricket-ball-like heads are produced on a small area. Cabbage Lettuces are therefore the most valuable for winter, as they can be conveniently accommodated in shallow frames or handlights, and, apart from this, they deserve being grown all the year round, as their firm, crisp, blanch heads are of the greatest value in all kinds of salads. Of

VARIETIES there are many, some small compact growers, other much larger, the latter being principally adapted for summer culture. Summer-hill and Marvel are two of the largest and finest of all Cabbage Lettuces. Early Paris Market is a very fine spring kind. All the Year Round is what its name implies—a good sort for summer or winter. Stanstead Park and Hardy Green Hammersmith are very hardy and excellent for winter, and there are several new varieties which have been remarkably fine this year at Chiswick. In

CULTIVATING LETTUCES, seed may be sown from February till September. The first should be sown in pots or boxes, and be allowed to germinate and grow for a time in a little heat. A pinch of seed will produce a great many plants, and, as a rule, a 6-inch or 8-inch pot full of young plants in spring will be found sufficient to make a nice little plantation. In fact, I would not recommend large quantities of seed to be sown in February or March, as plants raised then do not remain very long fit for use, but often seed prematurely; consequently small quantities raised frequently are the most satisfactory. The seed will germinate in any ordinary temperature, and it

is an advantage to keep the young plants up near the glass, as when spindly they are useless. The young plants should be transplanted from the seed-box, pot, or bed before they become too crowded, and early in spring a special frame or two may be set apart for them, or they may be grown to a useful size between Potatoes and other early vegetable crops in frames. The end of March is early enough to sow the first seed in the open ground, and from then onwards a little seed should be put in every three weeks until the end of September. This will keep up a constant succession of the finest produce. The last sowing in the end of September will not produce plants of any service that year, but they will winter in the open air if mild, or, better still, under a little protection, and if planted in a good position in February or March they will produce useful heads before the spring-sown ones are ready for use. Stanstead Park and All the Year Round are two good varieties for sowing at present. Besides these the French have also some excellent sorts, of which that called Bossin's Cabbage Lettuce, a large growing kind sent out by Messrs. Vilmorin, is one of the finest. The

GENERAL CULTURE of Lettuces is very simple. They will grow anywhere in a rich soil and un-



Bossin's Cabbage Lettuce.

shaded position. It is hardly ever necessary to plant a very large quarter of them in any private garden, as small patches coming in in succession are the most acceptable. Winter crops do best on south borders, and when the weather is very severe a quantity should be lifted and planted in frames or under hand-lights, or protectors may be put over them where they stand. J. MUIR.

Margam.

Tarragon is a useful herb for salads and culinary purposes, but the way in which it dies out in some gardens is a source of vexation to many; yet it is by no means fastidious as regards soil provided it is well drained and not too retentive of moisture in winter. In the latter case the tender young underground shoots are liable to rot off. The best way to keep up a good supply is to annually transplant a portion of the stock on to quite fresh soil, which has been dug deeply and received a good dressing of old mortar rubbish, sand, or road scrapings; in fact, anything of a loose gritty character is better than a close, hard soil. I have frequently seen it growing freely on walks composed of loose shingly gravel when it has refused to grow in garden soil. I also find it best to elevate the beds a little above the ordinary level, laying the roots on the surface and covering them with old potting soil mixed with potsherds and sand.—J. G., *Hants*.

5073.—Lapland Kale.—Mr. T. H. Balding asks (p. 305) for the history of this Kale. I cannot give him that; but, having grown it for a number of years, I can confidently recommend it as one of the best Kales grown; in fact, I grow no other. It is quite as hardy as the Russian, and it is a stronger grower and more prolific, as well as better in quality. All who have tried it prefer it to any other.—JOHN D. NAUSCAWEN, *Whiteaway, Chudleigh, Devon*.

The White Elephant Potato, like all other kinds, is producing heavy crops this year, and for a large Potato it is by no means coarse. It is of good even outline, the eyes being nearly level, and there is not much waste in paring it for cooking; the quality is also good, and if this variety behaves equally well another year, it will probably become popular with market growers, who look to weight per acre more than anything else. In this respect it must, however, be a good sort if it supersedes Magnum Bonum. The ordinary price this year for good samples of the latter is about a halfpenny per pound, and not only is the crop bountiful and free from disease, but the quality is exceptionally good.—J. G., *Hants*.

Kainit for Asparagus.—Mr. W. F. Massey, writing to the *American Farmer*, has the following remarks on Asparagus: "I have used the present spring the German potash salt, or kainit, on an Asparagus bed which was set last spring. The roots when set were quite small, and the soil was moderately manured. Wishing to give the bed a coat of salt, I concluded that kainit would be best, as it contained a sufficient percentage of potash and other fertilising agents. Accordingly, I applied the kainit heavily to the bed at the rate of fully a ton to the acre. Just now I would like you to see that Asparagus. I measured a number of stalks the other day and found a few smaller than 1½ inches in circumference, while many would measure twice as much. We have cut very little from it, as I wish to grow it strong before cutting from it regularly, but it is now, at one year from planting, fully as strong as any bed I have seen when fully established."

** We have observed a peculiarly unpleasant flavour given to Asparagus by the use of manure of this kind, and would advise caution as regards its use.—ED.

5074.—Early Tomatoes.—In order to have Tomatoes early in April next year the best way is to take cuttings from a good variety now, and grow the plants on in a temperature of not less than 55° all through the winter months. After the new year comes in the heat should be increased to 60° at night. Put each cutting in the centre of a 3-inch pot, and as soon as these small pots are filled with roots shift as may be required. They will fruit well in 12-inch pots; we never use larger for them. They like very rich compost, and to be surfaced occasionally with some rich manure. The question as to the best variety to grow is also important. The best way, perhaps, is to obtain a good dwarf-growing, free-fruited sort, and then perpetuate it by cuttings. Notwithstanding all that has been said about new sorts, there is as yet no better variety than the Old Red, as it is called. One of the best market growers told me the other day that he had tried most of the new kinds in comparison with it, and from a given space he obtained a third more weight of fruit from the Old Red than from the others. For our own use I grow a variety called Trentham Filbasket. I had a packet of seeds of it when it was first sent out, and was so pleased with it that I have ever since kept up the same stock by means of cuttings. One of the best seedling forms was selected, the fruits of which are of medium size and almost smooth. It is of a more perpetual bearing character than any other sort known to me, and is withal very early.—J. DOUGLAS.

— I find cuttings of Tomatoes better than seedlings for pot culture, but no time must be lost, as even Tomatoes, although strong rooting and free growing plants, do not make much progress during the dull, dark days of winter. It is, therefore, advisable to treat them like winter Cucumbers, viz., get them to show fruit before the shortest days arrive. I would advise your correspondent to sow seed or strike cuttings in August and grow them on in small pots until they show fruit in September, then shift them into 10-inch pots filled only about half full of soil at first, top-dressing as growth progressed. These plants will yield a few fruits during winter, and in April will be in full bearing and keep on as long as may be required provided they are well attended to with water and fresh soil to the roots. If your

correspondent has not got established plants, by all means take the next best course and strike cuttings; grow them on gently in a temperature of from 50° to 55°, and keep them near the glass. They will grow in any form of house or pit, but for general purposes a low span-roofed house with a border of soil for planting them in is best.—J. G., *Hants.*

NOTES FROM HECKFIELD.

Gathering Pears.—Perhaps there is no fruit on which the quality so much depends on the right time of harvesting as Pears, for if gathered too soon they shrivel, and, if eatable at all, they are more or less insipid, whilst if left on the trees till they are eatable, particularly the early varieties, they are mealy and flavourless—at least such has been my experience, and even now, after years of practice, we sometimes fail to hit on the right time to gather some of the kinds; hence the suggestions I have to offer as to when to gather must not be taken as infallible, but simply as the best I have yet learned. To begin with the earliest and second early varieties, the former under any circumstances are always more or less mealy; obviously therefore the time of gathering cannot make them firm and buttery in flesh, but they are always best if gathered about a fortnight before being fit for table, and the best criterion as to when they have attained that degree of maturity is to gently lift up the fruits, and if they part readily from the tree, then they should be gathered and be placed in a cool, airy room. The same rule is equally applicable to the second early varieties with this addition, that if a portion of the fruits of the same tree be gathered at intervals of a few days or a week, the season when they are fit for use will be greatly extended; this is particularly the case with respect to Williams' Bon Chrétien, Beurré d'Amanlis, Brown Beurré, Seckle, and Marie Louise. I have also noted it to be the case with some few of the later varieties, Winter Nelis, for instance; we gathered a few of this kind a week ago, others will be gathered this week, and others will be left on the trees as long as it is safe to leave them, and so, as in former years, we shall hope to have ripe fruit of this kind from November to February. Other late kinds, that by following the same rule, may have their season of use lengthened are Josephine de Malines, Beurré Bosc, Delices de Hardenpont, Passe Colmar, and Beurré Diel. With respect to gathering very late kinds, the best rule to follow is to disregard every symptom of maturity, such as black pips, pecking by birds, and even ready parting from the tree when moved by the hand, and only gather them as soon as they begin to drop from the tree naturally; there will then be few if any shrivelled fruit, and at the season of ripening the quality may be expected to be all that can be wished. I need scarcely add that all kinds should be handled with the greatest care, and if space can be afforded for laying them singly on the fruit shelves, not only will they be more readily inspected to remove decayed fruit, but the percentage of such will be more reduced than if they were laid in double file.

Gathering Apples.—Ours are all gathered with the exception of the latest varieties, such as Court Pendu Plat, Yorkshire Greening, and Deux Ans, and these, as in the case of late Pears, will be left till they begin to fall from the trees naturally, and, in fact, we make this our rule with all kinds except sorts that ripen in July and August. These we gather as soon as there is the faintest sign of colouring, and they may then be used before they get mealy or too soft to be pleasant to the palate. Gathering of the same variety at varying intervals has not the same effect, that is, seasonal ripening, as is the case with Pears, and, therefore, when ready to gather all of the same sort are harvested at once. I have noted that Apples will keep best in a much lower temperature than Pears; so long as there is no actual frost in the store the fruit is safe and long keeping a certainty, so that in fruit rooms in which Apples and Pears are stored together the former should have the coolest positions.

Strawberries in pots.—A recent writer advised that these should now be top-dressed. He must have been unfortunate if they need top-dressing at this time of year; certainly ours do not, and I feel certain there are few, if any, elsewhere to keep him company. No; their present requirement is thorough maturity of the crowns, and all that can aid this is keeping them fully exposed to sunshine and as thin on the ground as space will allow, that is give them ample space

Strawberries in the open ground.—Those who wish for a crop of fruit next year should not defer planting any longer, nor should the plants be simply runners, but good plants that have been layered in pots or on the ground, so that they may be moved with good balls of soil. Ours were planted six weeks ago, and are now sturdy plants, twice as large as the plants in pots that were layered weeks before them, simply because they have plenty of root run, and have been



German style of filling flower baskets.

for sun and air to play full on them. Ours are so crammed with roots that to take off even the slightest bit of surface soil would be destruction to many of the best roots; therefore we are content to keep them free from weeds and runners, and to give them as much water as is needed to keep the balls continually moist, having no faith in starving by withholding water, under the delusion that this will help to ripen the crowns. That such a process will help to make them produce flowers that will not set a fruit I am certain; and I am equally certain of opposite results when the plants are well cared for in regard to water, not only now, but during the whole of the winter. I have no faith in starvation for either plants or animals.

well cared for in the matter of keeping them well watered and free from weeds and runners. They will now be thickly mulched with good manure for the winter, and indeed for the summer too, as this mulching will serve till the fruit is gathered next year.

Good Potatoes.—I think, Mr. Editor, that you will agree with me that "Observer" (p. 303) is so well up in Potato lore, that I may safely depute to him the making out of a list of Potatoes not worthy of culture. I could name some, but the doing so would be so near akin to the proverbial "hornet's nest" about one's head, especially from exhibitors, that I beg to decline the invitation, with thanks. I hope "Observer" will note that my remarks, upon the whole, were in favour of the

"International," as I know the society has done an immensity of good, and my note was intended to further help on its good work by demanding that *quality*, and *not beauty*, should have precedence, and I am glad to know that the Chiswick trials ensure this.

W. WILDSMITH.

FILLING FLOWER BASKETS.

THE accompanying illustration conveys a good idea of the style in which flowers are arranged in Germany; it represents an arrangement exhibited at one of the German exhibitions recently, and awarded a silver medal; it must be inferred that it exemplifies the recognised taste in this direction. The arrangement possesses merit, though from our point of view it is somewhat confused; in short too much material is used to be pleasing; but it is far better than the insipid arrangements often met with at exhibitions in this country, such, for example, as the prevalent one of placing the flowers and foliage with mathematical precision in rows and at set points, so that one side of the vase should match the other. There is a pleasing style about the arrangement here illustrated—an informality that in a great measure compensates for seeming over-crowdedness, and probably if the colours could be seen in combination with the form of the materials used, the effect would be enhanced. The flowers consist of *Melaleucas*, *Lady's Slippers* (*Cypripedium barbatum*), *Epacris*, *Clianthus Dampieri*, *Habrothamnus corymbosus*, *Camellias*, *Begonias*, *Spiræa japonica*, and others intermingled with *Ferns*, *Asparagus procumbens*, and *Myrsiphyllum asparagoides*. With such materials as these any basket could be made to have a bright and pretty effect, but we imagine the display would have been more pleasing had fewer subjects been used, and these few disposed in masses so as to derive from them their fullest expression of beauty, so to speak. There is much to be learned even in the simple matter of arranging flowers, and it is gratifying to see at some of our principal exhibitions that efforts have been made during the last two or three years to arrange flower-vases and baskets more harmoniously than hitherto. Nothing can be lovelier than a vaseful of the early flowering *Elaine Chrysanthemum* mixed say with foliage of the evergreen *Barberry*, always a good and come-at-able evergreen for cutting, but if a few flowers of purple and yellow are intermingled, a harsh discordance is at once produced. Yellows and whites associated are pleasing, but a purple added spoils the effect. The question, too, of the most appropriate size and form of flower receptacle is important, and a good deal might profitably be written on this subject. As a rule the simpler the form the better the effect. We recently saw some new forms of flower-vases in plain glass designed expressly for flowers of various kinds and best suited to their size and form. These tastefully filled with one or at most two kinds of flowers had a beautiful effect. Generally speaking, more pleasure is to be derived from a vaseful of one flower blended with its own or some harmonising foliage than with all the flowers which could be cut from a greenhouse. Too little attention is paid, moreover, to harmonising colours. Take, for example, the *Chrysanthemums*, which are just beginning to come in season. In no other class of flowers can be found such a discordance of tints, yet, as a rule, a vaseful of cut blooms put together carelessly is often very effective.

Fungus foray in Epping Forest.—The annual fungus gathering of the Hackney Field Club takes place on October 13. The East London, Essex, Highbury, and Walthamstow Natural History Societies have been invited to join the meeting. The party leaves Liverpool Street at 2.2 p.m. for Chingford, Hawk Wood, Cuckoo Pits, Beech Glade, &c. The conductors are Dr. M. C. Cooke, Mr. Worthington G. Smith, Dr. H. L. Wharton, and Mr. J. English, of Epping.

FRUIT GARDEN.

PEACH CULTURE UNDER GLASS.

HAVING (p. 273) briefly described what I consider to be the most suitable and profitable structures in which to grow Peaches and Nectarines, I propose now to offer a few hints respecting the planting of new houses and renovating and renewing trees in older houses. Although Peach and Nectarine trees will transplant any time during the late autumn and winter months, it is much better to perform the operation when the trees are in full leaf, or say during the last half of September and the month of October. About that time the buds will have been perfected, and all that the leaves will have to do will be to assist in the formation of roots; consequently, any trees lifted and replanted while yet in leaf will form a few fresh roots, and be thus better prepared to meet the demand made upon them when active top growth commences the following season. Supposing, however, that the trees have to be purchased and brought from a distance, it will be better in that case to defer planting till such time as the wood is well ripened, as it is impossible to properly lift, pack, and deliver trees in leaf without greatly damaging them, and young growth will not ripen properly if prematurely stripped of its leaves. A Peach house ought to be made

REMUNERATIVE THE FIRST SEASON. This is easily insured by purchasing trees in anticipation of its construction or conversion, as the case may be. The trees thus obtained should be carefully planted against a sunny wall, trained, and subsequently transplanted in the house. Another plan would be to transfer some of the best of the comparatively young trees from open walls to the house, replacing them by other young trees from a nursery. Such a proceeding may appear to be unwise, but the Peach crop under glass is much more certain and of much greater value than that usually obtained from open walls; therefore, no one need hesitate about transplanting from one department to the other, especially seeing how little risk the operation incurs. If the trees placed under glass, or even built over, are very ugly or the varieties unsuitable, then plant younger trees between them to gradually replace them. It is surprising what an effect the better soil and shelter of a house have upon trees newly introduced to it. For instance, some of the best trees we now have under glass were, when first transplanted, in a wretched plight, being ugly and badly furnished with bearing wood. Very old decaying trees scarcely pay for removal, but younger trees will often form excellent growth on old wood where least expected.

PREPARING TREES FOR FORCING.—Those newly brought in from the open ought not to be forced early, as they are usually in an unripened state at a time when, if required for forcing, they ought to be well ripened and pruned. I have tried introducing young trees into an early house with anything but satisfactory results. My plan is to prepare trees for the earliest house in successional houses, spaces being reserved in each house purposely for the preparing of these youngsters. In this manner we can gradually replace trees of either worthless or inferior sorts with trees already got into an early habit, and thus no space is wasted. I should state that our trees under glass are not trained in the old restrictive methods frequently condemned in THE GARDEN. To be explicit, let us suppose a young tree to be planted; the first strong growths secured either by pruning or, better still, by disbudding freely are encouraged to extend and form laterals; these are thinned out, and such as are reserved are laid in. Under glass, especially where heat is given, no difficulty is experienced in properly ripening both the growths and laterals, and these flower freely and perfect fruits the following season. Even in unheated houses, the position being good, the second growths will ripen well. In fact, this encouragement of free growth results in the rapid formation of a strong tree, any sized trellis or almost any amount of wall space being quickly furnished with excellent bearing wood.

The root growth is naturally correspondingly vigorous, and where the trellis is limited, root pruning has to be resorted to in order to check gross top growth. The best examples of what can be done in the way of

RAPIDLY FURNISHING PEACH HOUSES I feel certain are to be seen at Wilton House, Salisbury, and to which, it will be remembered, I have previously alluded. In these houses a large number of trees, all maidens, or trees that had not yet been pruned in any way, were planted early in the year 1880. They grew freely and attained sufficient strength to perfect a light crop the following season. They continued to grow and spread rapidly, and in 1882 each tree perfected on an average eight dozen fine fruit. The crop this year was wonderfully fine, Mr. Challis being deservedly congratulated upon the success which has attended his efforts.

TREATMENT OF MAIDENS.—I, too, have tried maidens, and for the future shall purchase no more cut-backs or trained trees. The latter, besides being much dearer seldom make progress at all equal to the maidens. It may appear a doubtful advantage not to prune the maidens in spring, but after trying other methods we now simply lightly trim the roots prior to planting, taking care to distribute them evenly throughout good soil, and then to secure the central or main growth to the wall or trellis as the case may be. As soon as the buds are moving all those on the laterals as well as the upper buds on the main branch are stripped off and subsequently kept closely rubbed over. In this manner the lower buds are encouraged to push out strong growths, any not required, including those facing outwardly, being disbudded. When the young shoots are well advanced, the leafless upper portion and old laterals of the tree are cut clean away, and the wound quickly heals; whereas, if this is done in spring, there is a likelihood of bleeding and perhaps of permanent injury to the tree owing to imperfect healing. Lifting is advisable in the case of very vigorous young trees, but in the case of unhealthy specimens and

TREES AFFECTED WITH THE YELLOWS it is absolutely necessary. Where there is an abundance of surface fibrous roots, lifting and root-pruning are uncalled for, and if the trees are unhealthy or weakly, it is principally owing to their not having received sufficient moisture and rich food. In this case it is a good plan to annually bare the roots in autumn, and to top-dress with fresh compost consisting principally of loam and short manure, a little slaked lime and soot being forked in in spring. If surface rooting has not been encouraged or induced then lifting should at once be resorted to. Where the main roots are allowed to ramble at will over a large and deep border the chances are they will strike downwards, and form but few rootlets. As a consequence the growth is less healthy, red spider takes possession of the foliage, much of the fruit drops prematurely, and that which does ripen is seldom of first-rate quality. The dreaded "yellows" are, I believe, traceable to defective root action, the stock not having much to do with it. In fact, the "yellows" are simply the effect of want of nutriment consequent upon the fibrous roots being out of the reach of indispensable life-giving influences. If worth the trouble, lift and replant the tree, and spread out the roots nearer the surface and in good fresh soil, and the "yellows" will soon be cured. I found when I first attempted to resuscitate some specimens that half measures only resulted in half a cure; those wholly lifted soon recovered; while those about which only a trench had been cut at a certain distance from the stem, the roots being preserved and laid back in fresh soil, did not recover satisfactorily and had eventually to be wholly lifted. In operating, whether for transplanting or to cure the "yellows," on a tree which covers a space say 12 feet by 10 feet, a trench 2 feet wide and to the full depth of the soil should be cut at about 4 feet from the base of the tree, and the soil should be wheeled clear out of the way. The border, to within 2 feet of the stem, should be next carefully forked away from the roots

and thrown out, the upper or fertile portion being only kept. The aim should be to preserve a good ball of earth; this should be lightened on the surface, and when undermined made as flat as possible, which will make it better for safely carrying and replanting. Any deep running roots which are often found directly under the stem should be severely shortened, and the ball of soil and roots, the latter being carefully tied back to the stem, may be then moved on to a strong flat board or a hand-barrow such as that used for stone carrying. The tree can then be carried to where it is to be planted or returned to its old site, fresh soil in either case being worked in under and about the roots. It is advisable to trim off the broken ends of the roots, removing those that are damaged; this facilitates healing; and they should be laid out thinly and as near the surface as their former arrangement will admit. By completely undermining, as before stated, tap roots can be found and cut, and the whole of the retained roots replaced in fresh soil, which will settle down much more evenly than is the case where trenches only are opened and refilled. The border, moreover, before lifting has commenced, ought to be in a moist state and the trees be watered soon after being replanted, especially if the new soil be at all dry. Water is also required exceptionally often by newly replanted trees during the first season. Trees lifted or transplanted when in full leaf sometimes flag badly during the prevalence of bright sunshine, and in this case should be lightly shaded, frequently syringed overhead—in fact, be kept constantly moist, and the house kept rather close. The trees should only be lightly tied or nailed up, as the ground will, unless made extra firm, settle down considerably, and the tree must go with it or be injured by the ligatures.

W. I. M.

Diseased Vine leaves (*E. Q., Gorey*).—We cannot tell you how your diseased Vines are to be dealt with by merely inspecting a few leaves. The leaves themselves are insufficiently furnished with leaf green, and are covered with the spawn of different fungi. There are nearly twenty different species of fungi more or less common on Vines in Europe, and not yet recorded as British. No doubt most of them grow in this country. The whole subject of disease in Vines wants taking up by some competent person; no subject has been more neglected.—W. G. S.

Exhibiting fruit.—I was pleased to see "T. B.'s" article on this subject (p. 255). As there are no recognised rules to guide judges as to how many varieties of any particular fruit or flower may be shown in a collection, and where the rules of the schedule of the show do not specify the number, surely the judges can have no power to disqualify a collection for having too many varieties of one kind, although they undoubtedly have the power and would also be right in placing such a collection in a lower position on that account.—DONALD.

Pears.—Duchesse d'Angoulême has, in this district, proved to be one of the best of croppers in the form of a bush or pyramid in a season when Pears are not generally a good crop. The fruit, too, is of good size for dessert, not so large as that of the newer Pitmaston Duchess, but quite large enough for general use. In this locality we are very frequently visited by violent gales, which divest tall standards of their fruit, but in enclosed gardens dwarf bushes succeed well, and if planted moderately close together, i.e., from 8 feet to 10 feet, they soon shelter one another, and bear good crops quite equal to trees on walls. In the case of some sorts, too, the quality is better than that of wall fruit. Jargonelle is still the best of very early Pears. Marie Louise, Louise Bonne of Jersey, British Queen, Winter Nelis, and The Duchess make an excellent half-dozen sorts. If many really late keeping Pears are grown, it is more than probable that many of them will fail to ripen; the best thing to do with those that do not become fit for dessert in their proper season is to utilise them for culinary purposes.—J. GROOM, Gosport.

ORCHIDS.

ORCHIDS AT DOWNSIDE.

THE following are a few of the most noteworthy Orchids in bloom in Mr. Lee's collection at Downside, Leatherhead. Though this is considered to be the dullest season in the year as regards Orchid bloom, the houses here are lit up by numbers of flowering plants. Among others in the

COOL HOUSES are *Odontoglossum biconense* album, a very pretty variety, having instead of the usual lilac labellum one that is snow-white, while the sepals are a dark chocolate-brown. The flowers, which are borne numerously on tall slender spikes, have a pretty effect. Another striking *Odontoglossum* is *O. Uro-Skinneri*, a species not so much grown as it should be, as it flowers regularly and profusely throughout the dull season. There are a good many forms of it, but the best, such as the one we saw here, has a heart-shaped labellum about 1½ inches across of a beautiful rose-pink grained with white. There are numerous flowering plants of the now common *O. crispum*, one of which bears a spike of flowers a yard in length, and each flower is fully 4 inches across. It has broad overlapping white petals spotted with chestnut-brown. There is a vast difference between a grand variety such as this and a poor one. It seems to be Mr. Lee's aim to obtain all the best varieties he can, though it is a difficult matter, as there is not one in a thousand imported plants that produces such large flowers as this one does. In the cool houses a variety of *Oncidium macranthum* appeared to be identical with that called *hastiferum*. Compared with an ordinary form of this species, the colour is much brighter, and the singular labellum much deeper and richer. This is a valuable *Oncidium* for blooming late in autumn, and so is *O. varicosum*, of which there is a large number of plants growing in an intermediate house a few degrees higher than the cool houses. These plants being imported in such large numbers to save time and space are attached to pieces of timber some 5 feet or 6 feet in length. On these the plants have succeeded admirably, and now present quite a thicket of flower-spikes, and the flowers have more the appearance of swarms of golden insects than anything else with which they can be compared. Among them is the fine kind called *O. Rogersi*, the flower of which is much larger than that of the type. The sight of this Orchid is alone worth a journey from London to see. The other flowering plants in the cool houses included the *Masdevallias*, which, however, are out of season, save the pretty canary-yellow *M. Davisii*, a plant rather underrated, seeing that it flowers at this season when few *Masdevallias* are in bloom, and that it has a colour possessed by no other *Masdevallia* in gardens with which we are acquainted.

CATTLEYA HOUSE, a new capacious span-roofed structure (100 feet by 30 feet), there is not many flowering plants, but these few are choice. One of the finest forms of *Cattleya aurea* we have ever seen is in bloom. It is remarkable for the intensity of the maroon-crimson tint of the broad shallow labellum; such a variety as this is indeed gorgeous. Another form of *C. aurea* is in flower with four flowers on one spike—a grand specimen. There are a few stragglers yet among the forms of *C. gigas* which have been in bloom since midsummer. Among *Lælias*, which, like the *Cattleyas*, are Mr. Lee's special favourites, there are some grand masses of *L. elegans*, and a huge piece of the lovely white variety (*alba*), which is in itself a beautiful sight. The mass is about a yard square, suspended on a flat trellis under the roof. It is developing several spikes of flowers, and those that are expanded show that it is the best form of this choice variety. Mr. Lee bought this mass as the ordinary *L. elegans*. Now that it has proved to be the rarer white variety, it is worth twice or thrice the amount originally paid for it, though this was upwards of £60. One of the rarest *Cattleyas* in bloom is the new *C. Leeana*, recently named in compliment to Mr. Lee. It is a small-growing species intermediate between *L. Dayana*

and *L. bicolor* and others of that stamp, but quite distinct from any. This plant is supposed to be unique. In a warmer division of the *Cattleya* house is the superb new *Vanda Sanderiana*, lately described in these columns. There are also some choice *Lady's Slippers*, including *Cypripedium vexillarium*, a hybrid between the dainty little *C. Fairrianum* and *barbatum*. It is the nearest approach to the first-named parent that can be had, and is, moreover, of higher colour. There are also *C. Spicerianum*, the true Hong Kong *C. purpuratum*, *C. chloroneurum*, one of Mr. Warner's hybrids from *C. venustum*, and several plants of the handsome *C. Maulei*. There is a good deal of difference amongst the forms of this variety. Some have far more white on the dorsal sepal than others. One has the upper sepal fully half white; this is the best form of all, and not at all common. In this division are also several flowering specimens of the handsome and rare *Zygopetalum rostratum*, the particular beauty of which lies in the large pure white labellum, about 2 inches in length by 1 inch in breadth. *Celoglyne Massangeana*, suspended from the roof, has long dense spikes of flowers hanging from several plants. It is a most distinct and handsome Orchid, and one really worth a place in a small collection.

In the other houses there is a good sprinkling of bloom. Among the *Phalenopsis* the pretty *P. violacea* and its spotted variety, *Schroederiana*, are, together with the exquisite little *P. Esmeralda*, the most noteworthy. The latter is particularly remarkable, as it is so distinct from all other species, except from *P. antennifera*, which is, in fact, only a pale-coloured form of it. The colour of *P. Esmeralda* is a deep rich rose-purple. The spikes are erect, the flowers small and numerous, and the plant altogether is most pleasing. Among the *Miltonias* is the extremely beautiful bicolorous form of *M. spectabilis*. It has a large white lip with a wedge-shaped blotch of amethyst upon it. *M. Moreliana*, *Clowesi*, and *Regnelli* are likewise in bloom. In the *Dendrobium* house are some fine plants of *Barkeri Skinneri*, quite large specimens. It is not often seen grown so well; usually it is seen on small blocks, the plants giving one the impression of being half starved. *Arundina bambusæfolia*, *Trichocentrum albo-purpureum*, *Lycaste Cobbiana*, *Oncidium ornithorhynchum album*, *Epidendrum sceptrum*, *Philumna nobilis* are among the other choice things to be seen at the present time at Downside.

W. G.

NOTES FROM THE DELL, EGHAM.

THE following are among the more noteworthy Orchids now in flower in Baron Schroeder's fine collection at The Dell. First on the list comes *Dendrobium rhodostoma*, with pure white flowers, petals and sepals deeply tipped with the richest purplish crimson; *Cypripedium Schroederi*, a beautiful hybrid variety, has long-tailed sepals, the colour pale rose; *Cattleya exoniensis* is one of the most beautiful light varieties I have seen; *C. Gaskelliana* is also a very fine variety; *Vanda Schroederiana* is an unique plant, flowers, petals, and sepals deep sulphur, with a pure white lip; a grand plant of *Lælia superbiens* is bearing three strong flower-spikes; *Lælia anceps Barkeri* has twelve spikes; *Vanda Lowi* has one spike with thirty-three flowers on it, the darkest and broadest petalled variety I have seen. In the cool house were some very fine plants of rare *Odontoglossums*, such as *mulus*, *Schroederi*, *Wilckeanum*, *Ruckerianum*, and *Pescatorei Veitchi*. The latter has made a fine bulb this season, and is now throwing up a very strong flower-spike. There was also a beautiful hybrid of *O. crispum*, the flowers of which had a primrose-yellow ground spotted with crimson, petals and sepals 3½ inches in length, the flowers maintaining their colour to the last. A specimen of the glorious old *O. grande*, with seven spikes carrying thirty-nine fine flowers, was a sight in itself worth seeing. *Masdevallia Chimera* was very fine; also a superb plant of *M. macrura*, with three flowers. *M. Wallisi* was likewise in bloom. A plant of *Pro-*

menæa citrina, with over fifty bulbs, will, when in flower, be a beautiful sight. In the warmer houses were some grand specimens of all the finest Cattleyas, Lælias, Cyrtopodiums, Aerides, Saccolabiums, Vandas, Phalenopsis, Dendrobiums, and Oncidiums, including the beautiful *O. Lanceanum*, a fine plant; *O. macranthum*, and *O. Rogersi*.

E. SHUTTLEWORTH.

TEMPERATURE OF ORCHID HOUSES.

IN answer to question 5076 allow me to say that both the temperature and the atmospheric conditions of Orchid houses are of very great importance indeed. It is well known that the difference of a few degrees means the success or failure of a plant that in other respects is not difficult to manage. The way in which some seem to manage an Orchid, or rather leave it to shift for itself, and that with the most successful results, has been a wonder to many who have failed again and again where the greatest care has been exercised, and the most expensive appliances brought into requisition. I alluded last week to

DISA GRANDIFLORA. The way in which it grows at Chatsworth is truly marvellous. When I saw the plants they were standing in an ordinary Heath house or greenhouse, and did not seem to receive or require greater attention than the other occupants. In the September part of the *Orchid Album* the editor uses these words: "The *Disa* really seems to be no trouble to cultivate. The way in which Mr. Speed treats it is to grow it in a common greenhouse, where it gets plenty of fresh air and light, and here it requires nothing but plenty of water in the growing season. It is grown in Sphagnum Moss and rough fibrous peat and loam. There is no doubt that this plant does not get shifted from the place where it was found to do well. This is a great secret in plant culture. When a plant is found to do well, let it remain where it is, unless on trial another place is found to be equally suitable. Few people grow this *Disa* well. The reason is, that they keep it in too warm a house and coddle it too much. If they would follow Mr. Speed's plan they would succeed, if the plants are kept free from insects and provided with sweet material about the roots." That Mr. Speed has been abundantly successful is certain; that many other good gardeners trying to imitate the same conditions have failed goes without saying. Why have they failed? My belief is this: They gave all the attention which the plants required as regards temperature; but, owing to the locality in which they lived, they could not give the same atmospheric conditions. The *Disa* succeeds near Dublin mainly, I believe, from the atmospheric conditions being suitable to it. Of course I do not say that temperature is not equally important. The advice to find the right place in a house for a plant, and to keep it in that place is good. An Orchid may drag out a miserable existence on the stage, but suspend it from the roof, and it makes itself at home immediately.

THE TEMPERATURE of Orchid houses must vary with the season. Your correspondent should read his copy of THE GARDEN more carefully; at page 297 he will find the temperatures of all the sections of Orchid houses given, and if he will pay attention, as the season advances, he will find they are reduced to the lowest points at mid-winter. The lowest point for a cool house would be 45°, Cattleya house 55°, and East India house 65°. Of course the temperature would fall below these points a few degrees or rise above them if the weather was intensely cold or exceptionally warm. But besides temperatures, atmospheric conditions are also insisted upon. During the dull, dark days of winter it is very easy to debilitate the plants by excessive moisture in the atmosphere. I will give an instance also of its effects upon the flowers. I went into a cool Orchid house last winter and found the plants looking fairly well, but the flowers were nearly all spotted. That Orchid house was damped down twice a day in storm or sunshine. About the same time I looked in to see Mr. Bockett's collection at Stamford Hill, and found the plants in the cool house—

as they always have been—in the best of health, and the glorious spikes of *Odontoglossum crispum* and *O. Pescatorei* in very fine condition. I was informed by his gardener that he had not even sprinkled the paths of the house with water unnecessarily for three days, as the weather was dull and cold.

J. DOUGLAS.

Vanda Sanderiana.—On Thursday last a dozen plants of this Orchid from Messrs. Low were sold at Stevens' Rooms. Among them was a grand specimen—one entire mass—nearly 3 feet across, consisting of eight growths carrying ninety leaves. After a spirited competition this was sold to Messrs. Backhouse, York, for 200 guineas. Three other plants much smaller fetched 25 guineas each, while the rest ranged from 14 guineas to 5 guineas, the plant sold for the latter price having only four leaves on it.

5077.—**Dendrobium crassinode** seedling.—In "W. J. M.'s" case this was doubtless fertilised by bees. They may be seen occasionally with the pollen of Orchid flowers attached to their foreheads as they fly from flower to flower, and no sooner do these pollen grains touch the viscid surface of the fructifying parts of the flower than they adhere. Nearly all our hardy *Cypripediums* were fertilised this year. *C. spectabile* had scarcely a flower that did not produce seed-pods. The plant to which "W. J. M." alludes may be fertilised by its own pollen, or, what is just as likely, by the pollen of some other *Dendrobe*. Sow the seeds on the surface of the compost in which the parent plant is growing. They will take from three to nine months to vegetate, and may flower the third year.—J. DOUGLAS.

Disa grandiflora.—Having for some years successfully grown this lovely Orchid, a few remarks concerning it may not be uninteresting. It is by no means difficult to grow, nor does it require a moist climate. I grow it in Dominy's Orchid pans, and this year had two of them well filled with it; each threw up three blooming shoots, some with five flowers on the stem, and so vigorous was the growth that it pushed itself out through the holes at the sides of the pans. I have just repotted it, and the young growths are now pushing themselves up in all directions through the peat, giving promise of success for next year. My plan is to grow it simply in peat (Epps' selected Orchid peat being used) with a few lumps of charcoal in it; the pans are half filled with drainage, and the peat is broken up into pieces about the size of a Walnut; the pans are placed close to the door of my small greenhouse, which is only kept at a temperature to exclude frost, as I grow in it both soft and hard-wooded plants. The pans are syringed three or four times a day, and I find that after a time Moss forms on the surface, which I allow to grow freely, as the *Disa* seems to rejoice in it. When the flower-stems turn yellow I repot, and the young growths may always then be seen issuing close to the base of the stem; it ought, therefore, never to be at rest, and indeed this was the secret of its cultivation as discovered by my late friend, Mr. Charles Leach, of Clapham Park, who was the first to flower it in England, I believe. A good deal depends on the character of the peat used, as several years ago I lost some of it simply because of the badness of the peat. When I saw it at Chatsworth it was in the Heath house, and was doing then very well. Twelve is certainly a very large number of flowers on one stem, but I believe that some varieties of it are more floriferous than others. If anyone will follow these simple directions, I believe that, no matter where they live, they will find it one of the easiest of plants to grow; it likes plenty of air, light, and water (especially in the form of syringing), and if these conditions are observed there ought to be no difficulty about it.—DELTA.

Tuberous Begonias in France.—After the miserably wet weather which we have had during the last fortnight or more our finest bed in the garden here is one of *Begonias*, consisting of about fifteen hundred plants of mixed colours.

It is a fine sight compared with the other beds, all of which are dashed and spoiled by the rain. *Begonias* are making rapid progress with us; we have some fine seedlings, the flowers of which are round, of good substance, and borne on upright flower-stalks. In one of my rambles about a month ago I saw a garden in front of a maison bourgeoise at Châton looking remarkably gay with some beds of *Begonias*. We have three beds on the lawn here filled with flowering *Begonias*, and the borders on either side are planted with fine-foliaged kinds, backed up with shrubs. The tuberous sorts are fine, well selected kinds. At the fruit exhibition, in Paris, last week, I saw some fine *Begonias*, both double and single; the blooms of the double sorts, which came from M. Leguin, reminded one of those of *Camellias* rather than *Begonias*.—H. HOWARD CHESHIRE, *Chateau du Val, Seine-et-Oise*.

PROPAGATING.

SEEDLING PALMS.

PALMS in a young state have become so popular of late years for decorative purposes, that great quantities of seeds are imported every season in order to supply the demand that exists for them. Palms can only be raised in quantities from seeds, though some send up suckers that may be detached and grown on. One of the most prolific in this respect is *Rhapis flabelliformis*, which produces suckers freely, and, owing to its hardness of constitution, it is one of the most valuable for corridors and similar places where draughts would injure more tender kinds. As seeds of some Palms do not retain their vitality for any great length of time, a good rule is to sow them as soon as received, for they may have already been ripe some time. If any of the pulp still surrounds the seed it should be removed as it tends to promote decay just as growth commences. Pans or shallow boxes make useful receptacles for the seed, but care must be taken that they are efficiently drained. For soil we use good loam with a fair proportion of sand, the whole being pressed down moderately firm. In the case of ordinary sized seeds a good guide is to cover them with soil to about their own depth, and they may be sown pretty thickly, as it is necessary to pot them off as soon as they are well above ground. In order to ascertain if the seeds will germinate, open two or three, when, if the germ therein has a shrivelled and wasted appearance, the chances are it will not grow, while if plump and fresh the reverse is the case. After sowing the stove kinds should be plunged in a gentle bottom-heat, while greenhouse sorts do better with additional heat during their earlier stages.

AFTER SOWING the soil must be kept moderately moist, and on the appearance of the first leaf the young plants must be potted off, as the roots of most kinds grow so strongly that if delayed longer they become matted and difficult to separate—an operation in which the least injury inflicted on them will often result in the death of the plant. In potting off we use the same kind of soil as that in which the seeds were sown, and, in order that they may not be buried too deeply, we mostly leave the seed still attached to the young plant on the surface of the soil and not covered up. When this is done a little bottom-heat is beneficial in the case of both stove and greenhouse kinds, and a liberal use of the syringe is necessary. After giving the first watering to settle the soil, bedewing the plants over two or three times a day will generally keep them sufficiently wet without the use of the watering-pot. When the plants get larger and have filled the pots with roots, they will need shifting into larger ones, and in the case of *Latantias*, most of the *Arecas*, *Coryphas*, *Seaforthias*, and other kinds commonly grown that were in the first place potted into 2½-inch, 3-inch, or 4-inch pots will be sufficient shift. The young plants should on no account be overcrowded, as in that case the leaves grow weak and one-sided; besides, when placed thickly together the whole of the leaves cannot be wetted properly

with the syringe, and the consequence is they become infested with insect pests, which often do them permanent injury. Many of the commoner Palms that one sees so frequently in 5-inch or 6-inch pots employed for decorative purposes bear traces of this overcrowding when in a young state; they are tall and weak with comparatively few leaves, while when grown under more favourable conditions, though lower in stature, they are more effective, owing to the greater number of their leaves, those first formed being still retained; they are also more spreading in habit. Vigorous growing kinds are benefited by mixing decayed manure with the soil in which they are potted, that is, at their first shift, but not when potted off. When growing under favourable conditions Palms are seldom troubled with

INSECT PESTS to any great extent, but if mealy bug makes its appearance it can soon be got rid of by sponging, dipping in Gishurst compound, or immersing in a weak mixture of paraffin oil. The several kinds of scale are the worst to eradicate, but, on the principle that prevention is better than cure, on the least signs of any the plants should be thoroughly cleansed. A humid atmosphere tends greatly towards keeping down insects, and it just meets the requirements of the Palms in other respects. As regards water at the roots, most Palms like to be kept moderately moist, but, unless full of roots, the frequent syringings that are needed will keep them nearly or quite wet enough. When the roots form a mat at the bottom of the pot it is almost impossible to over-water them. Where Palms have been employed for indoor decoration and have suffered somewhat, if placed in a hot, humid atmosphere they frequently recover quickly. The foregoing remarks do not apply to select kinds that require special treatment, such as *Pinanga Veitchii*, *Stevensoniana grandifolia*, &c., but rather to the many commoner free growing sorts now employed for decorative purposes. ALPHA.

Veronica Traversi.—For gardens of limited extent or as a pot plant for windows, balconies, and similar places, there are few more useful subjects than this pretty New Zealand Speedwell. It is about the hardest of the many shrubby Veronicas now in our gardens, and though liable to be injured by severe frosts, it quickly recovers. This *Veronica* forms a small much-branched shrub of regular outline, with dark green Box-like foliage arranged in a decussate manner thickly on the branches. It bears, in this respect, a considerable resemblance to *Euonymus microphyllus*, and is the hardier of the two. Its flowers are seldom produced on small plants, as in its earlier stages it does not bloom so freely as some of the hybrid kinds, but as a bush in the open ground it is sometimes in summer thickly studded with spikes of pale lilac-coloured flowers, which are very attractive. Two great recommendations possessed by this *Veronica* are, firstly, the readiness with which it may be struck from cuttings, and, secondly, the short time required to form effective little plants. The principal point to be observed in striking it is to keep the cuttings close and shaded when necessary till rooted, otherwise, if once allowed to flag, the result will sometimes be unsatisfactory. As soon as they commence to grow after being potted off, if the tops are just pinched out, the young plants will send out several shoots and acquire a bushy habit without further attention in this respect. —H. P.

SHORT NOTES.—PROPAGATING.

Hyacinthus candicans seeds freely, and some of the bulbs will flower in two years from seed. The same may also be said of *Tigridia grandiflora*.—A.

Phloxes.—If the clumps of these are not large enough to be divided wait till spring, then protect them by a frame when the young shoots, which quickly come up, strike readily.—T.

Senecio pulcher.—In order to increase this cut the roots into pieces about an inch long and put them in pots of soil in a frame. Primulas or the denticulata and amena section may be increased the same way and also by division. —H. P.

ROSE GARDEN.

New Tea Rose Sunset.—This new variety is a sport from *Perle des Jardins*, obtained in the winter of 1880 by Mr. Peter Henderson, of New York. It is identical with it in every respect except in colour; instead of being of a canary yellow, it is of a rich shade of saffron orange, deeper than that of *Madame Falcot*. It has maintained the vigour and abundant flowering of the type, except that the colour of the young foliage is of a much deeper crimson, thus contrasting beautifully with the flowers.—JEAN SISLEY, *Monplaisir, Lyons*.

Pot Roses.—Just a word to say that these are not infrequently injured from two causes at this season of the year, viz., mildew and too much water at the roots. The first must be destroyed by flowers of sulphur; and in order to prevent injury from heavy rains, the plants should be sheltered in a greenhouse, or by some glass lights put over them. Tea Roses ought not to be placed out of doors at all, as they flower so freely and so continuously under glass, but they must be quite close to the glass roof at this season.—J. DOUGLAS.

Williams' double yellow Rose.—I have sometimes seen this named *Persian Yellow*, but both in flower and habit of growth it greatly differs from that variety. The yellow Rose to which I refer was raised by Mr. Williams, of Pitmaston, about 1826, and was said to have been raised from the single Austrian Brier. This Rose is rarely to be found in Rose lists, and there must surely be some reason for the omission, as the tree is very distinct in appearance from the *Persian* or *Harrison's Yellow*; the flowers are larger and it continues longer in flower. I would be glad to know the cause of this old-fashioned Rose falling out of the lists of Roses worth growing.—CHAS. McDONALD, *Stokesley*.

La France—There are but few, if any, more useful Roses than this. It thrives either on the Brier as a standard, or on the *Manetti* as a dwarf plant, and it grows and flowers freely in a pot on its own roots. However, I cannot get it to grow so well as I could wish. As a pot plant it is all that can be desired, though it appears to require two or three years to thoroughly establish itself. After that it is capable of producing some splendid flowers if gently forced, so as to come into flower about the middle of April. Like many other varieties, this Rose is, as a rule, pruned much too severely when grown as a standard. I find a little shortening back of the longest branches, and a little thinning out of the old wood, to be all that is necessary. This Rose always gives us two full crops of flowers. As soon as the first is over the dead flowers are cut off, and the roots receive a thorough soaking of manure water. In six or seven weeks another crop of flowers appears, very little inferior to the first. Its merits in other respects are too well known to require further comment.—J. C. C.

SHORT NOTES.—ROSES.

Ma Capucine.—This is a small Tea Rose, most beautiful in bud, of a deep reddish orange colour, small in foliage and not a strong grower. Mine is against a wall and does well. It is admirable for a button-hole.—DELTA.

Rose Mereville de Lyon.—This was exhibited at a recent meeting of the French National Horticultural Society and was awarded a first-class certificate. It is said to be an excellent Rose. It was raised by M. Leveque, nurseryman, Ivry, Seine.—J. C. B.

Pink Tea Rose Letty Coles.—It seems singular that this Rose is not more generally sought after and more widely grown. It is said to be a sport from *Madame Willemoz*, one of the choicest whitish Teas with a salmon centre, whereas *Letty Coles* is a delicate pink. We are by no means so rich in good pink Teas as to be able to dispense with this one of such an excellent strain.—D. T. F.

Raised beds for Roses.—The remarks by "D. T. F." at p. 178 induce me to recommend raised beds for Tea Roses. They do much better on such beds. We have one in our own garden with sloping turf edgings kept well trimmed. In Messrs. Paul's Rose Nurseries at Cheshunt raised beds have given excellent results. The plants grow much better and cleaner in summer, and stand the effects of unfavourable winters better, owing to their dryness.—J. DOUGLAS.

Banksian Roses.—These being so nearly evergreen are admirably suited for walls or for any other position where a large space has to be quickly covered. A rather large space for the roots is necessary, and the better the soil is the faster they grow; but experience shows that an elaborate preparation of the soil is unnecessary. With 2 feet in depth of fairly good earth, and proportionate space, these Roses will grow for many years in a satisfactory manner. To grow them successfully they require a height of from 10 feet to 16 feet, and proportionate room on each side for the development of the branches. When dealing with young plants no pruning is necessary; they must all be either nailed or tied in, but when they have filled their allotted space the treatment may be altered. In our strong soil this Rose grows most luxuriantly, and, in order to keep the growth within reasonable limits, we get the hedge-shears and clip it in about the end of June, but we should not think of doing so later. If we did, we should expect to see it produce very few flowers next year. The growth made after the end of June has time to get ripened and sufficiently hardened up to form embryo flower buds before winter sets in. Such is our treatment of the *Banksian* Rose, and there is certainly no room to find fault with the number of flowers which it produces, for they are always abundant.—J. H.

Gloire de Dijon Rose.—This good old variety is evidently extremely popular in Kent. I recently saw in the Cranbrook district the fronts of several dwelling houses entirely covered with it, and in one instance I counted three hundred fully expanded blooms, besides innumerable buds in various stages of growth, on one plant. From what I could see, nearly all are on Brier stocks about 3 feet high, but all are not equally well treated. In some instances plants at least fifteen years old still retain plenty of vigour, but this is principally owing to the roots not being neglected—that is to say, not supposed to find food where and how they can. No Rose, nor any other climber, will long thrive satisfactorily unless frequently top-dressed with good manure, and occasionally given a good soaking with liquid manure, the latter being applied at whatever season of the year it can be had or can be best spared. A few annuals, and such plants as *Verbenas*, *Pelargoniums*, and *Pansies*, will not greatly injure the Rose border; but herbaceous *Phloxes*, *Pyrethrums*, *Pentstemons*, *Japanese Anemones*, and similar plants, which are frequently to be seen well established over the Rose roots, are certain to impoverish the border. Given liberal treatment, the *Gloire de Dijon* Rose will not only flower abundantly on any aspect, north perhaps excepted, early in the season, but will also push out a number of strong growths, which in the autumn seldom fail to produce fine blooms at nearly every joint. It is thus evident that this Rose is at its best just at a time when Roses generally are scarce. The best coloured companion for it with which I am acquainted is *Cheshunt Hybrid*. It blooms with me quite as early in the season, and, besides occasional blooms during the summer, we invariably cut a quantity of fine blooms late in the season. It does well in common with the *Old Glory* as a standard on the Brier, and I annually bud a quantity, and advise others to do the same. A few notes from other rosarians as to which are the most serviceable sorts for continuous blooming out-of-doors would oblige me, and probably many other readers.—J. M.

Hypericum Coris.—"Veronica," in his remarks upon the various species of *St. John's Wort*, speaks of this as not being hardy and as requiring the protection of a greenhouse in winter. Some half-dozen years ago I collected a few of it on the Maritime Alps, where it is to be seen at various elevations from 2000 feet to 5000 feet, and it has been cultivated in the York Nurseries ever since. It is grown in pots in light, sandy, or stony soil, fully exposed to the sun, and during severe winters, when the thermometer fell 63° below zero, the plants were fully exposed (the pots were not even plunged), and they were not in the slightest de-

gree damaged, so I think we may classify it with "perfectly hardy plants." There is no doubt that excessive drainage and not too much earth are essential to the successful wintering of this pretty species of St. John's Wort.—R. POTTER.

SOCIETIES.

ROYAL HORTICULTURAL.

OCTOBER 9.

THOUGH there were comparatively few exhibits on this occasion (an indication that the winter season is at hand), there were nevertheless some good collections of Dahlias, a few good new plants, and some excellent collections of Apples, Grapes, Tomatoes, and vegetables. The following plants were awarded first-class certificates:—

VANDA SANDERIANA.—This grand Orchid, from Mr. Lee, Downside, Leatherhead, was described in *THE GARDEN* (p. 263). The plant bore two spikes of expanded flowers, and, as may be imagined, formed the centre of attraction. The committee were unanimous in awarding a certificate to such a valuable addition to our garden flora.

EUCHARIS SANDERI.—A new bulbous plant from Colombia, and quite distinct from either of the other two cultivated species. It has large, deeply furrowed foliage of a pale green colour. The flower-spikes overtop the foliage, and bear umbels of pure white flowers nearly as large as those of *E. grandiflora* (amazonica), but with the corona suppressed. It will doubtless prove to be a valuable garden plant, and as popular as the other two species. Exhibited by Mr. W. Bull.

NEPENTHES NORTHIANA.—A new Pitcher Plant from Borneo. It is one of the largest species known, producing pitchers nearly a foot in length, and of proportionate breadth. In form they are distinct from those of other species, inasmuch as the rim is broad and deeply furrowed. The ground colour, which is pale green, is marked by large, irregular blotches of crimson-red. The plant shown by the introducers, Messrs. Veitch, bore but half-sized pitchers, but these were quite characteristic of the species.

CRINUM ORNATUM.—An extremely handsome bulbous plant, similar if not identical with the new *C. Kirki*. The plant shown by Mr. W. Bull bore two stout erect flower-spikes, each carrying a many-flowered umbel, one with fourteen the other with twelve flowers. These are some 6 inches across the outspread sepals, which are white, with a broad medial stripe of crimson-red. They are shallowly cup-shaped and delicately scented.

MEDINILLA CURTISI.—A new and very distinct species recently introduced from Sumatra by Messrs. Veitch, who exhibited it. It is apparently of dwarf growth, and has a bushy much-branched habit. The leaves are ovate pointed, stalkless, and of leathery substance. The flowers are produced in terminal and axillary many-flowered panicles; they are about 1½ inches across, white, of wax-like texture, and with a tuft of purple stamens. The flower-buds are like wax-drops, and have a pleasing appearance in contrast with the bright orange-red stalks. It is seemingly a most floriferous plant, flowering profusely even in a small state. It is likely to prove a valuable stove plant.

CHRYSANTHEMUM ALEXANDER DUFUR.—A new early owing variety distinct from all the rest of the race, inasmuch as it is a cross between the Japanese section and one of the varieties with short florets. The flowers are larger than any other of the early race, the florets being narrow, prettily reflexed, and of a bright amaranth, a colour peculiarly pleasing and cheerful, particularly under artificial light. As to its extreme floriferousness, the plants shown by Messrs. Cannell, of Swanley, bore evident proof.

BEGONIA MONSIEUR DUVIVIER (tuberous).—A double variety, one of the finest that has been exhibited this year. The flowers are large and so full of petals as to form dense rosettes. The colour is a glowing crimson. The habit is sturdy

and compact, and extremely floriferous. The plant sent by Mr. Bealby, Roehampton, bore about a score of flowers on a plant in a 6-inch pot.

ADIANTUM WEIGANDI.—An elegant Maiden-hair Fern and a real acquisition, notwithstanding the many species and varieties in cultivation. It is of neat and dense growth, and the fronds are broad, the pinnae rather large, deep, incised, and so densely arranged as to overlap. The green is of a peculiar bright tone, thus adding to the plant's attractiveness. Shown by Messrs. Veitch.

NEW PLANTS.—A small group from Mr. W. Bull included the following: *Anthurium splendens*, an extremely ornamental-leaved Aroid. The broad, heart-shaped leaves on the specimens shown measured over a foot in length. The wrinkled surface of the leaves is of a lustrous velvety green of various shades, which render the foliage strikingly handsome. The committee desired to see it on another occasion. Along with this was shown *Panax Victoriae*, a small, neat-growing plant of bushy habit, and dense plummy foliage variegated with green and white, an excellent decorative plant; and *Davidsonia pruriens*, a handsome, ornamental foliaged plant with long pinnate leaves, which, in the young stage, are a bright coppery red, contrasting finely with the deep green of the matured leaves. The group also included *Calamus ciliaris*, *C. sikkimensis*, and *Phoenix rupicola*, three extremely graceful-leaved Palms, particularly useful as decorative plants in a small state. Besides the plants certificated, Messrs. Veitch showed two new varieties of *Begonia* both belonging to the Rex race. One named *Zenobia* had large leaves with a deep claret ground broadly margined with silvery white and green. The other called *Brongniarti* had medium sized leaves, with a pale green ground colour beautifully freckled with silver. Mr. Eckford, Boreatton Park, Shrewsbury, showed, among others, an uncommonly pretty *Begonia* worthy, we thought, of a certificate, being so distinct in form from that of any other, and, moreover, a winter blooming variety. It was named *Begonia nitida coccinea*, but it had not the slightest affinity to the true *B. nitida*. It may be best described as the counterpart of *B. weltonensis* except in the colour of the flowers, which, instead of being pale pink, are of a bright crimson-red. These are abundantly produced on dense habited plants about 1 foot high. Mr. Eckford also showed a dark red-leaved *Fuchsia*, named *atropurpurea*, very distinct from any other; also a good white *Zonal Pelargonium* and some new fancy Dahlias. A new perpetual Carnation, named *Louisa Ashburton*, was shown by Messrs. Cross & Steer, Salisbury. The flowers are large, the petals beautifully fringed, of snowy whiteness, and deliciously scented. It has all the characters of a first-rate variety, being free in growth and flower, and is said to flower continually throughout the winter. It only grows about 12 inches or 18 inches high, and is neat and compact. Some well grown examples of a *Celosia* named *pyramidalis coccinea* were exhibited by Mr. Turton, Maiden Erleigh, Reading. The plants shown were truly pyramidal in growth, and each shoot bore a feathery cluster of deep crimson flowers. It is seemingly an excellent sort. A specimen of a new variety of Pampas Grass (*Gynerium argenteum pumilum*) was shown by Mr. C. Noble, Sunningdale Nursery, Bagshot. It is remarkable for its dwarf growth, the tops of the feathery plumes reaching only about 4 feet or 5 feet, and it is apparently very floriferous.

ORCHIDS.—Among a few shown by Mr. Lee's gardener (Mr. Woolford), Downside, Leatherhead, were *Oncidium incurvum album*, a pure albino of a well known pretty and elegant Orchid. The purity of the flowers, combined with the graceful appearance of the long slender spike laden with a profusion of blossoms, renders the plant a most desirable acquisition, and it seems somewhat strange that it should have been passed over by the committee. This was the first time this plant has been exhibited. Another rarity which very few had seen before was *Miltonia Bluntii*. It resembles *Miltonia spectabilis* in growth, but is more like *M. Regnellii* in flower.

The ground colour of the flower is a creamy white, heavily blotched with a pale vinous purple, while the broad labellum, about 1½ inches long, is a delicate pink, deepening towards the centre into a deep reddish purple. A third rare and new Orchid from Downside was *Trichocentrum orthoplectron*. This, in foliage and growth, is scarcely distinguishable from *Oncidium bicallosum*. The flowers are borne singly on short stalks; they are some 3 inches long, with the sepals and petals of a pale brown, while the broad, wedge-shaped labellum is of a lovely rose-carmine set off by a conspicuous central blotch of white. A small group of Orchids was shown by Mr. Smee's gardener (Mr. Cummins), The Grange, Wallington, which included *Cattleya Gaskelliana*, *Cypripedium Spicerianum*, some creditable flowering specimens of *Oncidium Forbesi*, *Odontoglossum Rossi majus*, and a fine pair of *Anæctochilus argenteus pictus*. Though a cultural commendation was awarded, the merits of the plants as exceptionally well grown specimens were not very apparent. The commendation of good culture was more worthily bestowed upon a specimen of *Oncidium tigrinum*, which Mr. G. F. Wilson brought from his garden at Weybridge. The spike was fully 5 feet high, much branched, and bore a profusion of large blossoms, having broad, clear yellow lips and chocolate-barred sepals. It was, moreover, deliciously scented like Violets. Mr. Wilson also showed spikes of *O. unguiculatum*, also a handsome species. Cut spikes of *Oncidium Forbesi*, *Zygopetalum Mackayi*, and a variety of the same species were sent by Mr. Pollett, Bickley.

SINGLE DAHLIAS were again shown by Mr. Ware, Hale Farm Nursery, Tottenham, in large numbers and in admirable condition. There were no fewer than fifty varieties, several of which were quite new. Among them were *Freedom*, rather small and starry, bright crimson in colour, and a suitable kind for bedding out; *Silver King*, buff edged with golden yellow, a singular and novel colour; *Beauty of Uplands*, vermilion tipped with gold; *Mrs. Castle*, a beautifully shaped flower of a glowing rose-scarlet, mixture of yellow and salmon shades; *Indian Yellow*, a bright orange-red, very fine; and *Ingo-mar*, small and starry, of a vivid magenta. Besides these we singled out the following as being the best of the other varieties shown, viz.: *Mrs. Burbidge*, deep velvety amaranth; *Victory*, Bridal Wreath, *White Queen*, *Empress*, all first-rate white varieties, differing only in the relative size of the flowers and habit of growth; *Christine*, mauve-pink; *Single Zinnia*, brilliant scarlet; *Mrs. Cullingford*, one of the best yellows; *Cuprea*, coppery yellow; *Fairy Pet*, small light blush; *Radical*, bright orange-red; *George Clark*, an improved form of *Paragon*; *Beacon*, vivid crimson; *Beauty of Cambridge*, still one of the finest crimsons; *Walter Ware*, crimson-red; *Sulphur Queen*, a fine pale yellow; *Orangeman*, rather starry, but a bright orange-yellow. Messrs. Rawlings, Romford, exhibited some eight dozen blooms of show, fancy, and Pomponé Dahlias, which, having regard to the lateness of the season, were in excellent condition.

MICHAELMAS DAISIES were shown better than we had hitherto seen by Messrs. Cannell, Swanley, large bunches of flower-stems being shown of each. The species shown included the pick of the Michaelmas Daisies, there being *Aster Amellus*, *formosus*, *formosissimus*, *Novi-Belgii*, *lævis*, *lævigatus*, *turbineus*, *polyphyllus*, and *ericoides*. This selection quite represents the beauty of the perennial Asters, and all are first rate sturdy growers in any soil, profuse flowers, and vary in height from 2 feet in *Amellus* to 6 feet in *Novi-Belgii*. Such bold clusters of those shown made a showy display. Mr. Ware had a similar collection which included *Chapmanni* and *Novæ-Angliæ rubra*, two excellent kinds that would be additions to Messrs. Cannell's selection. From Swanley also came a large group of plants of the variegated tree Houseleek (*Sempervivum arboreum variegatum*), an ornamental plant with green and creamy variegation. We do not remember having seen it exhibited before. There were also a fine display

of the beautiful white Cactus Dahlia Ariel which showed well its long flowering tendency; also a new Dahlia called Golden Tip. It is a small double flowered variety of a reddish buff, with each floret tipped with golden yellow. Mr. R. Dean, Ealing, exhibited a group of dwarf French Marigolds lifted from the open border and potted. The striped strain is one of the best we have seen, the flowers being symmetrical in shape with well defined colours. The sort called aurea floribunda, too, is an admirable one, the colour being a bright, warm yellow. By lifting and potting French Marigolds the plants will continue to flower nearly the whole winter through in a cool greenhouse, and Mr. Dean's group sufficiently showed what an attractive display they make when so treated. The same exhibitor also showed several seedling Snapdragons, Pentstemons, and flowers of the rarely seen single form of the African Marigold or Crown Daisy, *Chrysanthemum coronarium*.

Fruit.—The principal exhibits among these were from Messrs. Lane & Son, Berkhamstead, who had a really grand display of Grapes, Apples, and Pears. There were some half-dozen pot Vines heavily laden with well finished fruit; on one of the pots of Black Alicante there were no fewer than sixteen bunches as large and as finely finished as could be cut from permanent Vines. Other sorts in pots were Foster's Seedling and Black Hamburg, both quite as fine as the Alicante. There was also a collection of cut bunches, including Gros Colmar, Barbarossa, Muscat of Alexandria, Mrs. Pince, and Lady Downes. The Apples numbered 100 dishes and consisted of as many varieties, and these all of the best kinds. Among them the new named Prince Albert was conspicuous, and some heavily laden branches of it sufficiently proved what a productive bearer it is. This is a handsome Apple well spoken of in all quarters. These, with Plums and Pears, made a large and fine display, and was deservedly awarded a silver Knightian medal. Another important exhibit consisted of four uncommonly fine fruits of Smooth Cayenne Pine-apples from the Earl of Fortescue's garden, Castle Hill, Devon, weighing respectively 8 pounds, 7½ pounds, 8 pounds 2 ounces, and 8 pounds. A bronze Banksian medal was awarded to Lord Fortescue's gardener for these fine examples of skilful culture. A remarkably fine dish of King Edward's Pears was exhibited by Mr. Fowler, gardener to Sir H. Mildmay, Dogmersfield Park. A good fruit of that excellent Melon, Victory of Bath, was sent by Mr. Perkins, Lord Henniker's gardener at Thornham Hall; and collections of seedling Apples and Filbert and Cob Nuts were contributed by Mr. O. Cooper, Calcot, Reading. Of these Nuts, besides the variety certificated, there were others named respectively Emperor, Cannon-ball (evidently a good late sort), Webb's Prize, Daviana Cob, The Shah, Garibaldi, and Eugénie. Mr. Goldsmith, Hollenden Park, Tonbridge, showed some half dozen dishes of unusually fine Pears from espalier and pyramid trees. The finest were Doyenné Boussoch, Beurré Superfin, Conseiller de la Cour, Nouveau Poiteau, and Brockworth Park. There were a few other Apples and Pears shown, but they were most seedlings and sorts sent for naming.

Vegetables.—Messrs. Veitch contributed a large selection of Endive and Cabbages. Among the former those named Broad-leaved Batavian Picpus Curled, Moss Fringed, Round-leaved Batavian, and Green Curled were the best; and among the Cabbages the most noteworthy were Early Dwarf Ulm, Early Dwarf Vienna, and Dwarf Green Curled. Messrs. Veitch also showed an uncommonly fine collection of Tomato fruits gathered from open-air plants. There were thirty sorts, and among them President Garfield, Red Perfection, Stamfordian, Trophy, Hepper's Favourite, Holborn Ruby, Dedham Favourite, and Invicta were remarkable for size and good quality. Mr. R. Dean, Ealing, exhibited two seedling Tomatoes, both crosses between Stamfordian and Greengage. One named Red King had large, smooth, red fruits; the other, Golden Gem, had smooth fruits about the size of Stamfordian, but of a clear yellow.

low. The produce of one plant in a 10-inch pot was shown on one dish, from which it must be inferred that the sort is very productive. Its flavour is excellent. Mr. Dean also showed a collection of his new seedling Potatoes, the present and last year's productions. They were Sunrise, Alderman, Chancellor, Prime Minister, Cosmopolitan, The Dean, Recorder, Cardinal, Midsummer Kidney, and Standwell, nearly all of which have been alluded to in THE GARDEN.

First-class certificates were awarded to

COB NUT DUKE OF EDINBURGH.—A new seedling exhibited by Mr. O. Cooper, Calcot, Reading. It is remarkable for its size, roundness, and fine flavour. It is, moreover, said to be very productive.

VEGETABLE MARROW MUIR'S HYBRID.—This is a very distinct sort, having almost globular fruits, each averaging about 6 inches in diameter. The colour is creamy white and the flesh thick and excellent in flavour. It is altogether a first-rate variety, and as a proof of its productiveness a short branch was shown bearing four fine fruits. It was exhibited by the raiser, Mr. Muir, Margam Park, Taibach.

GARDEN DESTROYERS.

5069.—Red spider.—The small insects alluded to by "J. H." (p. 305) are probably immature specimens of the red spider, which are usually much paler than the full-grown ones. Plenty of ventilation and a moist atmosphere are considered the best preventives. I imagine that syringing the pipes in "J. H.'s" case prevented the sulphur from vaporising, which is necessary if the mites are to be destroyed in this manner. The pipes should be sprinkled with flowers of sulphur or painted with one part of fresh lime and two parts of flowers of sulphur, or a mixture of clay and flowers of sulphur, mixed with enough water to form a paint, and then heated thoroughly, but not sufficiently to burn the sulphur. Flowers of sulphur tied up in a muslin bag and dusted over the infested parts is sometimes very useful. If "J. H." would kindly send specimens to THE GARDEN Office I should be pleased to tell him if his pests are red spider or not.—G. S. S.

I am afraid "Reader" (p. 305) will find it a difficult matter to get rid of red spider on Melons and Cucumbers at this season of the year, that is, if the plants are badly attacked. In the case of the latter I should recommend that growth be encouraged in every possible way, working up young wood from the bottom and allowing it to run, cutting the growth infested clean away as soon as that can be effected. With more foliage in the house a slightly increased temperature should be maintained, and this may be continued until the new growth is well advanced. Take advantage of a bright sunny day to give a thorough syringing, wetting every inch of the house and foliage. This will be found more efficacious than occasional damping with diluted insecticides.—E. B.

Leaf-eating insects.—Could not Mr. Hudson or "J. H." secure the services of a sufficiently powerful microscope to determine the character of the insect mentioned in THE GARDEN (p. 305)? I have been troubled with just such a pest, and have always had an idea that it must be red spider in a young state, or a very close relation to it. Red spider in a young state is nearly white and no larger than a pin point, but in a very few days it may be seen moving rapidly about and gradually assuming a darker hue.—E. B.

Surplus bedding plants.—The commissioners of Her Majesty's Works intend to distribute, as usual, this autumn among the working classes and the poor inhabitants of London the surplus bedding-out plants in Battersea, Hyde, the Regent's, and Victoria Parks, and in the Royal Gardens, Kew, and the Pleasure Gardens, Hampton Court. If the clergy, school committees, and others interested will make application to the superintendent of the park nearest to their respective parishes, or to the director of the Royal Gardens, Kew, or to the superintendent of Hampton Court Gardens, in the cases of persons resid-

ing in those neighbourhoods, they will receive early intimation of the number of plants that can be allotted to each applicant, and of the time and manner of their distribution.

Chrysanthemums in Finsbury Park.

—The usual display of Chrysanthemums in Finsbury Park will be open to the public on Sunday next, the 14th inst., and the flowers will be at their best from a fortnight to a month afterwards.

Preserving bulbs from rooks.—In reply to "E. K.'s" enquiry with respect to preserving bulbs from rooks, I can only say what we do here in Holland, viz., as soon as the bulbs are planted we take a dead rook or crow and lay it on its back in the middle of the flower-beds, and we stick it through with a wire, and so fasten it to the soil. We leave it so that the wings are moved by the wind. By doing so it acts as a scare for about 100 square yards, and so protects the Crocus and Tulip beds. In our fields we put a bird to each 50 square yards, which is quite effectual.—A. E.

I would advise "E. K." to try the plan of completely surrounding the bulbs with plenty of pure dry soot, as fresh as possible from the chimney; merely rubbing them in it or in any composition will not answer. At planting time make the hole with a trowel, throw in some soot, insert the bulb in the middle, and then throw in some more. If the rooks get one mouthful of the bitter soot, I do not think they will care to have another in a hurry. I cannot speak from experience of soot below ground, but I know that birds have a great dislike to it above ground, and I offer the suggestion hoping it may succeed. Perhaps "E. K." will let us know. I am not troubled with rooks here, but am trying the above plan as a protection against a multitude of ground vermin which thin out my bulbs every season. Would not a few doses of gunpowder prove the most effectual remedy, followed by the hanging up by the heels of a few of the depredators?—EDWIN JACKSON, *Llandegai, Bangor*.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of fruits.—D. T.—1, Lord Suffield; 2, Golden Noble; 3, Cellini.—G. Carpenter.—1, not known, but most like Hollandbury; 2, Manks Collin; 3, Pomme de Neige; 4, Cellini.—A. E. C.—Court Pendu Flat.—D. Cox.—1, Beauty of Kent; 2, Loddington or Stone's; 3, Lord Derby; 4, a poor specimen of Mère de Ménage.—G. Start.—1, Doyenné du Conic; 2, Doyenné Boussoch; 3, Seckle; 4, Brockworth Park.—Devon.—Cannot name; probably a local sort.—H. D.—Sheep's-nose (a very old sort).—F. Trilby.—1, Scarlet Nonpareil; 2, Beurré Superfin.—G. P., S. K., G. G., G. F. G., T. P., F. Gallon and G. next week.

Naming plants.—Four kinds of plants or flower only can be named at one time, and this only when good specimens are sent.

Names of plants.—R. C.—1, Andromeda Catesbaei; 2, Pityrosporum acerium.—W. B.—Aerides suavisimum.—Para.—A species of Catasetum; cannot name.—S. K.—next week.—Carter & Co.—Probably Martynia fragrans; cannot be certain without seeing flowers.—G. P.—Cissus discolor.—Qedgeley.—Lavatera unguiculata.—J. C.—1, Aloe variegata; 2, Sedum carneum variegatum; 3, Sempervivum arboreum variegatum; 4, Lavandula Stoechas.—R. Giddings.—Stanhopea oculata.—J. B.—1, Masdevallia maculata; 2, too far gone to name; probably an Epidendrum.—W. Forrester.—1, Acacia cultrata; 2, Polygonum Brunonis; 3, white mule Pink; 4, cannot name without flowers; apparently a Cypripedium.—Constant Reader.—1, Polygonum cuspidatum; 2, Begonia weltonensis; 3, apparently leaves of the Pomegranate (Punica granatum); 4, species of Crassula.—Anon.—1, Aster longifolius; 2, Galatella hyssopifolia; 3, Aster dumosus; 4, A. levis.—Sanguinea.—Zingiber officinalis.

GARDENING APPOINTMENTS.

BRYNKINALT, Chirk, Denbighshire, Mr. J. W. Silver.
CLEVELANDS, Shanklin, Isle of Wight, Mr. J. Dale.
FETCHEM RECTORY, Leatherhead, Mr. H. Cook.
HAMPTON COURT PALACE, Mr. Jack.
HIGHCLERE CASTLE, Newbury, Mr. W. Pope.
LONGFORD HALL, Mr. J. Harding.
OSSEMSLEY MANOR, Christchurch, Hants, Mr. T. Grant.
RAVENSWORTH CASTLE, Durham, Mr. Lindle.
THE FIRS, Kidderminster, Mr. George Miles.

No. 622. SATURDAY, OCT. 20, 1883. Vol. XXIV.

This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ROSE MEMORIES, 1883.

Now that autumn storms have well nigh wrecked all outdoor flowers, how pleasant it is to look back on sunny days when our Roses were in their prime, when friends and neighbours came to admire or criticise our blooms, or we went to see, and perhaps envy a little, their greater success. Such homely pleasures, great as they are, inevitably lead us on; and when some great Rose show in London or elsewhere is announced we go up to learn what new beauty has appeared, and try to gather information that shall enable us in our turn to carry off a prize some day. "Man," the proverb says, "never is but to be blessed;" and a show of all places is certainly the place where present enjoyment, however great, but mocks us by the fond hopes it inspires, making us see in our mind's eye the Roses we now admire, growing in even fuller beauty another year in our gardens! Well, never mind; if we do not succeed as fully as we had hoped, we shall certainly have learnt something, if it be only patience; and experience in time will tell us what we can grow really well if only we determine to succeed.

Wandering with loving eyes up and down the long rows of boxes filled with the choicest blooms that can be grown, it was curiously monotonous to see, where so many are fair, box after box, in extraordinary iteration, of the bright pink of *Mdme. Gabriel Luizet*, or the clear red and symmetrical petals of *A. K. Williams*. Years ago when *La France* and *Baroness Rothschild* were young, the same thing might have been said of them also; but now where are they? *La France* is undoubtedly a prime favourite in every garden where the Rose is grown, and *Baroness Rothschild*, though less charming, is still a valuable Rose at a show. Is it mere fashion, or that the season has suited these newer varieties better than so little of them was to be seen this year? *Marie Baumann*, however, holds her place fully, both at shows and in gardens, as the most reliable of good red Roses, just as *Louis Van Houtte* does among dark Roses. One fact should not be overlooked—that is that the best and most useful garden Roses seldom or never appear at shows, as they are considered too common to deserve the special care and attention lavished on those grown for exhibition. No doubt

THE ROSE OF THE YEAR is *Her Majesty*. I only hope another season we may say *Her "gracious" Majesty*; then, indeed, the first title will have been well earned. Such size, form, and substance as the blooms exhibited by *Mr. Bennett* last July showed deserves some special praise to raiser and grower, and if it does not show the same tendency to mildew that otherwise good seedlings of that raiser so often contract, the year 1883 will long be remembered in Rose annals. *Her Majesty* I have heard so variously described, that I add my quota of observation in the hope of agreeing with somebody or other, if only by accident. To my eye she is midway between *Captain Christy* and *Baroness Rothschild* both in colour and shape, while much larger, and fuller, and regular than either of those good varie-

ties. The colour, a delicate waxy pink, is singularly even throughout, and the shape decidedly resembles *Baroness Rothschild's* folded petals while opening. The growth and foliage as shown by plants in pots are very strong indeed, the leaves having the Tea-like gloss of the foliage of *Captain Christy*. Strangely enough, another Rose raised and sent out by *Mr. Bennett* divided the honours of one show with *Her Majesty*, in the opinion of many, if not of the judges. Certainly *Lady Mary Fitzwilliam* is also a very fine Rose of the Tea-scented section, and of a delicate flesh colour. If only this prove hardy and sufficiently vigorous in growth, it should win a high place in general favour.

ULRICH BRUNNER is another very handsome new Rose, midway between *Etienne Levet* and *Paul Neyron* in growth, colour, and shape, and even brighter and fresher in its clear rose tones than either of those which it resembles. It has the advantage of being scented, though not so powerfully as many Roses. Its habit, when I saw it growing in the open, is excellent, and it blooms in autumn as well as most Roses. As I observed before, the enormous quantity of those two good Roses, *A. K. Williams* and *Mdme. Gabriel Luizet*, in every show stand was most remarkable this year. I fear many will endorse my statement that, however beautiful *A. K. Williams* may be at a show, he is very rarely to be found thriving in a private garden after the first season. I was agreeably mistaken when, one day last July, I walked down the rows of Roses in a nursery garden and saw such a beautiful line of blooms exactly like this well-known Rose, and with such vigorous growth and foliage as to surprise me. On inquiring of my guide and consulting the tally, I found that *Duchess of Bedford* is the very counterpart of *A. K. Williams* in bloom, while sufficiently robust to prove a good garden Rose. Here, then, is a real treasure for all who love the Rose, and have, like me, found the latter too capricious to repay growing. *Madame Gabriel Luizet*, which is all that anyone could require in a Rose, as far as hardiness and vigour of growth are concerned, yet lacks the charm of even a stray autumn bloom, has also a satellite (not a "double"), which is very valuable as a gardener's Rose for its free-blooming qualities. *Egeria* is not a very distinct Rose when cut and placed among others on the show table, but it deserves a place in gardens for its compactness of habit and long continuance of bloom. There are many good Roses of this type, but still this deserves a place.

LAST YEAR a little *Noisette* Rose of vigorous climbing habit delighted many a Rose lover by the startling brightness of its orange-buff petals, shading to white at the edge, contrasted with the glossy deep green of its small leaves. This season it has disappointed some and pleased others. With me I can say it has proved satisfactory, being the counterpart of *Ophirie* in growth, but with much prettier and brighter flowers. It is a charming Rose for button-holes, and has always been much admired when cut. One hint may be given as to its culture—that is, grow it as much in the open as possible; the brightness of the bloom depends much on the amount of air and exposure that it gets.

THIS YEAR, after some seasons of disappointment, a climbing Rose of most brilliant metallic rose colour, the so-called red *Gloire* or *Reine Marie Henriette* has shown itself as a most beautiful and telling wall Rose. Wherever there is room

for a strong growing Rose this deserves a place as being so much brighter and fresher in tone than the useful, but too often purplish and faded looking, *Cheshunt Hybrid*. Placed side by side, the latter is obliged to hang its heavy head as if in acknowledgment of the supremacy of the new beauty. *Madame Isaac Perèire* is a vigorous and fine sized *Bourbon* Rose, that will be useful as an autumn bloomer, but its colour is apt to get dull and heavy like *Cheshunt Hybrid*. Unlike *Reine Marie Henriette*, which is too loose a Rose for exhibition, *Madame Isaac Perèire* is already a favourite among those who grow for show, and well deserves its place.

I wonder how it is, whether it be that a really good Rose requires some time to develop itself, or that, knowing it to be good, nurserymen are content to wait and do not try to get it off at once; but it is a fact that *La France* came to us without the need of praise it deserved, and I believe such was the case also with the good old *Gloire de Dijon*. In *Mélanie Soupert*, a white flowered seedling from *Gloire de Dijon*, we have, or ought to have, a real addition to our hardy white Roses. I myself have seen it in great beauty abroad, but evidently suffering somewhat from heat and drought, and yet who has grown or shown it in England? As far as I can judge, it is a free blooming and hardy Rose closely resembling its parent in every respect, and, as I saw it, particularly pure and white in petal. Another seedling from *Gloire de Dijon*, *Mad. Marie Berton*, is well worth a place under glass, where it can display its lemon or pale straw blooms and red-brown shoots to advantage. Across the Atlantic this Rose has won high honours, and we shall do well to follow their lead in this case. Strange to say, this is much less satisfactory and hardy outside than its parent. Before closing the list, which might be prolonged wearisomely, *Mr. Bennett's* newly introduced Rose, *Heinrich Schultzeis*, should be mentioned as particularly sweet scented and bright rose coloured. There are many *Hybrid Perpetuals* already that resemble it, but the old *Anna Alexieff* is most nearly like it, save that she never boasted of any scent.

THE SECTION OF ROSES raised from or crossed with *Rosa Polyantha* deserve mention, as they are growing by degrees into favour, and some of them should be more grown. The most striking surprise that I received this season was from a bed of the old *Cramoisie Supérieure*, edged with the little dwarf *Polyantha* Rose *Paquerette*. The immense heads of its small but *Camellia*-like flowers, pure white and thick in petal, touched each other all round the bed, and not one exceeded a foot in height, making the prettiest white Rose edging I ever saw. Another variety named *Mad. Cécile Brunner* has flowers that shade to shell-pink from white outer petals, and is a charming little toy Rose, but not so useful for bedding purposes. *Mignonette*, another addition to this section, does not please me, though it is very free-blooming and dwarf, for its little pinkish petals are thin and flimsy and the centre not prettily filled up; good neither as a double, nor yet as a single. Of old favourites, there are many that, though not named, are not forgotten; but if the old ones charm us most, it is the newer ones that have the greatest interest.

E. H. WOODALL.

Rose Perle d'Or.—Amongst the new Roses to be sent out from Lyons in November there is one, in my opinion, very remarkable. It is a dwarf perpetual *Polyantha*, named *Perle d'Or*. The

flowers are relatively large, produced in great abundance, and in form like those of the Polyantha Rose named Cecile Brunner; they are pale yellow, with a deeper centre and slightly edged with white. It will make an exceedingly fine pot plant, and the blooms will be very serviceable for bouquets when mixed with the white Paquerette and the pink Mignonette. Perle d'Or obtained at our last exhibition, held on the 20th of September, a first-class medal for seedling Roses.—JEAN SISLEY, *Monplaisir, Lyons*.

WHITE ROSE BARONNE DE MAYNARD.

In this Rose we have what everybody amongst rosarians wants and seldom obtain, viz., a perpetual bloomer, the flowers of which are pure white. Until recently Mabel Morrison was the only white in the Hybrid Perpetual class, but it was so very thin and sparing in its petals, that when the sport from the Baroness de Rothschild gave us the White Baroness we hailed it with delight, for who can know such a parent and not be charmed with the offspring? Yet this new Rose, delightful as it is, and hard to please as we are, surely leaves something yet to be desired before the gap in Hybrid Perpetuals is effectually filled up, for, unfortunately, it lacks perfume, the *sine qua non* of a perfect Rose. Moreover, is there that whiteness in the out-of-door examples of the bloom which we require? I may have been unfortunate as regards the times in which I have seen the White Baroness in bloom, for in nearly each case I observed a pinkiness in the flowers, delightful certainly, but what we want is a white Rose faultlessly pure. Now, in the Bourbon Perpetual Baronne de Maynard we find a type giving a constant succession of flowers from mid-June till frost sets in, fully four months, and these are of the purest white throughout; indeed, this variety is so floriferous, that it is necessary to disbud in a rather wholesale manner if we wish for even fair sized flowers. The plants seem as if they would soon bloom themselves to death if allowed to do so, but new wood in plenty is produced at the same time. The foliage, too, is of such a rich glossy green, that it may be used with advantage in bouquets or button-holes, not only with its own blooms, but with those of others. Exception may be taken to Baronne de Maynard by rosarians, inasmuch as in form it is neither one thing nor another, that is, it is neither reflexed, globular, nor tazza-shaped, but a combination of all of these forms; three or four rows of the outer petals are sharply reflexed like those of a Camellia, whilst the inner ones are upright and cupped so as to quite hide the eye in all but the two fully expanded blooms. For all-round excellence, truth as regards colour, symmetry, fragrance, vigour, quantity, and constancy of bloom I know no Rose of any colour or class equal to it for amateurs. It should have been named Fidelity to effectually summarise its good qualities. R. A. H. G.

Horsforth, near Leeds.

Rose Catherine Mermet.—There is a general consensus of opinion among rosarians that Catherine Mermet is one of the finest of all the Tea Roses. In size, form, and colour it is perfection, and what adds greatly to its charms is its powerful and delicious perfume. The soft flesh tints of the petals have the same silvery lustre so much admired in La France, and it is exceedingly beautiful in the bud state, for then the rosy carmine hue is seen in its full richness. It is of free growth, and, though not what may be called a very floriferous variety, is by no means a shy bloomer. As a garden Rose it is one of the most valuable, and quite indispensable in an exhibition stand. The finest blooms probably that have ever been seen were shown in a large collection by Mr. B. Cant, of Colchester, at the National Rose Society's show at South Kensington last year. These were simply superb, large in size, and perfect in form and colour, and justly won the society's medal. Catherine Mermet had its origin in France. It was raised in 1869 by M. Guillot,

of Lyons, a raiser who has given us such lovely varieties as La France, Horace Vernet, Comtesse de Nadaillac, Mdme. Falcot, Mdme. Margottin, and others.—G.

Rose Merveille de Lyon.—Permit me to correct a mistake made by your correspondent "J. C. B." with regard to this Rose. He states it to have been raised by M. Levêque, of Paris. Surely its very name would be sufficient to show that this was incorrect. How could a Rose raised at Paris be called Merveille de Lyon? But, in truth, it is not really a new Rose at all, but a sport from Baroness Rothschild, like Mabel Morrison and Messrs. Paul & Sons' White Baroness, although superior to either of these. It was originated at Lyons by M. Pernet, and if it keeps true—of which there seems to be a probability—it will be a general favourite. I think it is misleading to characterise a sport as a new Rose; it would be much better to state what it really is. If this were done it might prevent much disappointment.—DELTA.

NOTES.

The autumn queen.—Once more the Chrysanthemum comes to us in all her beauty, clad in her favourite colours of white and yellow or of purple and gold. When nearly all other hardy blossoms have succumbed to chilly nights and cold rain or winds, then arrives the Chrysanthemum as the last sheaf of the year's flower harvest, and it just fills for us what else would be an aching void. The show kinds are heralded in by Little Mary, Mdme. Desgrange, and Adrastus—all good and distinct varieties, while Dr. Sharpe, Mrs. Rundle, Elaine, and others of the early kinds are coming on apace. On all hands the Chrysanthemum societies are preparing for their exhibitions; growers are looking most anxiously to the great fat buds which are just now about to develop into those big blooms so much admired by the votaries of our favourite flower, and there are whispers that next year we shall have a National Chrysanthemum Society and an exhibition really worthy of such a cheerful and beautiful flower.

Orchids and science.—We are often perplexed in our race after novelty in the garden, and oftentimes regret that fashion strews her path with so many of our old favourite flowers. How oft we tremble in the balance between two opinions, and this is especially the case when we have to decide whether the newest or the best shall be selected; but as to Orchids, the point seems to be settled—that of all flowers they are the most beautiful (according to modern taste, be it said), and geologists tell us that their headquarters are of comparatively recent date, so that of all flowers they would seem to be the most modern also. For once fashion and science go hand in hand. Speaking of Crocus and Iris at p. 150 of "Flowers and their Pedigrees," Mr. Grant Allen says: "From these the step is not great to the Orchids, undoubtedly the highest of all the trinary flowers, with the triple arrangement almost entirely obscured, and with the most extraordinary varieties of adaption to fertilisation by bees or even by humming birds in the most marvellous fashion; alike by their inferior ovary, their bilateral shape, their single stamen, their remarkable forms, their brilliant colours, and their occasional mimicry of insect life, the Orchids show themselves to be by far the highest of the trinary flowers, if not, indeed, of the entire vegetable world." "One must needs love the highest," and hence, it may be, comes the great popularity in which Orchids are everywhere held at the present time.

Hymenocallis macrostephana.—In blossom this deliciously fragrant plant reminds one of the Peruvian Daffodil (*Ismene Amancaes*), but its flowers are of snowy whiteness, and of all other species of *Pancratium* or *Hymenocallis*, as they are now called, this one is immeasurably the best. It is a stove bulb of robust habit, growing freely in loam on a well-drained base of broken bones,

which, as a drainage material, is superior to crocks for all robust, hungry-rooted plants. Even when not in flower, its strap-shaped, dark evergreen leaves are ornamental in their way. Although many years introduced, it is as yet far from common in private gardens, but when we say that it is without a doubt finer than either *Pancratium fragrans* or *P. speciosum*, it is likely the true plant will be inquired for as the noblest of its race.

Indian Croci.—These lovely little Orchids are now very welcome, and are so readily grown that every one with a warm greenhouse may cultivate them. The kinds now in blossom are *Pleione lagenaria*, *P. præcox* (*P. Wallichiana*), and *P. maculata*, the two first rosy purple or lilac, and the last pure white with a richly streaked lip. Easily grown, they blossom at a dull season when choice blossoms are especially useful, and small pots or pans, bearing from twenty to thirty flowers, are of a convenient size for indoor decoration, although much larger specimens bearing a hundred or more flowers are easy to obtain. They increase very quickly. Every strong bulb potted soon after flowering has on it two growths, and each of these forms two more bulbs, which, if strong and healthy, yield eight flowers on four spikes of two flowers each. Thus *Pleiones*, like *Calanthes*, double themselves every year if well grown.

Irish Anemones.—When Mr. Smith, of Newry, took a basketful or two of *Anemone coronaria* to the Manchester show last spring they excited a good deal of attention, nor did the excitement die out with the blossoms, for roots of these brilliant flowers were eagerly sought for, and only yesterday I received a letter from a firm of seedsmen in Manchester asking where roots might be obtained, and Mr. Smith informs me that his original stock of Irish-raised seedlings is quite cleared out for this season. We have now flowers in abundance on plants raised from seed sown in March last, and these will afford flowers until May next, except during the very worst of wintry weather. The best way to get a good strain is to purchase a few of the best-named varieties, and from these seed should be carefully saved. The best kinds produce but little, but that little is of the best. To sow early is the secret—not later than March, as March seedlings are vigorous enough to flower from October until April or May.

Pæonia officinalis.—This plant, by some authorities considered a native, and which is by others known as *P. corallina*, is just now very pretty in its fruiting stage. Its brown hairy capsules burst open (like those of *Iris foetidissima*), reveals, Pomegranate-like, a mass of scarlet abortive seeds, among which are rather thickly besprinkled the true and perfect seeds of a glossy blackness. Apart altogether from the early leafage and great purple flowers of this interesting plant, it well deserves culture for its fruit alone. Mr. Grant Allen, in "The Romance of a Wayside Weed," says: "In the Bristol Channel there is a solitary rocky islet known by the old Scandinavian title of the Steep Holme—a name given it, no doubt, by the Vikings of the ninth century, who made it their headquarters for plundering the chetapen and slavemongers of wealthy Brístow. Now the rocky clefts of the Steep Holme are still crimson in May and June with the brilliant red blossoms of the wild Pæony, a flower which does not elsewhere appear nearer to England than the Pyrenees." I could wish I was among the sheltered clefts of Steep Holme on this sunny afternoon to see the autumn fruitfulness of this interesting old plant. It grows well here, Mr. Riall having given me seeds and plants of it two or three years ago.

Crinum Powellii.—Not long ago there was in these columns a notice of this plant having flowered profusely (as is its wont) in Mr. W. E. Gumbleton's garden at Belgrove, and yesterday a lady amateur sent me flowers of it from her greenhouse, wherein she has grown it as a pot plant for

two years. The plant is perfectly hardy, however, in London; in fact, in all but the coldest of localities on low-lying or naturally wet soils. Messrs. Henderson, who sent out this new beauty, and one of the finest of its race, tells me that "it was obtained by crossing *C. Mooreanum* with *C. capense*. In general habit it closely resembles *C. Mooreanum*. Its stout flower-spikes, which rise to a height of 3 feet, bear from twelve to twenty flowers, each 6 inches in diameter. They are produced in August and September, and last a long time in perfection. Colour, blush white to rose. There is no doubt about the hardness of this lovely *Crimum*, for the whole stock has been growing in the open ground ever since they were seedlings, without the slightest protection." Fine as are the varieties of the old *C. capense* (*Amaryllis longifolia*), when well grown the white and rosy forms of *C. Powellii* are superior, and well deserving of culture in all good gardens. The late Mr. Sigismund Rucker grew one or two species remarkably well in his garden on the West Hill, Wandsworth, and I remember he had a novel way of protecting their roots from the frost during winter by covering the earth above them with a heap of large pebbles, which kept the soil dry, and no doubt conserved much sun heat into the bargain.

Golden Daffodils.—"What a singular time to publish plates of *Narcissus*!" someone said to me the other day; and at first sight no doubt the spring, when the flowers themselves are in bloom, does seem a more appropriate season for their portraits to appear. But are we to forget our old friends because they are now doing their best for us underground, albeit the harvest of their labour cometh not until the spring? Besides, all who would have Daffodils golden in the spring must not forget that, if not already done, now is the time to plant *Narcissus* of all kinds. Beginners in Daffodil culture may take the following as really good showy kinds, which will give no trouble for years after being once well planted in good soil, viz., *N. maximus*, *N. Emperor*, *N. Horsfieldi* (now more abundant and cheaper than its parent, *N. bicolor*), *N. Empress*, *N. princeps*, *N. obvallaris*, *N. Telemonius* fl.-pl., *N. spurius*, *N. nanus*, and *N. major*. Of true *Narcissus*, *N. poeticus* in variety, especially *N. ornatus* and *N. poeticus* fl.-pl., *N. incomparabilis* in variety, single and double. All are good and hardy.

Bananas for dessert.—Imported Bananas are cheap enough in most large towns, but they are nevertheless worth culture in all large gardens where heated glasshouses are plentiful and the fruit itself is appreciated. Apart from the delicate flavour of a well-ripened Banana, it is, perhaps, one of the most nutritious of all edible fruits, and it may be eaten even by invalids to whom most other fruits are forbidden. One advantage possessed by the dwarf Chinese Banana (*Musa Cavendishi*) is its extreme fertility. Single plants will produce a cluster of fruit varying from 25 lb. to 90 lb. in weight. At Carton the other day we saw a dozen plants in one of the hothouses, seven of which were fruiting at a year old, and their clusters, at the very lowest computation, will average 30 lb. each. Apart altogether from utility, the Banana is one of the most strikingly beautiful of all tropical plants, and where use and beauty are so intimately connected, it is a pity not to take every advantage of the union whenever it is possible so to do.

VERONICA.

Insects by post.—It may be useful to some of your correspondents if I direct their attention to the best way of packing insects, &c., so that they may travel safely by post. I frequently receive specimens in such a crushed condition, that it is impossible to do more than hazard a guess at what they may be. The Post Office officials seem to consider it a point of honour to smash, in the process of stamping, any box that is smashable, so that anything fragile packed in a light chip or paper box is sure to be more or less injured. The best remedy is to tie on a label with the address

and stamps on it, so that the stamping does not touch the packet. The label should be fastened on with a different string from that with which the box is secured, so that in the event of its becoming loose that which secures the packet will still be in its place. When an address is attached in this manner a card or chip box will generally travel safely. I always write the address on the cover of the packet as well, so that in the event of the label being torn off it will still reach its destination. This is a very necessary precaution. —G. S. S.

TWO GLAMORGANSHIRE GARDENS.

I HAVE already given my impression of one of these, Penllergare, and, if I have done nothing else, hope that I have shown your readers that it is one out of the common run and deeply interesting to horticulturists, whatever branch of that science they may have taken up; in many respects the garden of which I am writing is still more remarkable, and if I can but give your readers any idea (however faint) of it I think that they will agree with me on the verdict I have pronounced upon it.

Singleton, the residence of Mrs. Vivian, is situated quite close to the bustling town of Swansea, which, with its neighbour, Landore, is the centre of a large portion of the industry of South Wales. The dense volumes of smoke which continually settle over the town, but more especially over Landore, would seem to suggest great difficulties in the way of vegetation, but happily the prevailing wind does not set for that quarter. Singleton faces the south, close on the shores of Swansea Bay, and has a beautiful view of the well-known headland, "The Mumbles," and the ever-varying character of the view gives it a great charm. As I saw it, the sea was calm as a millpond; but we know, alas! how on these coasts it is easily lashed into fury under the power of a south-west gale. Influenced as all this coast is by the Gulf Stream, many things, as I have said when writing of Penllergare, can be grown here which we with our warmer summers cannot attempt, and the cultivation of the Himalayan *Rhododendrons* has been carried on with great vigour and success. The character of the gardening may be gathered from an expression of Mrs. Vivian, who said: "I do not care for bedding out, but much prefer mixed borders." Large Myrtles flourish here, and a fine plant of *Pittosporum Tobira*, with its fragrant white blossoms, which are said to be used by the Chinese for bridal ceremonies in preference to Orange blossoms, covers one side of the house. The beds are filled with various kinds of flowers, and amongst them sweet smelling ones of many kinds, for Mrs. Vivian is clearly of Lady Corisande's opinion, and does not care for a brilliant garden without perfume. The walled-in gardens are very large, and I have never seen gardens where utility is so much studied; they serve to show how much can be done, even where appearances are somewhat against them, for, although there is a large amount of glass, a good deal of it is very old, but it is difficult anywhere to find glass more thoroughly utilised. The Pine pits contained a most healthy and beautiful collection of plants, both fruiting and succession, and this is not to be wondered at when one recollects that Mr. Harris has exhibited some of the most perfect Queens it is possible to see from time to time in London, only in July last obtaining the silver medal of the Royal Horticultural Society for nine Queens, which were the perfection of growth. It is a pleasure to see Pines well done, for there is no doubt that their culture is decreasing very much, it is said sometimes, because those who grow them can obtain such fine ones from St. Michaels; but I fancy there is another way in which these St. Michaels Pines have affected it. Formerly the growers of Pines used to recoup themselves of some of the expense by selling their surplus in Covent Garden, and in days when they were fifteen shillings a pound, and when "Pines lent out on hire" used to be a label in a fruiterer's shop in Piccadilly, no doubt this paid well; but now when but a moderate price only can be

obtained, and fine St. Michaels in the height of the London season can be had for ten to twelve shillings apiece, it does not pay, and hence Pine growing has been given up. In the Peach houses and vineries the same excellent results had been obtained, and on the walls, which are very high and fine, there were some fine trees with a good crop of fruit. Mr. Harris had been reducing the depth of the borders, so as to give the roots the more benefit of the sun, of which there is not too much in Glamorganshire. By-the-by, he mentioned a fact which I have never heard before, viz., that the squirrels come down over the walls and take the Peaches (he had seen them do it), and says that they do not, as one might have supposed, do it for the sake of the kernel, but that they regularly devour the fruit.

The house in which the Ferns were grown presented a picture of plants in the most perfect state of health, but I must not linger over the many good and pretty things I saw here, for I would wish to write especially of those which constitute its chief glory—the Himalayan *Rhododendrons* and the Conifers. One may find stove and greenhouse plants, Ferns, and fruit anywhere, but it is not everywhere that one can see such plants and trees as are to be seen here, and when they are in flower the sight must be indeed a glorious one. When the British Association met here some forty years ago, amongst those who were the guests at Singleton were Sir Wm. Hooker and other gentlemen interested in India. They afterwards sent some seeds of the best of the *Rhododendrons* to Mrs. Vivian, and from these the plants that now adorn the grounds at Singleton were raised, and a continued process of seeding and increasing them is going on. Thus in one place in the grounds there was a large bed of seedling plants of *barbatum*, *eximium*, *campanulatum*, and many others, and it was interesting to notice that even in those characteristics which serve to mark the species, as in *barbatum*, there was still a divergence. I do not profess to know about them, but my friend Mr. Llewellyn, who kindly took me to see them, seemed much interested, and talked learnedly concerning their distinctions. There I could not follow him, but I could admire the stately beauty of the plants. It may give some idea of what these plants must be in spring if I give the measurements of some of them as kindly supplied to me by Mr. Harris: *R. barbatum*, 20 feet high, average diameter of the head of the plant, 20 feet; *R. arboreum* (pink variety), 19 feet high, and diameter 20 feet high; *Falconeri*, 18 feet high and 17 feet through; *eximium*, 19 feet high and 15 feet through; *Thomsoni*, 15 feet high and 15 feet through; *niveum*, 15 feet high and 12 feet through; *lanicifolium*, 12 feet high and 10 feet through; *fulgens*, 10 feet high and 12 feet through. There are many other varieties, but in smaller plants; but imagine what must be the sight when twenty large plants of *Rhododendron barbatum* are in flower; it must indeed be a gorgeous sight. There are in various places through the plantations and in the pinetum—let no one be disconcerted when I mention a pinetum. I do not mean that abomination of desolation where single plants of Conifers are stuck out on a lawn or piece of meadow in a position in which they are never seen in nature. No, the pinetum at Singleton is not of that kind; the conifers are planted amongst sheltering deciduous trees, while underneath are Azaleas, *Rhododendrons*, *Kalmias*, &c.; the effect is consequently something like that of Dropmore on a small scale. Having recently visited that charming place, it was difficult to imagine that anything in the way of Conifers would much interest one, but I was thoroughly interested in those at Singleton. Nothing could be more different than these two places—one on the top of a hill far inland, the other on level ground close to the sea; and yet although those at Singleton have not attained the height of the Dropmore trees, they are very grand specimens. I give the measurements of some of the species, their height, and their girth at one foot from the ground—*Abies Albertiana*, 75 feet and 4 feet 4 inches in girth; *A. Menziesi*, 68 feet and 4 feet round; *A. Morinda*, 67 feet

and 4 feet round; *A. Douglasi*, 70 feet and 4 feet round; *Araucaria imbricata*, 52 feet by 4 feet 6 inches (there were some beautifully feathered specimens of this tree); *Cryptomeria japonica*, 35 feet high by 4 feet round; *Cryptomeria Lobbi*, 56 feet high; *Picea grandis*, 68 feet high and 4 feet round; *Picea cephalonica*, 58 feet by 3 feet round; *Thuja borealis*, 35 feet high; *Araucaria chinensis*, 45 feet high; *Taxodium* or *Sequoia sempervirens*, 65 feet high by 8 feet 2 inches; *Wellingtonia gigantea*, 57 feet high by 8 feet; *Pinus insignis*, 76 feet by 8 feet. Nor did these trees appear to have suffered in any way from the south-westerly gales; they had been so skilfully planted with sheltering trees that they have withstood their influence, and now are quite able to take care of themselves.

There are many things in Singleton that are deserving of notice, but these two constitute its glory—the *Rhododendrons* and *Conifers*; and there are few places in England that I know of that can be compared with it. *Dropmore* is grand, its *Conifers* unmatched, but the *Rhododendrons* are not there. Lord Stair's place at Inch Castle comes to one's mind, on the south-west coast of Scotland, and in the number of its *Conifers* it rivals Singleton, but then there are not the grand specimens of either *Rhododendrons* or *Conifers* that exist here, and altogether it is a place of which any owner might be proud, and any gardener be thankful to have under his care. Mr. Harris evidently rejoices in its beauties, and endeavours to bring his skill and intelligence to bear on the special objects of his culture.

Before concluding my remarks on these two gardens, I may add that I thoroughly endorse what "Cambrian" has said about the *Philesia buxifolia* at Penllergare. It is an exquisite plant, and the blooms bear a striking resemblance to small blooms of *Lapageria rosea*. I can also endorse all that has been said about *Olearia Haasti*, for I saw a fine plant of it at Singleton which had evidently been one sheet of bloom, and which Mr. Harris stated had been a perfect sight. DELTA.

BOOKS.

THE GRAPE VINE.*

WHAT, another book on the Grape Vine! One last year, and two this, on the same subject; we shall soon begin to think that horticultural authorship is profitable, though hitherto our notions have been of an opposite character. The public must, however, be the best judge of how many treatises on the Vine are wanted. One thing, however, may be safely said, and that is that this last comer will not be the least popular of the three. Mr. Simpson is well known as a good general cultivator, and on the Grape Vine is a persistent advocate of what some would term heretical opinions, particularly with regard to temperatures and pruning; in this latter respect he is what one may term a long-rod man—that is, he does not believe in cutting back young Vines to the usual 2 feet or 3 feet the first year after planting, but leaves them 15 feet or more long, and argues, with some degree of reason, that it is waste of energy to prune so severely as is generally done. There can be no doubt that the plan in skilful hands is an excellent one for furnishing a house quickly with fruiting wood, but in unskilled or careless hands this long-rod pruning would prove a failure, through neglect as regards ripening the canes, and not removing laterals at the right place and time. All interested in the subject would, however, do well to read what Mr. Simpson has to say ament a practice, which he himself carries out successfully. As to temperatures, the cool system is not to our mind. We have tried both plans, fortunately the cool one, on a very limited scale. It did not pay, and our impression is that it will not do so in the long run, even in Mr. Simpson's hands. There can be no doubt that it is due to his persistent advocacy of lower temperatures that we have got out of the stereotyped temperatures of fifteen or twenty years

ago, when in all weathers the thermometer must be at a certain point; no thought then of regulating temperatures in accordance with the outside air. With that reform Mr. Simpson would do well to be content, and not go in for the impossible (at any other place but Wortley), namely, of 50° and 55°, as a temperature in which to set Muscats; ours always require, and have, at least 20° more warmth, and thus only can we get a good set.

MR. SIMPSON, we believe, was the first to practise and make known the plan of propagating the Vine on turves, and in the chapter on propagation we have particulars of it, as well as of planting, all of which matter will be found of real value to inquirers in reference to Vine culture. A chapter is devoted to the various modes of heating and aerating borders, a large portion of which will prove suggestive to those who have to grow Grapes in cold localities as to what plan to adopt of artificially warming the borders. For our part, we could have wished that the mode of heating borders for hot-water pipes had been as conspicuous by its absence as it is by an illustrative drawing showing how it should be done. We must say, however, that the author's recommendations to adopt the plan are of a very negative character. Our experience is that when borders are covered early in November with 18 inches thickness of leaves, no other means of imparting warmth to them need be taken.

The remarks on heating, and the illustrations showing a plan of distributing the pipes over the entire houses, instead of the more common way of placing them at the lowest part, will give an impetus to a much needed reform in that direction. Indeed, taken as a whole, we may say that the work is a valuable addition to horticultural literature, and the author being well known to be a skilful gardener, it is certain to have a large circulation. H. W.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 312.)

HYMENOPHYLLUM DICHOTOMUM.—This pretty dwarf-growing species from Chili is particularly striking on account of its unusually beautifully crisped and transparent characters which distinguish it from any other species in cultivation. Its fronds, which are of a deep dark green colour, are highly divided, and seldom reach more than 5 inches in length; they are borne on erect-winged stalks, and sharply toothed or torn at the edges. It is a little plant which delights in sending its tiny little rhizomes through a coating of Moss covering either a piece of rock or a block of wood or Tree Fern.

H. DILATATUM.—This New Zealand species is undoubtedly one of the largest growing as well as one of the noblest habited plants belonging to this charming genus. Its beautiful and extremely translucent fronds, of a pale green colour, sometimes measure 18 inches and even 20 inches in height; their habit is particularly graceful, as they are borne on erect-winged stalks, but the weight of their broad pinnæ causes them to droop gracefully. They are three times divided, broader than most other *Hymenophyllums*, and their segments, attenuated and elegantly drooping, give them a very handsome appearance. This remarkable species is particularly fond of growing among Moss and in partly decayed vegetable matter. Although not a tomentose species, it is one which nevertheless suffers very much if wetted overhead at any time.

H. ELASTICUM.—A graceful and very lovely species found in great abundance in the Mauritius and Bourbon Islands, where the trees get completely covered with its somewhat upright or curving thrice-divided fronds, ovate-acuminate in shape, and of a most delicate and curiously elastic texture. It is a very rare species in cultivation, and one which does not like wet overhead.

H. ELEGANS.—This is a most interesting species from Jamaica, possessing a most delicate appearance; its numerous fronds, which grow from

6 inches to 8 inches in length, are only pinnate and of an extremely soft, velvety texture; they are pendulous and have slender or simply forked linear divisions. It is one of the numerous kinds which enjoy their rhizomes pushing through a thickness of Moss which may cover either a piece of stone or a block of wood.

H. FLEXUOSUM.—Although this New Zealand species somewhat partakes of the habit and general appearance of *H. crispatum*, also a New Zealander, it is easily recognised by its much more robust fronds, which are also a great deal more crisped. It is altogether a more robust and more plumose form, its handsome fronds attaining sometimes 12 inches in height; these are also much more divided, tripinnatifid, and everywhere beautifully undulated; they are of erect habit and of a very dark green colour. It is a species whose wiry little rhizomes delight in decayed Moss and vegetable matter, and also one of the few which do not mind being wetted overhead.

H. FUCIFORME.—An exceedingly handsome Chilean species of a habit totally different from that of any other *Hymenophyllum*. Its beautifully waved fronds, which partake somewhat of the character of those of *H. caudiculatum*, are quite erect and of a bluish green colour, which is also distinct from that of any member of the genus; they are three times divided, and sometime attain 15 inches to 18 inches in height by about 4 inches in breadth at their base; they are produced on thick decumbent rhizomes, which have all the appearance of crowns, and are borne on rigid and broadly-winged stalks from 2 inches to 4 inches high.

H. HIRSUTUM.—This extremely delicate, dwarf-growing, scandent West Indian species forms on trunks of trees a closely matted covering of wiry thread-like rhizomes, producing in great abundance narrow, twice-divided, pale, woolly fronds of a very transparent texture; they seldom attain more than 4 inches or 5 inches in length, and are clothed principally on their edges with soft white and tawny hairs. This species succeeds best on a block of wood, and requires a very humid, but airy situation and great care must be taken at all times that no water touches the fronds.

H. HIRTELLUM.—A very pretty and delicate species from Jamaica with rather open, tripinnatifid pale green drooping fronds. In general habit it partakes somewhat of the appearance of *H. hirsutum* and *ciliatum*, but it is stronger and more pendulous than either of these West Indian species. The fronds, which are also produced on very tiny rhizomes, sometimes attain 10 inches in length and are clothed all over with soft white or tawny hairs; they are borne on short, erect, round stalks. Like the preceding one, this is a species where watering overhead must be carefully avoided.

H. INTERRUPTUM.—This very fine West Indian species is very rarely seen in cultivation, although it well deserves all the care and attention that can be bestowed upon it, as it has a unique and peculiar appearance produced by its twice-divided narrow fronds growing from 18 inches to 30 inches long by 2½ inches wide, and densely clothed with soft tawny hairs.

H. MAGELLANICUM.—This is a fine Chilean species, also found in the island of Chiloe, where rocks and trees are completely covered and embellished with its broadly ovate or attenuated tripinnatifid fronds of erect habit, and of a pale and rather dull green hue. They grow from 5 inches to 8 inches high, and are densely hairy and toothed along their edges. It is also sometimes known as *H. attenuatum*, and dislikes water on its fronds.

H. NEESI.—A thoroughly distinct and still very rare species from Java, with three times divided fronds, ovate in shape, and of erect habit. They seldom attain more than 3 inches in height, but are rendered very interesting by the margins of their segments being serrated with soft jagged teeth, and being besides deeply undulate.

H. OBTUSATUM.—This is an extremely scarce Chilean species of peculiar growth and very dwarf habit. The peculiarity of the growth is that, contrary to nearly all other species, it takes place in

* "The Grape Vine: its Propagation and Culture." By J. Simpson, Wortley Hall, Sheffield. London: J. Routledge.

the autumn and winter, when its exceedingly pretty, broadly ovate fronds are produced in great abundance, and form an extremely handsome covering for a piece of half-decayed wood. They are of pendulous habit, but seldom reach more than 3 inches in length; they are three times divided, with broad and deeply-cut pinnæ. The whole frond is highly tomentose, and on that account the plant is strongly averse to water overhead.

H. PECTINATUM.—A Chilian species of great interest on account of the essentially peculiar shape of its handsome fronds, and one of the most beautiful of the whole genus. No description, however complete, can do full justice to the elegant appearance of its linear, oblong, pinnate fronds of a greyish green, and with very conspicuous and beautiful veins throughout the pinnules, which, being restricted to the upper side of the pinnæ only, give the plant an uncommon and quite combe-like appearance, from whence its name is derived. Its lovely fronds sometimes attain 8 inches in length, and are beautifully arched; they are highly tomentose in their young state, and when half developed require a great deal of water at the roots.

H. PLUMIERI.—This is a very fine and one of the few species native of Brazil, with somewhat of the general appearance of *H. ciliatum*, from which it essentially differs, however, by its much larger fronds attaining sometimes 8 inches in length; these are also more remote than those of *ciliatum*, and, besides, having also less deeply-cut pinnæ they are serrated on the margins, and of a dark green colour. It is a species requiring an exceptional amount of moisture at the roots.

H. POLYANTHOS.—A very pretty and widely distributed Fern, being found in New Zealand and also in the West Indies, forms from both habitats being exactly similar. It is provided with exceedingly fine wiry rhizomes, which delight in finding their way through half-decayed vegetable matter; on that account it makes a beautiful and very interesting object on a block of wood, as it is in that way that its erect or curving tripinnatifid fronds show themselves to greatest advantage. They seldom, if ever, exceed 6 inches in length, and often measure 2 inches at their widest part; they are of a smooth dark green colour, and borne on round, wiry stalks. This species does not require such a close temperature as most Hymenophyllums do; the most airy place in the house suits it best.

H. PULCHERRIMUM.—As its name implies, this comparatively rare New Zealand species is very handsome. Its beautiful fronds, which are abundantly produced from a thick and closely-set crown, are four or five times divided and of a very graceful habit; they are not exactly pendulous, but being, as they are, borne on robust, winged stalks, they are partly erect, and then the weight of the fructification causes them to arch over in a most agreeable manner. They often grow from 12 to 15 inches in length, and are of a bright lively green colour. It is a species which requires to be kept very moist.

H. RARUM.—This pretty, close-growing species is found in Chili, New Zealand, and Tasmania, where it naturally covers stems of Tree Ferns with a densely matted mass of little fronds resembling those of our own indigenous species *H. tunbridgense*, but narrower, less divided, and only of 2 inches or 3 inches high. That little species particularly objects to being watered overhead at any time.

H. SCABRUM.—A really beautiful and very distinct New Zealand species, and one of the most decorative of the whole genus on account of its splendidly arching fronds, which sometimes attain the height of 12 inches to 15 inches, being produced in great abundance from very wiry rhizomes, which have a very particular dislike to being left underground; these graceful fronds are three or four times finely divided, and somewhat of a heavy nature, especially on the edges; they are of a dark green colour, which, however, makes a very pleasing contrast with the pale chaffy hairs cover-

ing the rough, erect, round stalks on which they are borne. This handsome plant is particularly averse to be wetted overhead, although it requires much moisture at the roots and rather an airy place in the house.

H. SERICEUM.—This is undoubtedly one of the most remarkable of the West Indian species in cultivation, and it is as beautiful as it is distinct; for its splendid pinnate fronds are produced in such abundance as to quite cover the shady rocks upon which, in its own country, it grows apace. These fronds, which sometimes attain 2 feet in length, measure from 2 inches to 3 inches in width. They are thus exceptionally long, narrow, and pendulous, and rendered greatly attractive by the pinnæ being covered with a tawny and dense silky down, which in its young stage is of a peculiarly light or whitish hue. This extremely beautiful plant, although requiring a great amount of moisture, is particularly averse to having its long, flexuose, and woolly fronds wetted. The material most suitable to its growth is a lump of sandstone, or any other porous stone over which it will run freely, without, however, clinging to it.

H. TUNBRIDGEENSE.—This is one of the smallest and most interesting of the whole genus, and it possesses additional attraction from being an eminently British Hymenophyllum. Although very scarce at Tunbridge Wells now, it used to be plentiful there as well as in Devonshire, at Westman's Wood, Beckley Fall, Dunsford Bridge, and other places; it is in Yorkshire, although not very frequently, it used to occur at Greenfield, near Saddleworth, and near Halifax. It is at the present day found in great abundance in Ireland near the upper lake of Killarney, and in the county of Wicklow, at Powerscourt Waterfall, Glencree, &c.; in Wales near Cader Iris and Dolgelly; while it occurs frequently in Scotland, especially in the vicinity of Oban. But it is not only in the British Isles that *H. tunbridgense* may be considered indigenous; it is also of a cosmopolitan habit, being often imported from Madeira and the Azores, where it covers the short stems of *Balanium Culcita*. It has also been found on the Himalayas, and lately it has been discovered in great quantities in Japan. However spreading and flourishing we meet with it in its native state, often covering large surfaces of rock and stone open to the action of all kinds of weather, we find when an attempt is made to cultivate it that it is one of the most difficult of all Hymenophyllums to manage. It is a dwarf, compact, elegant little plant with very tiny, wiry rhizomes producing rich dark green pinnate fronds very rarely exceeding 4 inches in length. It does not like water on the fronds, and grows equally well in a mixture of equal parts of peat and silver sand or on a block of sandstone, the principal object being to have it pressed hard on to the material upon which it is expected to grow.

H. UNILATERALE (Wilsoni).—This species, although generally known as the "Scottish Filmy Fern," has been at different times found in several places in England—near the waterfall above Ambleside, at Black Rocks of Great End, in the Scawfell Range, near Buttermere, near Saddleworth, and near Silverdale. It is also a native of Wales, where it is met with on Snowdon, near Llanberris Pass and on the adjacent mountains, especially near Twll Du and on rocks near the Rhydol. It is also found in several parts of Ireland, such as Killarney, the Kerry mountains, and Connemara. It differs from *H. tunbridgense* in being longer and more rigid in growth; in fact it is of quite erect habit. The fronds, which are pinnate and of a deep green colour, are borne on stiff, wiry, little round stalks, almost black, which form a singular, yet pleasing, contrast with the transparency of the pinnæ. Powdered sandstone mixed with a little peat is the compost in which *H. unilaterale* thrives best.

H. VALVATUM.—This is a charming West Indian species, provided with exceedingly slender, wiry rhizomes that produce rather sparingly ovate, attenuated, thrice-divided fronds of an intensely dark green; these grow from 8 inches to 12 inches long, and are in all their parts beautifully undulated; they are borne on slender, black, wiry

stalks, which in a young state are quite hairy. The growth of this species is peculiar, as it takes place in autumn and winter when nearly all the others are comparatively resting. Although not of a hirsute nature, it greatly dislikes water on its delicate and exceedingly transparent fronds.

PELLÆA.

PLANTS IN FLOWER.

Tropæolum tuberosum comes to us in brilliant condition from Mr. Kingsmill, who was the first to show how admirable this plant is as an autumnal bloomer in the open garden.

Pelargonium Hon. Mrs. Oakeley.—A new seedling Zonal Pelargonium has been sent to us by the raiser, Mr. Roberts, Tan-y-Bwlch, Merionethshire, which we consider to be a very fine and distinct variety. The flowers are double, borne in massive trusses, and the colour a glowing crimson-magenta and very striking. Even among the hosts of Zonals we already have in gardens there is still room for such a fine kind as this.

Begonia Knowsleyana.—This is, I consider, one of the very best varieties for summer or winter flowering. I have just thrown away some plants of it that have produced a succession of bloom the whole summer through simply by cutting them over a few at a time. The winter plants are now flowering profusely, and will continue to do so until the turn of the year.—W. SPINKS.

The shrubs in flower in Mr. Stevens' garden at Byfleet at the present time include *Hypericum oblongifolium*; *H. kalmianum*; *Escallonia rubra*; *Spiræa salicifolia*, with dense clusters of pink flowers; *Berberis Darwini*; *Indigofera elegans*, a pretty Pea-flowered shrub; *Veronica speciosa imperialis*, very fine; and two Mexican *Stevias*, both with white flowers, and much resembling a *Eupatorium*. Specimens of these have been sent to us by Mr. Stevens, as well as of several others—sufficient to show that, even in the middle of October, bloom may be found amongst hardy shrubs.

Ceanothus Gloire de Versailles.—One of the chief attractions in the Horticultural Gardens at Chiswick at the present time is a large bed, consisting of dwarf bushes of this, the most beautiful and valuable of all the blue varieties of *Ceanothus*, intermixed with a pale pink variety named *Lucie Lemoine*, which seems to possess all the good qualities of *Gloire de Versailles*. These are, moreover, the hardiest of all the *Ceanothuses*. They are varieties of or hybrids from the Mexican *C. azureus*. As an isolated mass on a lawn for producing an autumn effect there are few more desirable subjects than these two *Ceanothuses*.

Aster salsuginosus.—This Californian *Aster* is not new, but, nevertheless, rather an uncommon plant in gardens. It is pretty, and reminds one strongly of *Erigeron speciosus*; in fact botanists regard it as lying between *Aster* and *Erigeron*. It grows from 6 inches to 18 inches high, and is rather loose in growth. Its flowers, about the size of a crown-piece, possess numerous narrow florets of a pale violet-purple. It is a perennial and tolerably hardy, as it inhabits high alpine meadows in the Sierra Nevada at elevations reaching to 10,000 feet. Mr. Stevens brings us a fine specimen of it from his garden at Grasmere, Byfleet.

New seedling Dahlias.—We have received from Mr. C. L. Teesdale, Whyke House, Chichester, four seedling Dahlias that he has lately raised. They are all beautiful and distinct from any others that have come under our notice. There are two among them which we consider quite new departures from the ordinary run as regards colour, and, moreover, exquisitely beautiful. One has moderate-sized blooms with pure white flat florets broadly edged with a deep rosy purple—a most charming combination, and one that we have not seen before in a single Dahlia. The other that most attracted us has blooms very similar to that sent us by Mr. Westland last week, being quite as large and with broad florets of thick texture. The colour differs in having the margins of the deep maroon-crimson florets of a deep shade of reddish crimson, there being more orange in the floret edgings in Mr. Westland's seedling. These two are decidedly worthy of names. Among the

others is one having blooms with salmon-pink florets, merging into a bronzy yellow towards the centre. This is a lovely variety and one that some would admire more than all the rest, but we have seen some named sorts very similar. The other seedling sent has large broad florets of a deep plum purple, distinctly edged with pale purple. It is likewise a first-rate variety, though somewhat in the way of others to be seen in collections about London.

Tournefortia heliotropioides.—This is a pretty Borage-wort comparatively little known, though a desirable plant for the autumn border. It so much resembles the common Cherry Pie or Heliotrope, that it might be easily mistaken for it, but its foliage is narrower, and the flowers lack the pleasant perfume of Heliotrope. The *Tournefortia* is a native of Buenos Ayres, where it is an evergreen perennial, but it is sufficiently hardy to admit of its being grown in the open air in this country treated as a half-hardy annual. A good broad mass of it has a pleasing effect in mixed borders. Mr. Kingsmill brings it, along with other good autumn flowers, from his garden at Eastcott, Pinner.

Schizostylis coccinea.—The most remarkable examples of this beautiful autumn flower we have seen have been brought to us by Mr. G. F. Wilson from his wood garden at Wisley. The stems are no less than $2\frac{1}{2}$ feet in height, and are furnished with foliage almost as tall and of proportionate breadth. The flower-spike itself is some 7 inches or 8 inches long, and carries no fewer than sixteen flowers, and on each spike there are five expanded blooms of much larger size than ordinary and of a rich crimson colour. These specimens show what a beautiful and valuable autumn flower this is when grown as these specimens have been. It would be interesting to know if these plants have received any particular treatment, and whether they have been grown in shade or sun.

Four good double Begonias of the tuberous-rooted race have been sent to us by Mr. R. Veitch, Exeter, and are all seedlings raised at his New North Road Nursery. All are first-rate sorts, remarkable for the large size and good form of the rosette-like blossoms and the fringed margins to the petals, which is quite a peculiar feature in all four. The names are White Lady, flowers 2 inches across, very full, perfect in shape, and pure, without the faintest trace of colour; Sulphur Queen similar, except in colour, which is a delicate sulphur-yellow; Exonian having large rosette-like blooms of a soft salmon-pink colour; and the fourth, named Perfection, is of a brilliant carmine-red. As regards the blooms as we see them, these sorts leave nothing to be desired, but of course we cannot judge of the habit of growth, floriferousness, and other essential points that constitute a good double tuberous Begonia.

Lisianthus Russellianus.—This has been very finely in bloom for many weeks in a cool house in the Botanic Garden, Cambridge. The flowers are almost as rich in colour as those of *Pleroma elegans*. Though well grown plants of it are extremely floriferous, and though it is one of the most valuable subjects we have for conservatory decoration in summer, yet it is rarely met with, though quite equal, and even superior, to many things grown every year in many gardens. It is accounted a difficult plant to grow, and it is so if right treatment is not accorded it. The most important point is to give it a proper temperature; it does not flourish in a stove where I have placed plants of it by way of experiment. It will not grow in a greenhouse except in summer when in a flowering state; the right place for it is in a house with an intermediate temperature. Here it does well, and it also succeeds in a hotbed fit for raising seeds. Some conditions it requires as a matter of course, such as careful watering, a position near the light, and care as regards the roots, which cannot be trifled with in a way that those of many seedlings will allow. Thrips are serious enemies to it; they soon find it out, and soon do so much injury that the plants thus attacked are only fit to be thrown away. As to soil, it does well

in about equal parts of peat and loam, with an admixture of sand. The seeds may be sown in autumn, but not very early, as the young plants attempt to flower and become spoilt, or they may be sown in March, which is perhaps as good a time as any. In the latter case I should sow the seeds in a house and take the young plants to a hotbed when it is in a condition to receive them. By sowing thinly the seedlings are easily moved without tearing the roots asunder. When large enough to handle easily plant three in a 3-inch pot against the sides, and manage to give one shift before they are finally put into rather larger than 6-inch pots, which should be done just before they may be expected to flower, so as to assist the bloom and help to promote active root growth. In the first potting or the second it is well to consider the sizes of the pots to be used, or it sometimes happens that a shift must be given, which is either too large or too small.—R. IRWIN LYNCH.

Aster tanacetifolius.—Some flowers of this beautiful and comparatively little known species have been brought to us by Colonel Stuart Wortley from his garden at St John's Wood, where he has had this Aster in bloom since midsummer. It is distinct from all the other Michaelmas Daisies in several points. It is only of biennial duration, and does not grow much more than a foot in height, and, moreover, its foliage is deeply divided, somewhat similar to that of the Tansy. The flowers are about $1\frac{1}{2}$ inches across, of a delicate mauve-lilac colour with the usual yellow disk. It is a native of the south-eastern parts of California and extends to New Mexico; hence it is somewhat tender, but sufficiently hardy to flourish in the open air in summer. Such a pretty plant as this is well worth the trouble of raising yearly. The seeds should be sown in spring and the plants wintered in a frame and planted out in spring. Colonel Stuart Wortley brought the seeds from America some few years ago, but seeds of it may now be obtained from seedsmen. An older name is *Machaeranthera tanacetifolia*.

Seedling Dahlias.—I send you blooms of some seedling single Dahlias that I have raised; their colours are not so bright as they have been, the blooms having had several slight touches of frost lately. We had 3° here this morning (October 12), and the flowers sent were cut at 1 a.m. with the dew on them at freezing point; in fact, several of the leaves were quite crisp even then. The flowers sent are selected from about 250 seedlings, scarcely two of which are alike. Some of the best are not in flower just now, but some of them were superior to many of the named kinds.—ALFRED LODGE, Brougham, Penrith

* * Among the flowers sent were some excellent sorts, bright and well varied in colour and of good form. It is, however, a difficult matter to judge of the merits of seedlings by seeing the blooms only, as the all-important point of habit of growth and floriferousness must be taken into consideration. The list of good single Dahlias has now become so long, that new seedlings must be remarkably fine in order to be worth naming. What we want now is a little more diversity in colour, and seedling raisers should keep that in view.—ED.

Chrysanthemums Maize and Lady Selborne.—I send you a few flowers of a Chrysanthemum called Maize, a very free-flowering variety, useful for every purpose for which white flowers are required. I have been cutting this same sort for nearly a month, and have just brought the last plants of it under cover, and they will be useful for some time to come. In the case of this sort I do not thin the buds, and the fine bunches of flowers which it produces are quite surprising. I also send the new Lady Selborne, another fine variety, which has just opened its first flower. A number of plants of this should be grown by everyone requiring white flowers, which it furnishes until Mrs. Rundle and Elaine come in. Lady Selborne is a very free flowerer and grand variety, but in its case the buds must be carefully thinned, in order that each individual flower may have room to develop its quaint and characteristic

Elaine-like form. The third sort I send you is also a beautiful and useful kind. It is rose coloured, exceedingly free, a really clear and bright tone of colour for an early Chrysanthemum, and it is beautiful, too, by artificial light. Its name is Aureole.—W. SPINKS, Royal Nurseries, Harborne Road, Birmingham.

* * The three Chrysanthemums sent are beautiful indeed. The variety called Maize is the best early white-flowered sort we have seen, the blooms being large, pure white, and abundantly produced. Lady Selborne is becoming a favourite everywhere, although sent out only a year or so ago—a fact which shows how rapidly a good plant becomes disseminated. It is a sport from James Salter, and is the counterpart of it, except that the flowers are pure white. Its long, curled florets render it deservedly much admired. The Aureole variety is likewise a good one, but not so distinct as the other two, there being several older sorts of a similar colour. Its floriferousness, however, makes it a desirable plant.—ED.

A SEVILLE HOUSE GARDEN.

THIS pretty sketch reminds us of the charming fashion of certain countries, in which plants are introduced in the house or in the half-open court which the house surrounds. In these warmer countries than ours the cool and refreshing verdure and the splash of the fountain, or the presence of water in some form or other, are appreciated to a degree which we can hardly understand here. Apart from these considerations, pleasantly suggested by the sketch, the beauty of the form of the plants is worth noticing. It shows well the importance and value of fine form and abundant and graceful verdure. Three barrowfuls of good flowering plants in such a scene, and relieved by the fine foliage, will produce a better effect than a quarter of an acre of the plant-in-red-pot-on-stage business. However, the battle of the fine-foliaged or graceful plants has been won long ago. It is the abolition of the ugly, costly, and wearisome stages, with their red pots, that is now to be desired. Many a wretched greenhouse would be endurable if the whole of the staging were carried out and some good plants placed in groups on the floor. We now refer mainly, of course, to glasshouses near the dwelling-house and all having any pretension to be a conservatory.

CARTON.

LOVELY warm sunny days here now. Went to Carton and Straffan last Tuesday and enjoyed the fresh air among the Pine and Fir plantations. What a grand old place the late Duke of Leinster made of Carton! The Dogwood (crimson), Golden Elder, and Abele Poplars by the lake are a picture just now, and the flush of hundreds of wild ducks from the Sedges and Irises is a great treat compared with the steam whistles and bricks and mortar of the town. The Beeches are grand specimens and lovely in colour now. Cedars and Oaks good also, and the way in which *Omphalodes verna* grows on the slopes beneath tree shade by the lake is a wonder. It evidently likes the limestone; so do the Beeches; but, on the contrary, the common Foxglove, which loveth not the lime, is absent as a wilding, and does not take well even under culture. Some rocky slopes, covered with *Hypericum calycinum*, are grand; so are the old Hemlock Spruces and an Oak somewhat like *Q. tinctoria* or *rubra*, but with smooth grey bark. Everything about the place reflects care in culture and keeping; nor is the place without historical interest, the old castle to wit (date A.D. 1180), with walls nearly 9 feet thick—an Ivy-mantled ruin, but nobly beautiful even in its decay.

F. W. B.

INDOOR GARDEN.

CURCUMAS.

THE species of *Curcuma* that find favour with cultivators are few in number; they belong to a somewhat limited family of herbaceous plants, mostly indigenous to the hot districts of Eastern India; and, therefore, in order to grow them well, they require a considerable amount of heat. *C. longa* produces turmeric, which is much used by the natives of India on account of its medicinal properties. Curcumas are of moderate growth, their leaves attaining a height of 2 feet. The flowers, which spring from the crowns of the plants, are borne on stout foot-stalks; they are very singular in aspect, and last for weeks little impaired in appearance.

Their distinctness of form renders them acceptable additions to the occupants of the stove, especially where as much variety as possible is desired. They come into bloom during summer and autumn, when flowers are scarcer than earlier in the season. After they have bloomed they may be dried off like *Gloxinias* or similar things, keeping their roots in a tolerably warm place whilst at rest. They may be increased by means of offsets. These, as well as the larger roots, should be potted and started into growth in the spring. The small offsets ought to be kept by themselves and grown on to acquire more strength.

An 8-inch pot will be large enough for four of the smaller roots, and a 10-inch or 12-inch pot for a similar number of the larger size. They will succeed in either peat or loam, or in a mixture of both; but where peat can be had of good quality, containing plenty of fibre, it is to be preferred; that which is of a compact, soapy nature is not fit for Curcumas, even if incorporated with leaf-mould, rotten manure, or loam; consequently, where nothing better than such can be obtained, it is advisable to grow them in loam, in all cases using plenty of sand to keep the soil in a tho-

roughly porous condition; for if the water cannot pass freely through it, the feeding fibres of the roots will make little progress, and in that case the growth above ground will not be satisfactory. One-sixth rotten manure added to the peat or loam—whichever is used—will tend to greatly increase the strength of the plants. The pots should

tan bed in the centre of the house; but as soon as the young growths appear, they should be moved to where they will receive sufficient light to prevent the leaves becoming drawn. This is of more importance in the case of these plants than in that of most others, as their flowers do not rise above the foliage in the ordinary way.

SHADING.—A thin screen will be required when the weather is bright, but do not subject them to permanent shade. As the days lengthen and sunheat increases, raise the temperature to 70° or 75° at night, with correspondingly more heat in the daytime. Give a moderate amount of air, but do not let them be in a draught by placing them too near where air is admitted. With these, as with almost all plants that require heat, growth will be accelerated by closing the house whilst the sun is yet upon the glass, as the influence of solar heat in promoting growth, especially in the afternoons when the atmosphere is well charged with moisture, is much more conducive to strength and healthy development than fire-heat. When the house is shut syringe overhead freely, treatment which should be continued until they show flower, when the syringe will be of no further use, but the atmosphere must not be kept too dry. The flowers have a tubular 3-toothed calyx; the tube of the corolla is dilated above, five of its lobes being equal, but the lip is large and spreading. As the flowers open the plants may be inured to more



A Spanish house garden.

be well drained with 2 inches of crocks, over which a little porous material ought to be laid to keep the soil from getting down and clogging the drainage. Press the compost in the pots, filling them up to about two-thirds their depth; then put in the roots, and cover over with soil to within an inch of the rim; place them in a temperature of 65° at night, allowing 10° higher in the daytime, and do not give too much water to the soil until the young shoots have appeared above the surface, when it may be kept more moist. When fresh started they may be set on a

air, and when expanded they may be removed to the conservatory if it is kept at an intermediate temperature; but if not warmer than an ordinary greenhouse, they must not be allowed to remain in it after the weather has become cold; after that they should be returned to the stove and supplied with warmth, and water at the roots until the leaves show signs of decay, when the amount of water may be gradually reduced in quantity till the tops are dead; after this they may be kept moderately dry. They should not, however, be subjected to a low tem-

perature, or they will be liable to rot. Keep them through their season of rest about 60°, and early in spring turn them out of the pots, removing the old soil completely, and repotting in new material as recommended for the preceding season.

VARIETIES.—The following are well worth cultivation: *C. Roscoeana*, an East Indian kind, with orange bracts and red flowers, which are produced in July and following months. *C. cordata* is another East Indian orange and rose-coloured sort, which blooms in July and August. *C. rubricaulis*, also from the East Indies, generally blooms somewhat earlier than the sorts just named; its flowers are reddish yellow in colour. *C. Amada*, a variety which comes from Bengal, is likewise a fine kind, whose red and yellow flowers are produced during the summer. *C. aromatica* has yellow flowers, which are produced in the summer; it comes from the East Indies.

INSECTS.—The continued use of the syringe through the growing season keeps in check red spider and thrips. Scale and mealy bug will live upon them, but they can be easily removed by sponging, and the yearly decay of the leaves effectually destroys any perfect insects or their eggs that may have got on the plants during the summer. T. BAINES.

WINTER-FLOWERING PELARGONIUMS.

THESE are deservedly becoming popular; but hitherto the single or semi-double varieties have been most in request. The *Vesuvius* type, of which the old variety is still one of the best for winter as well as for summer, is, I find, very largely grown everywhere; but it is surpassed by a beautiful double pink variety, called *Madame Thibaut*. This is the most persistent bloomer I ever saw, and for purposes of decoration, in a cut state, it is charming, the blooms being very double and of a bright rosy pink. Cuttings put into small pots in August are now, without any special preparation, beginning to bloom. Of course, plants specially prepared by a season of rest in the summer are the best where means exist for their preparation; but the majority of cultivators with limited glass accommodation will hail as a boon any variety that will flower both in summer and winter. Another variety of great local repute for winter flowering is *Le Grand*, a large scarlet-crimson nosegay kind that makes a capital wall plant. I lately saw a fine old plant of it in Mr. Lambert Wood's garden that covered a large extent of wall, and from which hundreds of large trusses are gathered at Christmastide. It is, indeed, appropriately named, for each truss was in itself a good-sized nosegay. There is one peculiarity of the *Pelargonium* as a cut flower that I have particularly noted, and that is that if kept moderately dry at the root the petals do not shake out so easily as when the plants are saturated with water. There can be no question as to the adaptability of *Pelargoniums* of the zonal type for winter flowering; blooms of them are already procurable all the year round, and the places to see them in perfection is at florists' establishments from which the trade is supplied with cut flowers in large quantities; there one sees whole houses of one kind, as the owners do not as a rule go in for collections of as many sorts as can be got together, but select the very best they can get for growth. I have seen in winter houses full of the old *Vesuvius*, and more brilliant than one ever finds this variety out of doors in summer. A fitting companion to it is *Mdme. Thibaut*. There are many kinds that flower more or less freely during the dark winter months; but one may rely on sorts which one finds in the market as being the best for that purpose. There is not, as far as I have yet seen, a fitting white companion to these varieties, as the number of trusses produced by *Mdme. Vaucher*, *White Clipper*, &c., is by no means comparable with those which the kinds just named produce; and, as there are already plenty of white flowers that can be had in winter, it is probable that the brighter coloured *Pelargoniums* will be most prized, both by florists and private growers, for some years to come. *Chrysanthemums* supply

plenty of neutral tints that require a little addition in the way of warm colours to make them really effective. J. G.

VINCAS.

THESE are amongst the easiest managed of all stove plants; they are continuous bloomers all through the summer and autumn, producing their cheerful-looking, Phlox-like flowers from the points of the shoots in unbroken succession from June to October. They are easily propagated, not much subject to the attacks of insects, and deserve to be much more generally grown for ordinary decorative purposes than they at present are, for unless where cultivated as exhibition specimens, they are seldom met with except in a half-starved condition. Cuttings will root at any time of the year when the shoots can be had in a young state. Plants that have been cut back in the winter and have broken into growth with the extra heat applied to them as the sun's power increases will produce shoots in March fit for cuttings; take these off when about 4 inches long and put them singly in small pots in sand, cover with propagating glasses, keep moist and shaded in a temperature of 70°; they will soon root; then remove the glass, and directly they begin to grow move them into 5-inch pots. They will do in either peat or loam, but for quick-growing plants such as these I like loam the best, as in it there is a less disposition in the shoots to draw up weakly than when peat is used. When fairly established, place the plants near the light; this is of more consequence with quick-growing things, such as these Vincas, than it is with subjects that make slower progress. As soon as the tops begin to extend cut out the points to make them break several shoots; this should be repeated when further growth has been made, and when the pots are moderately full of roots move into others 8 inches or 9 inches in diameter. The soil ought to be ordinary fibrous loam, to which add about one-seventh of sand and a moderate quantity of rotten manure sifted.

A TEMPERATURE that will answer for warm stove plants will suit them, giving a little shade in exceptionally bright weather with air in the daytime, syringing them overhead every afternoon at the time of shutting up. A few sticks will be required to keep the branches open and to support them, especially towards autumn. As they get larger, plants struck at the time named and treated as above will flower by the end of July and go on so long as there is enough warmth to keep up growth, as the blooms are produced from the extremities, whilst they continue extending. As the autumn advances give more air and less water, so as to get them to rest. Through the winter apply no more water than will keep the soil slightly moist, or the roots are apt to perish. This is the only weakness that these Vincas have; they cannot bear much water in the soil until far in the spring when they begin to root freely. A night temperature of 60° in the winter with some degrees higher in the day will suffice. About February cut the plants back to within a few inches of where they broke at the second stopping, tying the branches out horizontally; this will cause them to push their whole length. After they have made a couple of leaves to each break they should be turned out, and most of the soil shaken away, putting them in 11-inch or 12-inch pots, keeping the soil somewhat dry until the roots have again begun to work freely. Should the shoots appear deficient in number, the points may be pinched out as soon as they have grown 4 inches or 5 inches. Keep the plants well up to the light, and treat as to air, heat, and moisture as advised the preceding summer. All they will require is to support the branches with a few sticks and ties, and to give manure water once a week when the roots have got full hold of the soil. These Vincas can be grown to almost any size the second year by giving larger pots and stopping the shoots a second or third time, which will have the effect of increasing the number of branches, but it will also retard the flowering; or after they have bloomed for a time the shoots may be shortened, and when growth has again commenced they can be moved to larger

pots, which will induce them to produce a full head of flowers. The plants may be kept on for

BLOOMING ANOTHER SEASON if required, treating them through the winter and spring as in the previous year, or young ones can be brought on to take their place, which for general use are preferable, unless where very large examples are wanted. There are three varieties in cultivation—*V. alba*, flowers pure white; *V. alba oculata*, flowers white, with a red eye; *V. rosea*, flowers wholly rose coloured. The two last varieties are the most handsome and desirable. All three are natives of Eastern India.

INSECTS.—Green fly and red spider will sometimes attack them, but the syringing and other precautionary measures regularly taken will usually be sufficient to keep these in check, but if, notwithstanding, these insects make their appearance, fumigate to destroy the aphides, and syringe freely to banish red spider. Mealy bug will also live upon Vincas, and where present the plants should be laid on their sides and syringed freely with tepid water, and when cut back in the spring dressed well with insecticide. T. B.

BEST TIME TO POT LILIUM AURATUM.

IN shifting some bulbs of this Lily that had flowered in pots and the stems of which had just turned brown, I found that many of them had pushed forth new roots from the base of the bulb in great numbers, some of which were at least 6 inches in length, thus proving that the best time to repot this Lily is the autumn, as then the new roots will run into the fresh compost, and there will be no occasion to injure them in potting, as would be the case if that operation was delayed till later in the season. We continually hear of great losses in the case of imported bulbs which flower well the first season, and in autumn are found on examination to be decayed. This loss is in my opinion principally to be attributed to the late season at which they arrive in this country, as under ordinary conditions their pots would be full of roots before imported bulbs are in the ground, and these latter seldom make the same amount of roots as early potted ones. Many of the imported bulbs when examined in autumn appear to be sound at the first glance, but on closer inspection the base of the scales is found to be decayed, and a shake will sometimes suffice to scatter the bulb into fragments. Another reason which probably accounts for the loss of great numbers is that after flowering they are frequently placed anywhere out of doors, and, if the weather is hot, become dry; then when heavy autumnal rains occur they are completely saturated and decay commences, or, if it had already begun, it is thus greatly hastened. After several experiments with imported bulbs of this Lily in pots, I have been most successful under the following

MODE OF TREATMENT: As soon as received, which will be about the beginning of February, the bulbs are laid on clean Cocoa-nut refuse or fine peat in the shelter of a cold frame, the lights of which are kept on to prevent their being deluged with wet at that time. Plenty of air is, however, given by tilting the lights at all times, except during severe frost. They generally arrive in a somewhat dry and shrivelled condition, but under this treatment they soon become plump, and the young roots start from the base of the bulb. When this takes place they are at once lifted and potted, returning them afterwards to the same quarters. Advantage is taken of this lifting to carefully scrutinise each bulb and remove any decaying matter—an operation which greatly assists in maintaining the bulbs in a healthy condition. The soil used consists of about two-thirds fibrous loam to one of leaf-mould and a liberal admixture of silver sand. My experience is that the bulbs do best when planted rather deep—that is to say, with at least an inch of soil above their tops. In potting it is a good practice to surround the bulb with dry silver sand, which prevents any stagnant moisture accumulating around it. After potting they are kept slightly moist with an increased amount of water as the flower stems develop

themselves, and when flowering is over they are returned to the frame till their stems commence to decay, when they are at once repotted. No hard and fast rule is followed in reference to this point. Some are very little disturbed, and that only to ascertain the condition of the bulb, which can be found out by removing the upper portion of the soil, thus leaving the bottom mass of young healthy roots quite intact. Others, again, whose condition is not so satisfactory, have the soil shaken away and another start given them in fresh compost. They are then just kept moist through the winter and continue rooting during all that time. Of course failures are by no means unknown, even under this mode of treatment, but they have been reduced, and upon the whole it gives pretty good results. During the summer these Lilies are kept in a slightly shaded position, as thus managed they retain their foliage in better condition than when exposed to full sunshine. A word or two as to

SELECTING THE BULBS. Do not aim at getting particularly large ones; rather choose those of a firm, solid texture, even though somewhat less in size. A flattish bulb rarely does so well as one with a more elevated centre and in all respects rounder. At the same time the bulbs must be of good size, or fine spikes of flowers cannot be expected from them. The only insect pests that trouble either the foliage or buds of this plant are aphides, which are easily kept down by fumigation or syringing with tobacco water. H. P.

CALADIUMS.

THESE handsome foliaged plants are so well known as to require little description; they are greatly alike in the formation of their leaves, which are arrow-shaped, differing much in size and colour. The best way to increase them is from the sucker-like shoots which spring up from the crowns of the fleshy tubers. These can always be had in the spring from plants started a month or two previous. The roots should be potted and started in a heat of 65°, when the shoots are 5 inches or 6 inches long. These should be cut off with some of the fibrous roots which they will have formed above the tubers. Pot them singly in 3-inch or 4-inch pots; they will grow in either peat or loam to which has been added a moderate quantity of sand, with some rotten manure when the plants get larger. Keep the newly taken off-shoots warm and close until they have begun to grow, after which remove the propagating glasses, and when they have filled the pots with roots, move them into others considerably larger; the stronger growing kinds, such as *C. bicolor*, need much more root room than small growers like *C. argyrites*, nice plants of which can be grown in 6-inch or 7-inch pots. Through the latter part of spring and during the summer they will bear as much heat as most occupants of the stove, say 70° by night and 80° or 85° in the day. They should be placed where they will get full light, with a moderate amount of air in the daytime, and a thin shade when the sun is powerful. All further required is to give pot room as needed. If large specimens are wanted, the tubers, in the course of two or three years, will require 12-inch or 14-inch pots. In the autumn, when the plants have ceased to make young leaves and show signs of going to rest, gradually withhold water, and when the foliage has died off keep the soil in the pots quite dry in a temperature of about 60°; in this state they should remain until they are required to be started, which it is well to do at two or three different times from January to March; by this means a succession of plants with healthy leaves will be secured.

VARIETIES.—There is now a good number of Caladiums in cultivation, many of which do not differ enough from each other to make them worth growing. The following are amongst the best and most distinct: *C. argyrites*.—A very small kind, suitable for growing in little pots; its leaves look well mixed with cut flowers; they are light green, blotched and freckled with white. *C. Chelsoni*.—Deep green, blotched with crimson

and bright red. *C. La Perle du Bresil*.—Large leaves, with white ground colour, spotted with rose; nerves and midrib green. *C. Baraquianiana*.—Dark green, with broad crimson centre. *C. bicolor splendens*.—A very strong grower, lovely green ground colour, with deep crimson blotches. *C. Chantini fulgens*.—Green ground, crimson centre, outer part of leaf-blade spotted white. *C. Prince Albert Edward*.—Bright green, profusely spotted with white, crimson mid-rib and veins. *C. Madame Alfred Bleu*.—Even blotches of clear white on a dark green ground, nerves very bright red. *C. Herold*.—Light green centre with red veins, white speckled, outer margin of leaf a deeper shade of green. *C. Belleyme*.—Large leaves, beautifully variegated. *C. Auguste Lemonier*.—Shaded green, midrib and nerves crimson. *C. Reine Victoria*.—Nerves and margins of leaves green, spotted with white and crimson. *C. Adolphe Adams*.—Leaves pale green, mottled with white; centre nerve red. *C. Dr. Boissduval*.—Centre of leaves crimson, pure white spots. *C. Calypso*.—Large foliage, red in centre, outer margin mottled with red. *C. Alfred Bleu*.—Leaves pale green, spotted with white, pale pink centre. *C. Emilie Verdier*.—Leaves pale pink, freckled with red; a distinct and handsome kind. *C. Minerve*.—Middle of leaves white, outer part green, dotted with white. *C. Rameau*.—Middle of leaves red, shading to green towards the margin, which is spotted white and pink. *C. Napoleon III*.—Bright red centre, outer portion of leaf green, spotted with crimson.

INSECTS do not trouble Caladiums much, their smooth leaves and acrid juices not offering either shelter or food for them, although aphides and red spider will sometimes make their appearance; these can be destroyed by syringing and fumigation. T. BAINES.

SOLOMON'S SEAL FORCED.

AMONG the many good old-fashioned hardy plants, few are better than this for forcing; as though very chaste and beautiful outdoors, it is far better under glass, especially when forced, as then the delicacy of the green of its foliage is simply charming. In a cut state I know of nothing to equal it, as, besides the form and colour of the leaves, the stems arch over most gracefully, and are adorned with a profusion of pendent, silvery-looking, bell-shaped blossoms that render them quite unique in appearance. To have good strong plants for potting, fresh plantations should be made in the spring, which may easily be done by pulling old roots to pieces; they will bear dividing to almost any extent, for they are full of buds or eyes, and are sure to break and form young shoots. A good way of managing them is to dig shallow trenches, making them just below the surface level, and enriching the ground by working in manure, as is done for Celery; then the portions of roots of the Solomon's Seal should be planted in rows, and, as they grow, the earth may be drawn to them, so as to fill up the trench, which is all the attention they require during the summer, except keeping them free from weeds, and, it may be, giving a soaking of water or liquid manure should the weather happen to be unusually dry. In winter the best plan is to take the whole of the plants up, as then the strongest roots may be picked out for potting, and the weaker laid by for replanting to grow on again. The way in which I think Solomon's Seal looks best and is most useful for small vases or furnishing stands in windows is in 6-inch or 7-inch pots, in which the pieces of roots having good crown buds should be potted. The sized pieces we use are from 2 inches to 3 inches long, and these we arrange regularly in the pots, and then we cover them over with soil, so that, when finished, they are about an inch or so deep. The pots are then set in any cold frame, to be drawn from as the plants are wanted for use. As regards the forcing, that is a very simple matter, as the plants respond readily to heat, and may be started almost anywhere—in the Mushroom house, under stages, or any dark place, as they do not require light till they get well above ground. What they do like is a good supply of

water, which should be given tepid, and it is necessary to gradually harden them, in order to render the shoots more enduring when out. S. D.

BERTOLONIAS.

THESE small-growing Melastomads almost vie, as regards beauty of leaf-marking, with the most charming of the variegated Orchids. They are natives of the hot countries of the East, and in order to grow them well and bring out and preserve their leaf-marking, they require a high temperature. They are plants of quite a soft-wooded character, and do not grow to a height of more than 6 inches or 8 inches. They strike freely from cuttings made from shoots in a half-solidified condition. They may be struck at any time when obtainable in that state, but are most likely to be in proper condition in spring. Each cutting should consist of at least a couple of joints. Put them in small pots singly in sand and cover them with a propagating glass, but do not keep them so close as to cause them to damp, as soft growth of a nature such as these, if too close and moist, is liable to rot. Give as much water as will prevent flagging, keep in a warm stove temperature, and shade when the sun renders that necessary; they will soon make roots, after which give more air, and as they get established remove them to larger pots. The soil best suited to them is fibrous peat mixed with some Sphagnum, sand and crocks. A temperature of from 65° to 70° in the night during the growing season, with a rise by day proportionate to the warmth of the weather, will answer; 60° by night, with 5° or 10° more in the day, will do for the winter. Some growers keep the most delicately marked kinds almost wholly covered with a bell-glass, as *Anæctochili* are sometimes grown, but it makes the plants very soft and tender; yet they do not do well if placed under drying influences such as where much air is admitted. If in a position of this kind, a propagating glass partially closed over them, so as to somewhat confine the air and prevent its getting too dry, will be an advantage. The plants must always be shaded when the sun is at all powerful; they should be stood where a moderate amount of light will reach them, and the soil must never be allowed to get dry. Little root room will suffice, but as the shoots are of a semi-procumbent habit, they must have as much space as will allow them to spread. They do well with the pots plunged in a shallow pan filled with a mixture of chopped Sphagnum and sand, in which way, if a number of plants are so plunged, they are very effective.

SPECIES.—The undermentioned kinds are all handsome: *B. Houtteana*.—A Belgian variety, most likely of garden origin, with beautiful foliage. Its deeply ribbed, lustrous, olive-green leaves are spotted with rose; the ribs are marked with rose-tinted hues. *B. superbissima*.—This is also, I believe, a garden variety. It has large, broadly-ovate leaves, in colour dark green, with large rose-coloured spots within the margin, and smaller spots on other portions of the leaf. *B. guttata* is from South America, and has green ovate leaves, the upper surface spotted with rose. There are three forms of this plant differing somewhat in the appearance of their leaves, but all handsome. *B. primulaeflora*.—This is a species from Ecuador, with ovate-lanceolate leaves, dark green in colour. It bears very handsome rose-coloured flowers. *B. margaritacea*.—A Brazilian plant, has five-nerved ovate leaves, the ground colour olive-green, with lines of white spots; the under surface reddish purple. T. B.

Primula verticillata.—This pretty little Primrose well deserves attention; for, although requiring the shelter of a greenhouse, it forms a very pretty object therein during the early spring months, when its tuft of meal-covered leaves is surmounted by a whorled spike of bright yellow blossoms. The perfume, though not at all strong, is sufficient to scent the surrounding air with a fragrance reminding one somewhat of that of the Cowslip. It is of easy culture, and will be

found to flower freely in small pots. If plunged out of doors during the summer, its growth is firmer, and the spring show of flowers greater than if kept in frames at that time. Like some of the others, I find that the seed of this *Primula* germinates freely if sown as soon as ripe, but when kept a little time its appearance above ground is very erratic, and sometimes it refuses to grow altogether.—H. G.

ORNAMENTAL GRASSES IN POTS.

SOME of the ornamental Grasses make very handsome subjects for conservatory decoration during summer, when allowed to form clumps or masses in 5-inch or 6-inch pots, the light and elegant habit of many of them serving to tone down any superabundance of colour which frequently prevails at that season. Not only for this purpose are they well suited, but in most arrangements of cut flowers they may be advantageously employed; for this latter purpose, however, it is only necessary with the majority of the kinds to sow them in the open ground early in spring, when they give no further trouble, and may be gathered when required. As those grown in pots are protected from the weather, they are often better adapted for storing for winter use than outside ones; indeed, after they have served their turn in the conservatory, all that is necessary is to cut the stems off just above the soil, and hang the Grasses up, head downwards, to dry, when they will keep for an almost indefinite period. At first, in growing these different Grasses, I tried the plan of sowing them, and then pricking off the young seedlings thickly in pots; but I found better results from sowing them directly in the pots in which they are to grow. The kinds which I have principally employed are *Agrostis nebulosa* and *pulchella*, *Briza major* and *minima* (the large and small Totter Grass), *Bromus brizaeformis*, *Hordeum jubatum*, the long Barley-like awns of which are of a purplish tint when young, and then very pretty, but when mature they soon fall to pieces. *Lagurus ovatus*, with its whitish cottony-like heads, also does well in pots. These Grasses prefer a good holding soil, otherwise the foliage soon turns yellow and growth is arrested. A suitable compost is about three parts loam to one of decayed manure, with, if the loam be very heavy, a slight admixture of sand. The pots must be filled with this to about half an inch from the top in the case of minute seeds, a little more space being left for larger ones. Sow the seeds thinly, but evenly over the surface, and cover with light soil; then place them in a cold frame, and water with a fine-rosed pot to prevent washing the seeds to one side. As soon as the young plants are up give plenty of air, otherwise they will grow weak and thin, especially in the case of the *Brizas*. A slight support of some kind will be necessary, and if four sticks be inserted at equal distances apart, and a piece of stout thread secured from one to the other all round as soon as the plants require it, the foliage produced afterwards will almost hide both sticks and ties, and at the same time prevent the plants from becoming untidy. From the middle of February to the corresponding period in March, or even a little later, is the best time for sowing the seeds, as, if sown in the autumn, they do not come in earlier than the February ones. When the young plants are up, if any are too thick, thin them out at once, and on no account allow them to become dry after the pots are full of roots, otherwise most of the foliage will be ruined. H. P.

Fittonias.—Amongst dwarf stove plants with beautiful foliage few can equal the *Fittonias*, the veining of the leaves of which is so rich and striking. In *Coleuses* we have colours that could hardly have been looked for a few years ago; but, nevertheless, *Coleuses* do not arrest attention like *Fittonias*. *F. argyrea* is excellent as a pot or basket plant, flourishing in an ordinary stove. It likes a mixture of peat, turfy loam, and sand, with a little leaf mould; and the red-marked *Pearcei* and *F. gigantea* make excellent companion plants to it. Nor must *F. Verschaffelti* be forgotten. These

plants are by no means difficult to cultivate. Some of the finest I have ever seen have been grown on walls covered with stove plants set in soil, kept up by means of wire netting fixed about 3 inches from the wall. The space between this and the wall is filled with soil, and kept moist by syringing. If little pieces of *Fittonias* are inserted in this and kept moist, they quickly spread into large masses, and then they have a very striking effect, especially if on a groundwork of green *Lycopod*. A temperature of from 60° to 65° in winter suits them admirably.—J. G., *Seafield*.

Meyenia erecta.—I agree with Mr. Baines (see p. 286) that this is a plant which repays in no small degree one's care and good culture, and which, moreover, is in every way suitable for small growers, being of moderate compact growth, so that, unlike many stove-flowering plants, there is but little danger of its outgrowing its quarters, even in the case of quite a small house. Properly grown, it forms a neat bush and bears late in summer and autumn a profusion of bell-shaped violet or white flowers, according to the variety. Through the spring it requires a temperature of from 60° to 70°, a light position slightly shaded from hot sun, enough air on fine days to prevent drawing, and to be well syringed once or twice a day according to the weather. The young succulent shoots strike freely in sandy soil under a bell-glass, and if propagated as early as cuttings can be obtained, and grown along in the proper temperature and atmospheric conditions, shifting when the pots become filled with roots, and pinching back the strongest shoots now and then, they will make nice little bushy specimens by September or even by the latter end of August and well established in 2½-inch pots. The compost should be free and fibrous, say good loam two-thirds, the remaining part peat and leaf-mould, with some silver sand to keep it open. After August shade no more and keep cool, admitting more air, so as to mature the wood. Winter in a temperature of from 50° to 55°, and the following spring, as soon as growth has well commenced, shift, according to the size of the plants, into 4½-inch or 6-inch pots, repotting again later on if they make strong growth, but not later than June. If they are retained for another year prune the following February rather hard, and when they break shake away a good portion of the old soil, replacing in clean pots a little larger.—J. C., *Byfleet*.

SHORT NOTES.—INDOOR.

Bouvardias.—It is a remarkable fact that these strike root only with difficulty at this season, even when the shoots are in a suitable condition; whereas in spring they push forth roots in a few days.—H. P.

Vallota purpurea.—Permit me to ask "J. C. B." (p. 287) how many years his plants continued to yield such a large supply of flowers. It is hard to imagine a plant in a 4½ inch pot producing over twenty five flower-heads in one season, even though there were five bulbs in the pot. I agree with his statement as regards repotting.—B.

Anthuriums *Andreanum* and *Scherzerianum* ripen seeds freely, and young plants can be readily raised from them if sown as soon as they are ripe in a mixture of Sphagnum and peat, just covering them with sand, and keeping them close till growth commences. Before sowing clear off the pulp from the seed, otherwise it may promote decay.—T.

Pavonia Wioti.—This stove shrub, the subject recently of a coloured plate in THE GARDEN, blooms almost continuously throughout the summer and autumn; besides which flowers are often produced at other times, even in the depth of winter. This, its easy culture, and the distinct appearance of the flowers should render it more popular than it is at present. Cuttings of it strike readily.—ALPHA.

Eucharis Sanderi.—The large corrugated leaves of this *Eucharis* have in their young state a peculiar metallic lustre when viewed from one particular standpoint, and are in this respect quite unlike those of the other kinds. In fragrance *E. amazonica* much surpasses that of the other two, viz., *E. candida* and *Sanderi*, the scent of which is scarcely perceptible, while that of *E. amazonica* is delicious.—H. P.

Anthurium Warocqueanum.—A photograph of an uncommonly fine specimen of this ornamental leaved Aroid has been sent to us by Mr. Murchison Brockhurst, East Grinstead. Three years ago it was in a 5-inch pot; now it has five leaves, the three largest of which measure 3 feet 7½ inches, 3 feet 9 inches, and 3 feet 10 inches in length respectively. Such a specimen as this must indeed be a noble object in a stove.

SHRUBBY SPEEDWELLS.

IN the southern parts of England, the *Speedwells* or *Veronicas* play the part of hardy shrubs; but in less favoured spots, although they will often stand many winters without succumbing, on the other hand, if in any way cut by frost, they do not flower well. They form, however, very useful objects for conservatory decoration during the winter, either in the form of large bushes, or as small sturdy little plants in 6-inch pots, for which latter purpose some of the named hybrids are well suited, as they flower more freely in a small state than the original species, such as *V. decussata*, *speciosa*, and others. A good selection is *Imperialis*, bright amaranth-red; *Celestial*, light blue; *Mademoiselle Claudine Villermoz*, deep blue; *Rubens*, violet; *Leonard*, purplish blue; *Belle Violette*, violet; and the miniature light-coloured *Blue Gem*; while for its foliage the variegated kind may be added. Stout bushy plants for small pots may be obtained in the following manner: Take cuttings from the old plants in spring, and put them in 4-inch or 5-inch pots, using sandy soil for the purpose, and insert them moderately thick, but without overcrowding. After this give a good watering and place them on a gentle hotbed, when they will soon root; or, indeed, they will form roots without any heat whatever, but in that case they will be much longer in striking. One point to bear in mind is this: if the cuttings are allowed to flag much they take a long time to recover, but if this is borne in mind and guarded against, they are very easily struck. When rooted, pot them singly in small pots and place them in a cold frame. As soon as the roots have taken hold of the new soil, pinch out the centre of each plant, to encourage a bushy habit of growth, and give plenty of air on all occasions. By May they will be good sturdy little plants, when they may be turned out into the open ground, choosing for the purpose a spot fully exposed to the sun, and not rich enough to encourage rankness of growth. If in a very dry situation, water must be given when requisite during the summer, but it should not be applied unless absolutely required. One stopping after they are planted will generally be sufficient, and by September, with ordinary success, good bushy little plants will be the result, when they must be taken up and potted. As the roots form a dense wig-like mass, the plants do not sustain much check by this operation, if care be taken to water thoroughly and keep them pretty close and shaded from bright sunshine till established. As soon as the roots start in the new soil, air must be given more freely, when the flowers will commence to open, and continue expanded for a long time. H. P.

Asparagus plumosus nanus.—Whence does this variety derive its name? Surely not from being dwarf in habit than the typical kind, for the so-called dwarf variety forms a climber of moderately rapid growth, while *A. plumosus* is more dense in habit and does not mount upwards so quickly. Both are handsome plants for table decoration, and in a cut state for intermixing with flowers as their sprays last a long time in water, though my experience of this is that branches of *A. plumosus* remain in perfection much longer than the lighter sprays of *nanus*. Both are accommodating plants as to temperature; they thrive well in either greenhouse, stove, or intermediate house, though the last best suits their requirements, at all events when young. They grow well in good fibrous loam mixed with a little decayed manure and silver sand, thorough drainage being necessary to their well-doing. The propagation of *A. plumosus* is easy enough; it can be increased by cuttings, division, or seeds, which frequently ripen, but the case is different with the so-called dwarf kind; on that I have never observed any seed, neither have I succeeded in striking cuttings of it. If put in under exactly the same conditions as the other, all the cuttings perish, while *A. plumosus* does well. *A. plumosus* is not so woody as its variety, which seems too hard to root, with the exception of very young pieces, and they damp off at once. Such being

the case, the only course open is to divide the plants for purposes of increase; this can be done easily enough, and sometimes good numbers are obtained in this way. After division they should be potted in as small pots as possible and kept close until they start into growth.—H. P.

KITCHEN GARDEN.

VEGETABLE GROWING FOR MARKET.

In this part of South Hants the cultivation of vegetables in open fields has assumed large proportions, Portsmouth and the rapidly increasing population of neighbouring towns providing ready markets for vast quantities of vegetable produce. A few brief notes on crops now in season may therefore not be without interest.

POTATOES.—Of these we have an extraordinary good crop and scarcely any disease; excellent Potatoes, fit for exhibition, selling for less than a halfpenny per lb. The soil in this locality just suits Potatoes; in fact, root crops of all kinds. It is a light sandy loam, out of which the tubers come clean and bright without speck or blemish; during winter the ground on which they grow is ploughed in two or three times, so as to get it as mellow and friable as an ash heap, and in March a dressing of manure is spread on it and ploughed in with the sets dropped in by hand in the furrows, the rows being from 2½ feet to 3 feet apart, according as to whether the variety makes much or little haulm. As soon as the tops are visible the soil between the rows is stirred by the horse hoe, and then they are soon ready for moulding or earthing up with a plough, the object being to economise manual labour as much as possible. Early sorts are dug and sent to market as soon as they become of sufficient size, and the land is cropped again immediately, a rapid rotation of crops being the only way in which market gardening can be made remunerative.

CABBAGES.—Of what are termed green crops these are the most largely grown, being in demand the whole year round. Large tracts several acres in extent for the main spring crop are now being planted on land from which late Potatoes have been recently lifted. The seed is sown in July on ground from which early Potatoes have been removed; the soil is levelled and the seed sown broadcast. Very fine, sturdy plants are thus produced with little labour, some growers using several pounds of seed. The soil, having been thoroughly pulverised and manured for Potatoes, requires but little preparation for the Cabbage crop. The dry Potato haulm, weeds, and other rubbish is collected into heaps and burnt. The land is then ploughed, and is ready for planting. The plants are put in with ordinary dibbers in every second or third furrow, so that they stand from 1½ feet to 2 feet apart, according as to whether the sort is large or small. Some of the small sorts are planted much closer, and are pulled up and tied in bunches for market as soon as they begin to form hearts. The sorts mostly grown are the Early Fulham and Enfield Market, and the small type of Early York for Coleworts. Red Cabbages for pickling are treated in the same way, but they are allowed more space; they, however, stand too long on the ground to be a profitable crop. Successional crops, the produce of seed sown in March, April, and May, are put in at intervals, and in June the main crop of Coleworts, or small Cabbages for bunching in winter, is sown. Some transplant this crop; others sow thinly in drills where it is to remain.

TURNIPS are always more or less in request, but are especially in good condition during winter. The main crop is sown in July and August after early Potatoes. The soil is harrowed, the rubbish burnt, and the seed is sown in drills, the young plants being hoed or thinned out as soon as visible. Late crops that do not form roots large enough for culinary purposes are left for producing Turnip-tops or Greens, and in some seasons prove very remunerative.

CAULIFLOWERS AND BROCCOLI are extensively employed as field crops, Veitch's Autumn Giant being the kind usually grown for supplying the market at this season. The plants are raised from seed sown in March, and planted out a good distance apart in May on land that has been cleared of winter Turnips or other root crops. Snow's Winter Broccoli begins to come in after the Giant is over, and keeps up the supply until early Broccoli come in. In this locality either Broccoli or Cauliflowers are generally procurable in quantity from open fields the whole year round, and it is surprising to see how well open field crops withstand frost compared with those drawn up in walled-in gardens.

ONIONS, both spring and autumn-sown, are largely grown; also intermediate sowings for producing green Onions for bunching, these being in request at all times. The main crop of spring-sown Onions, when harvested in good condition, pays for keeping until after Christmas, as during autumn seaport towns on the south coast are inundated with Onions, Shallots, and Garlic from France and the Channel Islands. They are tied up in bunches and disposed of at very reasonable prices. Onions thus imported, however, like our own autumn-sown ones, do not keep long, but they are mild in flavour and useful early in winter. Home growers therefore rely on good keeping sorts, and James' Long Keeping is more largely grown in this locality than all other varieties, new or old, put together.

LEEKS are grown in considerable quantities, but the demand for them is greatest in spring. They are usually sown in March, and as soon as large enough they are planted out on well-manured ground in rows 1½ feet apart, where they attain large dimensions, and by many are preferred to Onions for culinary purposes. The London Flag and Henry's Prize are the sorts patronised by market growers.

CARROTS are one of the crops that succeed especially well in light sandy soils, in which they run straight down and come out clean and bright. They are not affected here with canker, wireworm, or other ailments that disfigure the roots in heavy soils. The principal point in order to ensure success in Carrot culture is to thoroughly pulverise the soil by deep cultivation, so as to get it into a friable condition. No manure is needed for Carrots; they are of better quality without it. They are sown in drills in April, and thinned out as soon as they are large enough. With the exception of frequent surface stirrings to keep down weeds, they get no other attention until they are fit to lift in October. James's Intermediate Scarlet is now largely grown for market; it is of better quality than the long, hard sorts that used to be solely grown for field crops. Some, however, also sow good breadths of Short Horn at midsummer for drawing in a half-grown state at this time of year.

CELERY is largely grown as a field crop, and as it requires deep cultivation and plenty of manure, it leaves the land in good condition for Onions and other crops that follow it. Under field culture it is not attempted to get it fit for use very early. October is quite soon enough for it, and from that date it is supplied all through the winter months. The seed is sown in boxes or in frames, and when the young plants are large enough they are pricked out from 4 inches to 6 inches apart, under movable frames that are transferred to other crops as soon as the Celery plants are fairly started into growth. Trenches are dug as soon as the earliest Peas are cleared from the ground, and a good dressing of manure is dug into the bottoms of them. The plants are then transferred to the trenches with good balls of earth attached to their roots, and if the weather is dry a good soaking of water is given. Some adhere to single rows, and others to double rows in a trench. Moulding up is done on the successional system of two or three earthings at short intervals apart. White sorts are used for the earliest crops, and red for winter and spring ones.

SPINACH.—For this a ready sale at certain seasons is certain, but at others there is but little

demand for it. During the early summer months it is in great request, but while Peas and Beans are plentiful it is at a discount. As soon, however, as the short days set in Spinach is again sought after. It likes good rich soil in a friable condition. The seed should be sown in drills from 1 foot to 1½ feet apart. The round-seeded or summer Spinach is that which is grown for autumn and early winter use. It is sown rather thickly and allowed to grow up, so as to form a good full crop, when it is cut right off close to the ground, and packed in bushel hampers for market. The prickly-seeded or winter Spinach is sown on land cleared from Peas or Beans in August or early in September, and, being hardier, is kept for mid-winter and spring gathering. This sort is thinned out in the rows and gathered by hand, and in some seasons realises high prices.

JERUSALEM ARTICHOKEs grow freely and yield heavy crops of fine tubers in light sandy soil without manure. The sets are planted like those of Potatoes in March in furrows made by a plough. The rows are about a yard apart, and the sets from 1½ feet to 2 feet asunder in the row. The quantity of roots of this esculent grown per acre is very heavy.

SAVOYS.—These are largely grown, the early sorts, such as the dwarf Green Curled, Early Ulm, and others of the miniature type being now fit for use. The larger Drumhead is retained for winter; the seed is sown in March, and the young plants are put out directly they are large enough on soil well enriched by manure. For small sorts the rows are 2 feet apart, and for Drumheads 3 feet apart. Savoy seldom fail to produce a good marketable crop.

With some market gardeners herbs form a speciality. The kinds grown are Sage, Thyme, Mint, and most other culinary herbs. They are generally transplanted in spring as soon as growth is about to commence after the heavy cutting to which they are subjected in winter. They are generally put in large beds, with alleys between them, and on fairly good land no fresh manure is needed, except for

PARSLEY. This is grown in large quantities in some localities, and, in order that it may produce large leaves, such as will make good bunches, good rich soil must be provided; deep cultivation and liberal manuring should therefore precede sowing. Myatt's Garnishing is a favourite sort with market growers. The main sowing for summer crops is made in March in drills 2 feet apart, and for winter and spring use it is sown in July and August. It is usually towards the end of winter when the supply of Parsley fails and prices run high. During the greater part of the year it is cut off close to the ground and tied in bunches, but in spring it is usually dug up, roots and crowns entire, and tied in bunches for market.

MANURING, to keep up so rapid a rotation of crops, is done very heavily. The carts and waggons that take the vegetables to market in the morning return loaded with stable manure later in the day, and, in addition to this, street sweepings are carefully collected and kept for enriching the land, the crops on which must all be the finest of their respective kind in order to realise a ready sale.

Gosport.

JAMES GROOM.

Thinning Onions.—When harvesting spring-sown Onions I have been frequently surprised at the size attained by the bulbs, even when left in very close contact with each other. I generally sow a few rows to produce Onions for pickling, and although I prefer the silver-skinned sort for that purpose, I have, by way of experiment, left some of the rows of larger kinds without any thinning, while others have been severely thinned, and I found that for general purposes those left thick in the bed have been the best; being thick, anything like superabundant vigour was checked, and consequently they ripened off early and well. For most culinary purposes, too, medium-sized bulbs are preferable to large ones, and they certainly keep best. I would therefore recommend thin sowing so as to produce an even, regular crop;

and beyond using what are required in a green state, I would let the rest grow unmolested, merely keeping them clean. I feel sure that anyone giving the non-thinning system a trial will not again resort to thinning.—J. G., *Hants.*

OLD V. YOUNG WINTER CUCUMBERS.

IN a short note in a recent number of THE GARDEN I drew attention to the fact that, instead of clearing out the Cucumber house in August and replanting about that time for winter work, it might be advisable to grow on old plants of some six or seven months standing, always supposing that the latter were in good health and free from insect pests. The plants received a severe thinning during the second week in August, only four shoots being left on each, and these well down towards the bottom wire. A nice growing temperature was maintained after the tying-in was done, and the shoots were allowed to run until they reached the top of the house. Nearly all the pruning required has been done with the finger and thumb, the knife only being called into service to remove any long, weakly shoots. Where the wood is short-jointed every other lateral may be removed, and some of those that remain may be allowed to make a couple of leaves before being stopped. The plants, it may be stated, have no bottom heat; a good manure bed was made up when they were planted last January, but this has of course long since lost all warmth. There cannot, however, be much difference between the temperature of the bed and that of the house itself, the former being inside, and the water supplied being correspondingly warm. In watering, a little extra care is necessary during the dull months, especially where the plants have their roots in an old hotbed. Give a good soaking say once a week, and only use the syringe when the day is bright. When no sun heat is available, a safe artificial temperature for the next two or three months will be 70° and 65°, with a drop of 3° in severe weather. From plants treated in the above manner we have commenced cutting this week, and there seems every prospect of a capital crop; indeed, so far the balance is decidedly in favour of old plants. E. B.

Ne Plus Ultra Kidney Bean.—This comparatively new variety for forcing purposes was scarcely so good as its glowing description led us to anticipate. It is neither so early nor so profitable as Osborn's Forcing, and the latter will still be grown in pots and boxes in preference to it. Ne Plus Ultra is too luxurious for pot culture, but on a south border it yielded remarkably well, and here it will be grown again, as by sowing it with Osborn's Forcing and Canadian Wonder it fills up the slight gap that occurs between them.—I.

Lady Truscott Potato.—This has proved one of the heaviest cropping varieties we have grown this season. From 4 lbs. of sets we have lifted and stored 2 bushels of tubers, besides a few that were diseased. It forms short and very sturdy haulm, with rather broad, rich green leaves, and should become very popular, more especially where the spaces between the rows are usually planted with some member of the Brassica tribe. The tubers are not particularly handsome, but there is but little need to cut to waste when paring for cooking. The quality is very good even in our heavy soil.—W. I. M.

Herbs.—Preparation must now be made for the supply of herbs during the winter season; roots of Mint, Tarragon, Parsley, and Chervil should be planted in shallow boxes, so as to get established before severe frost curtails the outdoor supply, as they start into growth far more readily when introduced to heat than those lifted from the open ground and placed directly under glass. Boxes about 2 feet long, 1½ feet wide, and 4 inches deep are most useful for these kinds of roots; place in the bottom of them some half-decayed leaves, then a little soil, and on that spread out the roots, covering them with fine soil. Set them under the

shelter of a wall, and later on in cold pits where they will start sturdily into growth, and when placed in a gentle heat will continue to yield a supply of leaves for a long time. Sage, Thyme, and other hardy herbs should be directed of old flower-stems, &c.; the soil should also be cleaned and trimmed up for the winter.—J. G., *Hants.*

Chou de Burghley.—We have grown a considerable breadth of this Cabbage, and on the whole are well pleased with it. The question is, will it stand the winter? If it does, then probably it will, as Mr. Gilbert asserts, succeed in "pleasing everybody." It grows to a great size, forming a quantity of superfluous leaves, and the heads are very long and close, requiring extra large saucepans to cook them, as to cut them up means the loss of much of the delicate Broccoli-like flavour. I am under the impression that everybody will be better pleased when Mr. Gilbert succeeds in raising a much neater growing variety, and which also is better "fixed" than the original Chou de Burghley.—W. I.

The Potato disease.—Is this plague disappearing in the same way that it came? Last year it should have been bad, but it was not; and this season common report describes the Potato crop as one of the heaviest and soundest known since the disease first showed itself—about fifty years ago. Round here fine crops have been secured free from any disease worth speaking about, and I hear the same from other parts of the country. Yet all these conditions, supposed to promote the disease, have been present—thunderous weather day after day in July, and wet and cold as well. August was tolerably dry. The rainfall for July, August, and September was close upon 10 inches, over 5 inches having fallen in September. We have had plenty of disease with a less rainfall.—J. S. W.

Cabbage Sprouts, or the small heads formed on the stumps after the main crop has been cut, will now be found very useful; they become fit for use in succession, and are better than large white-hearted Cabbages, which are, as a rule, not required. On good soil the second crop of Cabbages is often more useful than the first; five or six small heads just becoming white-hearted are more serviceable than one large one. Soil for the main crop of Cabbages ought always to be in good condition, as Cabbages grown on poor soil are hard and stringy instead of being tender and succulent. If from any cause the soil cannot be properly prepared at planting time the defect must be made good after the first crop is cut by a top-dressing lightly forked in or by copious applications of liquid manure.—J. G., *Hants.*

Early Cauliflowers.—I cannot agree with "J. G.'s" remarks (p. 280) with reference to Early London and Early Dwarf Forcing Cauliflowers. He states that last winter he sowed both the Early London and the Early Dwarf Forcing, and that with him the Early London was fit to cut quite as soon as the Early Forcing. The latter, he says, did not form heads large enough to be presentable at table, while the Early London was realising from 6s. to 9s. per dozen. Now, in my opinion, the Early Dwarf Forcing Cauliflower has proved to be a decided acquisition for early use. I sowed the Early London and the Early Dwarf Forcing at the same time, and the plants were put out on a south border in March, the only difference being that, owing to its compact habit of growth, the Dwarf Forcing was planted closer than the Early London. The result was a fine show of the Early Dwarf Forcing, with beautiful compact white heads of first-class quality, admired by every one who saw them. It was, in short, pronounced to be the best Cauliflower for spring use. It was fit for table three weeks before the Early London. It is the earliest Cauliflower I have ever had, and I have grown not a few varieties in my time; but if anyone can recommend an earlier sort, I shall be glad to give it a trial. I should recommend "J. G." to obtain the Early Dwarf Forcing (true) and give it another trial.—W. G., *Bradford.*

GARDEN FLORA.

PLATE 410.

TWO MOUNTAIN FLOWERS.

(PAPAVER ALPINUM AND ANTHEMIS AIZOON.)

SINCE the cultivation of alpine plants has become more general and better understood, we have acquired a far wider and more intimate knowledge of mountain plant life than formerly, when it was comparatively a rare occurrence to find a well-cultivated collection of such plants even in the best and most extensive gardens. There is little need, therefore, to dilate upon the exquisite beauties and charms of mountain flowers in general, or to the two in particular which are represented in the accompanying plate, inasmuch as the



Papaver nudicaule.

portraits speak for themselves, being from faithfully executed drawings made some years ago by the late Mr. Noel Humphreys, who had a particular love for alpine flowers, and, moreover, the rare knack of portraying them in a nature-like manner. Both plants represented are desirable plants to cultivate, and essentially rock garden plants.

THE ALPINE POPPY (*Papaver alpinum*) is one of the most charming of mountain flowers. The plate represents it admirably, but this particular form is not at all common in gardens; indeed, there are very few collections in which the genuine plant is now to be found. There has been, and still is, a good deal of confusion with regard to this Poppy. Linnaeus named two Poppies respectively *Papaver alpinum* and *P. nudicaule*, but long ago botanists came to the conclusion that these two names applied to one plant only, inasmuch as every intermediate gradation can be found between the Linnean *P. alpinum* and *P. nudicaule*. The accompanying plate represents one extreme form, possibly the same as that upon which the Linnean name was founded. It is characterised by its dwarf growth, its finely divided foliage, and



its small white cup-like flowers, having a greenish spot at the inner base of each petal. This form, too, is probably identical with the so-called species *P. Barseri*. Taking this fine cut-leaved and white flowered form as the one extreme, almost every connecting link can be traced in the Kew herbarium specimens to the other extreme form, which is represented by *P. nudicaule*, and which is popularly called the Iceland Poppy, the latter a very common plant in gardens at the present time. Whether there is one or more distinct species among these alpine Poppies must be left to botanists to settle, but for garden purposes it is evident that the names *P. alpinum* and *P. nudicaule* must be retained, inasmuch as the plants which are represented by them are abundantly distinct from a cultivator's standpoint. Of the true alpine Poppy there appears to be one, if not two, distinct varieties. One named *pyrenaicum*, found among rocks in sunny places on the calcareous mountains in the south of Europe, and particularly the Pyrenees, has deep orange-red flowers. Another, named *flaviflorum*, has yellow flowers. These two appear to differ in no way except in colour, but they come true from seed.

P. NUDICAULE may be at once distinguished from the true *P. alpinum* by its larger and more robust growth, and especially by the foliage, which is much less divided; in fact, in some instances, it is scarcely cut at all. As in *P. alpinum*, the flower-scapes are naked, but they are taller than those of that species; they vary from 6 inches to 15 inches in height, and their flowers are often as much across as the width of an ordinary sized teacup. The petals, moreover, are generally beautifully crimped, and shine with a satiny lustre. The range of colour is a wide one, varying from pure white through yellow and orange to a glowing reddish scarlet. To each of the varieties a name has been given, indicating the colour of the flowers. That in the typical *P. nudicaule* is considered to be a clear yellow. This typical form has a wide geographical range. It is found in Eastern Siberia, the Altaian Alps, Asia Minor, Dauria, &c., but is confined to the northern half of the Old World. The reddish orange-flowered form is named *rubro-aurantiacum*, the citron-yellow, *luteum*, while the richest colour, almost a scarlet, bears the name of *punicum*. The white (album) variety of *P. nudicaule* is comparatively rare, but Miss Jekyll has grown it this season at Munstead, and from some of her flowers the accompanying engraving was prepared. This is a delicately beautiful variety, the satiny white flowers of which are as plentifully produced as in the other forms of *P. nudicaule*.

CULTURE.—The alpine Poppies are strictly hardy perennials, but, like a good many other alpine perennials, they are liable to perish. It is, therefore, best to raise seedlings annually in order to keep up a good stock of plants. Seeds are abundantly produced, and should be gathered and sown as soon as ripe in pots in a frame, or under a handlight, so that by the autumn the seedlings will have grown strong enough to withstand the winter. *P. alpinum* and its varieties are essentially rock garden plants, but *P. nudicaule* is a capital plant for growing in borders, and there are few prettier sights than a large and well-grown mass of seedlings, representing all the varied colours of this Poppy. The best soil is a moderately rich and light loam for *P. nudicaule*, but *P. alpinum* is better in a poorer soil. Both must have fully exposed positions, and the soil must be well drained in order to secure success.

ANTHEMIS AIZOON was the name originally given by Griesbach to the composite plant represented in the plate, but for this name *Achillea ageratifolia* has been substituted by Bentham, who discovered that the plant was generically distinct from *Anthemis*. The old name has, however, been adhered to in this case, as it is that best known in gardens. It is a pretty plant of neat growth, forming tufts of silvery foliage, from which arise numerous flower-stems, each carrying a flower-head, which is large compared with the other parts of the plant. Herbarium specimens exhibit a wide variation as regards the stature of the plant. In some the flower-stems are over a foot in height, and there is every gradation in size to pigmy forms, such as those represented in the accompanying plate, which shows the usual dimensions of the plant when cultivated. As regards culture, it does not fall under the category of plants difficult to manage. It should be planted in a fully exposed spot in the rock garden, and one that is thoroughly drained; otherwise, if excessive dampness prevails in winter, the foliage is liable to get injured. The best specimens of this plant that have come under our notice were growing in light loamy soil, and wedged in between two good sized blocks of hard rock, the inner surfaces of which afforded a congenial hold for the long wiry roots. The spot was exposed on all sides. When in good health this plant begins to flower early in summer, and continues in bloom for weeks together. It is a native of the mountains of Greece at high elevations, being often found as high as from 8000 feet to 9000 feet.

W. G.

SEASONABLE WORK.

FLOWER GARDEN.

SPRING BEDDING.—Where spring gaiety has to be studied, no time should be lost in clearing out the summer bedders and giving the necessary dressing to and digging to the beds. This can now be done without much sacrifice, as although there has not yet been sufficient frost to cut off many of the plants, it may occur any night now; besides, it is very desirable that spring-flowering plants, and particularly bulbs, should be planted soon. As to the arrangement of the plants, much depends on the size and number of the beds to be filled and the plants at command. Provided there is no stint or limit as to plants, then preference should be given to planting them in masses; but when plants and bulbs are short, then plant thinly and fill the intervening space with hardy carpeting plants. Small, choice evergreen shrubs are also excellent for dotting about the beds as single plants in central positions, thus saving a certain number of bulbs or plants, and at the same time imparting an immediate finished effect to the beds. Hyacinths, Crocuses, Narcissi, Primroses, Forget-me-nots, Daisies, Pansies, Wall-flowers, Stocks, Silenes, Candytufts, Limnanthes, Saponaria, and hardy annuals generally are among the kinds that ought now to be planted, and as soon as done, if the ground be not clothed with surfacing plants, it should be with Cocoa fibre if only for neatness sake, though it is, we believe, of some little value manurally.

WINTER BEDDING.—In those places where spring effectiveness is of less importance than winter, a much better effect can at once be made than is possible with spring bedding plants. This is done by using dwarf shrubs principally, though many other species of plants can be worked in well; among them are Thyme—green and variegated—Lamiums, Ajugas, Veronica incana, Sedums, Saxifrages, and hardy Heaths. These all do well for outer lines and ground-work, the shrubs being used for central masses or as standards. The best kind of shrubs are the Retino-

sporas, Thujas, Cupressus, Osmanthus, Aucubas, Cotoneasters, variegated Hollies, variegated Yews, variegated Ivies, green and variegated Periwinkles, green and variegated Euonymuses, Box, and Berberis. In the disposition or arranging of shrubs for winter bedding the colours being so nearly allied, care is needed to keep them as distinct as possible by planting the lightest greens with the variegated kinds, the darkest with the silvery greens, and the formal growing kinds with those of an opposite habit. By attention to this simple rule, sameness of colour and a nursery-like appearance will be avoided.

GENERAL WORK.—Lift all plants that must be saved; any that are not valued, and of which there is sufficient stock for another year, may be left till frost has destroyed them. Get all kinds of tender plants under cover, but air freely in favourable weather. Damp, atmospheric and at the root, is at this season the sole cause of plants rotting off; hence this should be guarded against. Proceed with shrub and tree planting as opportunity offers, there being more time for such extraneous jobs at this time of year than there is in the busy spring-time, besides the additional incentive there is for doing such work now, namely, that the plants as a rule flourish better.

INDOOR PLANTS.

NEPENTHES.—These most interesting plants are naturally of a scandent habit, and consequently can be used as roof climbers or trained to a pillar or rafter, in which way, where well grown, they not unusually are effective objects; yet when so managed the pitchers quickly lose the fine shape which is present in such as are produced by the shoots before they attain much height. This, it may be remarked, is one characteristic of these singular plants. Take, for instance, a strong, healthy, well-managed example whilst the shoots have only attained a height of say from 2 feet to 3 feet; the pitchers it produces will keep to the true pitcher shape—broad at bottom, narrowing towards the neck, with those curious appendages, the wings, fully developed; but, as the plants attain a greater height, more or less according to their kinds, the pitchers they produce assume quite a different character, coming very much longer and thinner, especially at the base, which, in place of being inflated and broader than the top, often has its shape so near reversed as to be much narrower at the bottom, with the wings all but absent. Some kinds that, whilst the shoots have not attained a height more than above named, produce pitchers heavily spotted; afterwards as they get longer they come wholly green; in fact, with all the different species that we have cultivated there has been a marked difference in either form or colour, or in both, when the shoots have reached a considerable length, in all cases resulting in their deteriorating. This condition can easily be avoided by cutting the shoots back to within 6 inches to 1 foot of the collar of the plants. Whenever so headed in they should not be cut lower than so as to leave two or three leaves to the stools below the point where cut back. Where a sufficient temperature can be kept up through the winter—and it is little use attempting the cultivation of *Nepenthes* without this—any plants that are getting too tall may at once be cut in as above described. By being so treated now they will get much better furnished in the ensuing summer than if the operation was deferred until spring.

AZALEAS.—Plants that bloomed early last winter and completed their growth at a correspondingly early period will be in a condition to again force early this season. The time that they can be brought into flower will in a great measure be dependent upon the way they have been treated. If kept warm through the early spring until their flower-buds were large and prominent, they may now be brought into bloom by subjecting them to moderate heat in five or six weeks, as in many cases the buds will be almost ready to burst. A temperature of 60° in the night will not be too much, but if they are less forward than here indi-

cated they must not be kept too warm, or the blooms will be soft and subject to flag when cut, for which purpose many of these early-forced flowers will most likely be required. See that the plants are quite clear from thrips or their eggs before being placed in heat, otherwise these will quickly increase and cause much trouble afterwards. Keep them well up to the glass in the lightest position available, and do not at this season syringe them much overhead or keep much moisture in the atmosphere, as water applied now, except sparingly, either by the use of the syringe or in the form of vapour, tends to a soft condition of the flowers much more than in the spring, when there is more daylight and a drier condition of the external air.

AZALEA MOLLIS.—This ranks amongst the best forcing hardy shrubs in existence, and is calculated to supersede the old Ghent varieties. When well managed, by full exposure to the sun where planted out in an open situation with attention as to watering during dry summer weather, it sets its buds so freely that even small plants, not more than 1 foot high, are a complete mass of flowers when in bloom. The obvious advantage of this is that so much flower can be had from plants in very small pots. Enough stock to give a succession by starting at different times through the winter should be now at once potted up, securing all the roots possible, with no more breakage than can be avoided. Whilst the weather is open they may be stood out-of-doors, but on the appearance of frost should be put in pits or frames.

CHRYSANTHEMUMS.—If flowers of these have not already been thinned, this operation should be no longer deferred. The extent to which the disbudding is carried requires to be regulated in accordance with the nature of the varieties to be operated upon. There is very great difference even amongst the large-flowered section in the ability of particular kinds to produce fully developed flowers; some of the largest exhibition sorts are not able, even in the case of strong, vigorous examples in large pots, to mature more than a single bloom on the top of each shoot, whilst other kinds bearing medium-sized flowers will carry four or five times the number. In like manner the larger-bloomed Pompone varieties should have their buds thinned more freely than the smallest flowered section, which, for general purposes, need little thinning. It is well to bear in mind that, even for ordinary decorative use, where there is no disposition to grow flowers up to the exhibition standard, it is advisable to thus thin them moderately, especially in the case of the latest blooming kinds, as where the buds are in this way sufficiently thinned the flowers that are allowed to remain have correspondingly more substance in them, and when expanded will last on the plants proportionately longer, in this way prolonging their season of bloom. There are now a number of new varieties of these plants, mostly of Continental origin, that bloom early, coming into flower by the end of September, filling up the time between the summer blooming varieties and the ordinary later flowerers, and where there is a demand for cut flowers in considerable quantities, note of these should be taken with a view to obtaining stock for another year.

MIGNONETTE.—Plants raised from the earliest sowing will now have attained considerable size, and if they have been properly attended to, ought to be well furnished with plenty of stout, healthy foliage. If the pots are very full of roots they must be assisted by the occasional use of manure water, or the application of some concentrated solid manure to the surface of the soil that will invigorate them as it is washed down to the roots in the operation of watering, otherwise the plants get a yellow, unhealthy appearance, and there is a premature loss of foliage, and a correspondingly weak condition of the advancing flowers. Where this sweet-smelling favourite is in regular demand, a sufficient stock of the new double white variety ought to be grown, for although it does not seed so as to be raised in the usual way, it can be readily struck from cuttings. The enduring character of the flowers and its

general excellent qualities are such as to make it well worth the little extra trouble involved in its propagation. Where young plants of it exist that are at all short of pot room, they ought to have a shift at once, using good loam well enriched with manure, and to which has been added a moderate amount of leaf mould, a material in which Mignonette, in common with most other soft-wooded plants, makes roots more freely than in loam alone. After this the plants should be kept in a light, airy pit with an ordinary greenhouse temperature, never allowing them to get too cold.

LACHENALIAS.—Many who force these pretty bulbs allow them to remain too long in the same pots without either giving them more room or dividing the clumps; the result is that they become too much enfeebled to flower freely. If means have not been taken to correct this before they have started into growth, the balls may be turned out of the pots and divided, each into three or four, without more disturbance of the roots than can be avoided; drain the pots sufficiently, use soil thoroughly enriched with rotten manure, and add enough sand to allow the water to pass freely through.

TROPEOLUMS.—Tubers of the tricolor section will now be about commencing growth; as soon as this is apparent they ought at once to be repotted. They thrive in either peat or loam, but it should be of a good open character, and as these plants require directly they commence growing to have whatever support they are to receive in the way of a trellis to train them on applied, it is necessary to put them in the pots in which they are to bloom; on this account it is requisite to be careful in the application of water until the new roots begin to move freely in it. Give them a light position in the greenhouse, and look diligently for the appearance of green fly.

FUCHSIAS.—Young plants struck about the end of July or beginning of August, if not already transferred to the pots in which they are to remain for some time yet, which should be 5 inches or 6 inches in diameter, ought, without further delay, to be moved into them. Use good loam, with about one-fourth or one-fifth of leaf-mould added, which will assist their rooting freely through the winter. They ought to be kept all but touching the glass in a night temperature of about 50°, and syringed overhead two or three times a week, so as to keep down any red spider that may be about them, for though this pest does not increase much during the winter, still it is partial to Fuchsias that it sometimes gets established on them at this season. Old examples that have done flowering should now be sparingly watered to induce a state of rest; when the leaves are partially fallen they may be cut back as close as it is deemed advisable to shorten them, and if a corner can be spared for them in a house or pit out of the reach of frost they will be better if the soil is not allowed to become quite dry; so treated they will not be subject to so much loss of root and will start away much freer when submitted to a little warmth after the turn of the days. If subjected to a sort of semi-dark treatment, such as under a greenhouse stage, or where there is insufficient light for any healthy growth to be kept up, the soil may be allowed to get quite dry.

SCHIZANTHUS.—There are few more effective plants for greenhouse decoration in spring than this showy annual when well managed in pots. If plants are at hand, the result of a little seed sown about the end of August, they should be wintered singly in 4-inch or 5-inch pots, keeping them on a shelf close to the glass with a stick to support the main shoot of each, nipping off the points of the side growths to induce them to break out bushy. This is all they require until well into the new year, when they must have a liberal amount of pot room.

ROMAN HYACINTHS.—Where these were potted early they will by this time have made plenty of roots, so as to admit of their being moved into heat previous to exposing the crowns, which will be in a blanched condition when taken from the material in which they have been plunged. They should be shielded from the full light, for if

suddenly exposed when in this state to its influence it has the effect of crippling the foliage. After they have been thus gradually brought to bear its power they are better for having a light position, especially if subjected to a high temperature, for in forcing these and all other plants it is well to bear in mind that wherever much heat is used the amount of light should be proportionate, with enough air on all favourable occasions. Only by these counteracting influences can the growth be kept sufficiently short and stout.

ORCHIDS.

EAST INDIA HOUSE.—Shading should now be entirely dispensed with, the plants needing all the sun they can get after the middle of October. We could not have had better weather for ripening the growth of Orchids than we have had this season; the temperature has been kept up with quite a minimum of artificial heat. No one, however, can say how long the weather will continue mild, and we must not be caught napping. A sharp frost may set in suddenly and lower the temperature to 55° when it ought to be 65°; this must, if possible, be avoided. The deciduous *Calanthes*, such as *C. vestita lutea*, *C. v. rubra*, *C. Veitchi*, and *C. Turneri*, are now throwing up their flower-spikes; they succeed best in a temperature of 65°, although they are hardier than some other Orchids that like that temperature—*Phalænopsis* and *Angræcums*, for instance. We have had some *Calanthes* in a very low temperature; certainly it was oftener at 55° than 65°, and yet they look remarkably healthy and promise to flower well, though later. *Aerides suavisimum* is now flowering well in the warmest house; its long spikes of prettily spotted flowers are distinct from those of any other species, and seldom fail to give satisfaction. *Saccolabium giganteum*, also in flower at this season, is not only one of the handsomest of the species, but also one of the most attractive, owing to its sweet perfume. The *Angræcums* will also be showing their flower-spikes in some cases, and should be watched in case they should be injured by slugs. Thrips are also very troublesome, and should be destroyed as soon as detected. *Phalænopsis*, of which there are now numerous species, has become by far the most important genus of our winter flowering Orchids. The recently introduced *P. Stuartiana* is the most beautiful as well as most recent addition, and it has become very reasonable in price. *P. violacea* may, however, be more valued by connoisseurs, owing to its more distinct character and its vigorous growth. *P. Schilleriana* is also throwing up its flower-spikes, and all of them now require strict attention. Some say, keep them comparatively dry during winter. Others say that is of no importance. We think it is a mistake to keep them dry at any time. Indeed, some of the best collections we have seen have been kept in a state of moisture sufficient to keep the *Sphagnum* of a lively green colour all through the winter. We would avoid wetting the leaves, and keep the minimum temperature as near to 65° as possible. Admit as much air as possible, as ventilation is quite as important in winter as it is in summer.

CATTELEYA HOUSE.—Among *Cattleyas* there may now be a considerable proportion in flower and many more to follow. The lovely *Vanda cœrulea* is now a charming feature, and as it has recently been imported in quantity, it is to be seen in many collections. When the plants are in flower they must be placed in the best positions to show them off to advantage; after that a light situation near the glass is best for them. There are other *Vandas* at present very attractive in the intermediate house, such as the various forms of *V. tricolor*. The true *V. insignis* has now become plentiful; it is as much a distinct species as *V. suavis*. Now is a good time to add it to collections. It is necessary to make room in this house now for some that may have been growing in the cool house during summer. Some species of *Masdevallia* ought to be in a warmer temperature than that afforded them in the cool house, that is if the temperature of the latter

is allowed to fall frequently as low as 40°. If 50° is the usual minimum, then I fancy such as *M. tovarensis* will do well enough in the cool house temperature. *Odontoglossum vexillarium* and *O. Phalaenopsis* should be placed in the intermediate house. Both are now making growth and like a temperature of about 55°. They should also be placed near the glass all through the winter. Too much cannot be said in favour of the new *Cattleya fausta* and its varieties for flowering in October; this seems to be one of the most variable of all the hybrids, as no fewer than seven distinct forms of it have flowered in Messrs. Veitch's nursery, Chelsea. Unfortunately, it is yet somewhat scarce. The true old form of *Cattleya labiata* is now pushing its flowers through the sheaths, as is also the rare green-sheathed form. Some of the varieties of *Cattleya intermedia* may also be seen in flower now, and also *C. guttata*. The treatment of all the different varieties and species of *Cattleya* must vary according to the stage of growth they are in. Those in flower will remain in beauty longest when kept rather dry at the roots, and keeping them in that state does not injure them at this season. Others not making any growth should also be kept rather dry, but all making new roots should have more water. A very moist atmosphere is not desirable.

COOL HOUSE.—This house can compare favourably with either of the other two just named as regards wealth of bloom this month. *Odontoglossum crispum* in its almost numberless varieties is now in flower, or showing spikes plentifully. In a little while *O. Rossi* will be in flower, and it is interesting to watch its rising spikes. *Oncidium tigrinum* does well in this house, and a spike or two of it perfumes the whole house. Stray flowers of *Masdevallia Harryana* and *M. Veitchi* yet charm us with their brilliantly coloured flowers. Those in our collection have most of the flowers picked off in order that they may bloom more strongly in spring. Some few of the *Masdevallias* require repotting, and it answers well to do it this month; they both grow and make roots freely at this time, and consequently soon lay hold of the new potting material. *Odontoglossums* starting to grow may also be repotted. Indeed, our experience leads us to believe that cool Orchids are so easily grown and so little liable to be injured by repotting, that the operation may be performed at any time of the year. We have done it in all the months and in all sorts of weather with good results. The only exception is that we would avoid pulling *Masdevallias* to pieces, or shaking the compost from their roots or that of *Odontoglossums* in very hot weather. As yet we have had no artificial heat in this house, nor will we apply it until the temperature falls to 45° at night. It is necessary to watch for the sudden appearance of frosts, but if the shading is up it may be let down in case of any emergency.

KITCHEN GARDEN.

TAKE up and store all roots forthwith, except Parsnips, which are better left in the ground. We find of all the varieties of Parsnips, Maltese to be the best; it is short, but thick, and does not take one half the time to lift that the others do. The quality is also quite on a par with that of Hollow Crown or The Student, the two varieties usually grown. Fill up blanks in the Cabbage quarter, and keep the hoe moving among all growing crops. Lettuces for spring cutting may now be planted, and the latest quarter of spring Cabbage. Endive should now be lifted as wanted; we put in from three to four dozen at a time in any out-of-the-way corner, but under cover, plunged in any light material, sprinkling powdered charcoal all over the plants; no decay then takes place, and they blanch beautifully; in fact, our opinion is that they look much better than they taste. Cut all unripe Tomatoes, and lay them singly on shelves placed above hot-water pipes in the late vineries, where they will ripen nicely. We find the smoother fruits to be preferable to the ridged ones; no moisture can lodge on the former; not so the latter. Our Mushroom

beds, spawned on September 15, are now producing a fine crop. Put no fire heat at all in the house, but keep the latter closed until the beds are all well covered with Mushrooms; then a little air adds to their flavour. Outside beds should be kept quite dry; ours are semi-thatched with long rough grass. Wheat straw is not warm enough for these esculents, but dried grass teased out makes the best of all coverings. A mat thrown over all adds to the cost, but pays well in the long run. Keep a good supply of Mustard and Cress, and on favourable days tie up Lettuces. At this season a good salad is enjoyed immensely; in fact, no dinner table is complete without it. Finish earthing up Celery; we are now using the produce of our first or early sowing. If time permitted, we would tie up all now with matting, a plan which we consider excellent.

FRUIT.

HARDY FRUITS.—With the exception of late Apples, which will be quite fit for gathering, most of the fruit will now be in the fruit room, and the weather being so mild and favourable for ground work, every operation pertaining to the disturbance of the roots of trees will require and repay early attention. On high and dry soils the importance of root pruning is not always appreciated; but in cold damp gardens it forms the keystone of success in the production of good crops of nearly every kind of fruit. Another important matter in the management of wall trees is good coping, temporary or otherwise, for protecting the blooms from frost. It is generally discussed once a year, and is again forgotten until the early flowers remind us that time is on the wing, and it is again too late to carry out the good intentions formed after the sharp frost of the preceding month of April. It is not for us to advise the kind of protector, as circumstances alter cases, but we may say we give preference to portable glass lights 2 feet in depth, which can be taken down and stored away as soon as the fruit is set and safe from spring frosts; and as there is now a period of only a few months before us, our duty will have been performed when we say now is the time to set about making, purchasing, or providing protectors for next spring. It will not, however, be well to put them up until they are actually wanted, as constant protection makes the trees tender and more liable to be injured by severe frost. When the usual routine of root pruning and planting of what may be termed modern trees has been brought to a close, there generally remains a large section formed of old friends in the orchards which would well repay the smallest favour, and as many of the trees are profuse bearers, the old-fashioned plan of taking away the surface soil down to the roots, and replacing it with a rich mixture made up of fresh turf, manure, charred refuse, road scrapings, or almost anything that can be got together for the purpose, will have the desired effect in increasing the size and quality of the fruit. We will assume that the ground is properly drained and the heads of the trees well thinned out to let in sun and air, but if these matters are not satisfactory, the dead months now before us will be profitably employed in making them so.

PRUNING AND NAILING.—Where the winter dressing of fruit trees forms a heavy item, an effort should be made to get this work forward before severe weather sets in, as men can get on much faster, the work is performed in a better manner, and the early removal of all superfluous matter exposes the trees and walls to the cleansing influences of frost and rain. With us the Currant is nearly ready for pruning; then will follow the Plum, the Cherry, and the Raspberry. The latter will have the canes securely tied to stakes or trellises, the shortening back being deferred until later on, and a good mulch of rotten manure will make all safe for the winter. Peaches and Nectarines we always prune as soon as the fruit is gathered; the shoots are then neatly nailed in close to the wall to ripen, and nothing more is needed until the times arrives for unailing and

drawing the branches away from the walls to prevent the buds from getting too forward. To prevent the shoots from being injured by wind a few stout Ash rods are placed in the border 1 foot from the base of the wall and bowed in to the coping. Every part of the tree is then washed with strong soap water or a solution of Gishurst, 8 ounces to the gallon of water; the shoots are tied up in small bundles and made fast to the rods, and the walls are left quite clear and ready for cleansing with a wash made of quicklime, linseed oil, and Venetian red mixed with boiling water. One quart of oil and a pound of Venetian red to every gallon of wash will produce a warm old brick-red colour when dry, and to avoid having two shades of colour, a sufficient quantity for the season should be mixed up at once. If a fine dry day is selected for applying the wash and working it into the old nail-holes, the enemies which usually attack and cripple the first spring growths will be destroyed, and the chances will be two to one in favour of useful early shoots getting thoroughly ripened before the following winter. In modern gardens, where the walls are well built, a brine or Quassia wash may be preferred; but where they are centuries old, and bricks of every conceivable shape and colour have been introduced, a wash made up of materials fatal to insect life produces a cheerful effect, while it increases the chances in favour of better crops of fruit.

THE ORCHARD HOUSE.

Now is the time when this structure should undergo any necessary repairs, improvements, or alterations which may be deemed necessary, such as painting, or at all events the thorough cleansing of the woodwork and the inside of the glass, &c., as by this time most, if not all, of the fruit will have been gathered. If a few late varieties of Peach trees still retain a portion of their fruit, or Grapes still remain on vines in pots, or on vines planted out, and trained to the roof or elsewhere, that need not prevent the repotting or surface dressing of other trees. It is unnecessary to wait until the leaves have all fallen before this operation is effected; on the contrary, it is, perhaps, better that it should be performed even before that has taken place, as the leaves may to some extent assist the newly repotted trees to form fresh roots, and to become to some extent established in their pots before the gradual diminution of temperature suspends for a time root action. Peach and other trees which may be planted out in borders, and to which it may be intended to apply portions of fresh soil, or in case of over-luxuriance where a salutary check may be thought necessary by the partial raising of the roots, or judicious root pruning—all such work should have attention now rather than in mid-winter or in spring. All trees in pots or tubs which may have been placed in favourable situations in the open air, with the view of thoroughly ripening their wood, ought now to be brought under cover of some kind, in order that the soil may become somewhat dry, a condition which greatly facilitates repotting or surface dressing, as well as prevents injury to the roots through coming into contact with cold and saturated soil. In long-established orchard houses some of the trees may have become unhealthy, and consequently unfruitful; and where that is the case they should be replaced by young trees. Some, also, though in the largest sized pots or tubs, and repeatedly surface-dressed, may nevertheless be what is known as "pot-bound," that is, the pots crammed full of roots, a condition in which they will be likely to become unhealthy, and as it may not be practicable to repot them into larger pots, the balls of soil should be allowed to become tolerably dry; the pot should then be placed on its side and the ball of soil carefully drawn out of the pot, the inside of which will generally be found to be perfectly clean, but everything in the form of drainage will have disappeared, and the lower part of the ball will possibly be found to be one solid mass of roots, the greater part of which it will be necessary to cut off, thus reducing considerably the ball of exhausted soil. Then repot the

tree in the same pot, which should be thoroughly drained, without, however, using more material for drainage than is really necessary. The soil employed for potting should be good turfy loam enriched with rotted manure. This is an operation which in most instances may not require to be repeated for two or even three years, surface dressings being all that will be needed. In the case of younger trees, the pots of which are less filled with roots, surface dressing of a rich character will be all that is necessary, and before applying that as much of the old soil should be removed as possible. Healthy trees in comparatively small pots should at once be transferred into larger pots, using suitable soil for the purpose, such as light, rich, turfy loam, with a fourth part of well rotted pig or stable manure in it.

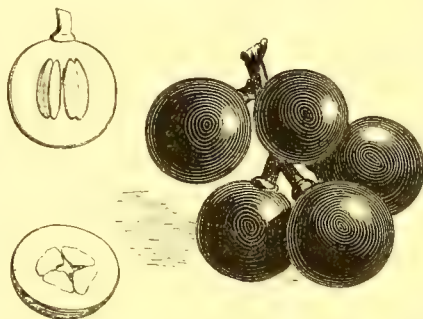
Where it is considered desirable to make additions to the stock of orchard house trees now is the time to select them. In most nurseries these may be obtained in small pots—healthy young well-established plants which have been some twelve months in their pots and require to be at once transferred to their fruiting pots, or a portion of maiden plants may now be potted up for the purpose. But of course a year will be gained by obtaining established plants in pots. In selecting maiden plants of such varieties as the Peach, Apricot, Plum, Cherry, &c., choice should be made of such as have formed a straight, well ripened shoot some 3 ft. or 4 ft. long. Their roots should be neatly pruned or cut back, and they should be at once potted firmly in well-drained pots some 8 inches in diameter, not larger, as they are only intended to remain in such pots for twelve months, when they will, if they have succeeded well, be transferred to their fruiting pots. The soil used for them may be similar to what has been already recommended without, in their case, the addition of manurial materials. Top pruning should be deferred until the spring. Young plants of the Pear, Fig, and Vine, if intended for the orchard house, may also be potted now, and large plants in pots may be repotted or surface dressed, as may be considered necessary. If the soil used for potting is tolerably dry, and if the plants are still retaining a portion of their foliage, a good watering may at once be given to settle the soil about the roots, and to prevent anything like a severe check. Syringing may also be had recourse to, and the house containing them should be kept close for a week or two, and it will be unadvisable to place any of the trees again in the open air. But although kept under cover, so as to be protected from rainfall, &c., they need not as yet be arranged or placed where they are intended to be during the following summer; on the contrary, they may be placed close together, with the pots mulched or covered up with any light littery material at hand, so as to prevent undue evaporation, while air should be freely admitted to the structure at all times when the weather is not very severe. With the pots so protected, the trees may remain in this situation throughout the winter, and the rest of the space thus rendered available in the house may be used for the purpose of protecting Roses and the various other kinds of hardy shrubs, &c., used for the purpose of forcing during winter and early spring.

Narcissus princeps and N. bicolor Horsfieldi.—These two beautiful varieties are well adapted for pot culture, and a charming effect they produce when placed amongst the usual occupants of the greenhouse in March. From three to a dozen bulbs may be put in a pot. I have not tried *N. maximus* in pots, but it is a grand species, and we are going to try it this year. At all the principal spring exhibitions Narcissi are exhibited, but one sees nothing but the bunch-flowered Daffodils (*Polyanthus Narcissus*). It is time that this was altered. The Trumpet Daffodils are superior to them as regards effect. There ought to be room for both in the greenhouse as well as on the exhibition table, and both require the same treatment. *N. minor* has done well with me in pots; it is a charming little plant, and comes in very early.—J. DOUGLAS.

FRUIT GARDEN.

TUBEROUS-ROOTED VINES.

FOLLOWING closely on the discovery of the tuberous-rooted Vine of the Soudan comes that of another in the French colony of Cochin China. Whether the two are identical remains to be seen, but M. Carrière, writing in the *Revue Horticole*, inclines to the belief that they are, and it is certain that they very closely resemble each other—so much so, indeed, that one can scarcely doubt that, if not one and the same species, the one must be a variety of the other. Both are distinguished by thick, tuberous roots, from which the stems are thrown up annually, much in the way of the common Hop, and both are remarkable for a strong, rapid growth and for their fruit-bearing powers. Here is what the discoverer, M. Martin, says in a letter addressed to Messrs. Vilmorin from Saigon, dated February 3, 1882: "I found this Vine for the first time in September, 1872, in the forests of Mais; it was covered with enormous bunches of Grapes. It would have to be grown in the same way as Hops, allowing it to climb up poles; but I do not think that it would make the growth in France which it does in Cochin China,



Portion of bunch of tuberous-rooted Vine with two divided berries, the one cut vertically, the other horizontally.

for I have seen there plants which attained a height of 50 feet, and which were covered with Grapes from the top to the bottom. The wine is of a fine colour, but green, that which I have made with cultivated Grapes being one degree stronger than that made from wild ones." In another letter M. Martin remarks, "A single Vine will yield 200 lbs. of Grapes, not, of course, in a general way, but I have found plants which gave that amount, and I have remarked bunches which weighed 8 lbs. One meets with this Vine throughout the whole of Cochin China." Hereupon M. Carrière observes, "It appears doubtful, although the contrary has not yet been proved, if these tuberous Vines can be cultivated in France, except perhaps in some very favoured localities." However, nothing certain can be affirmed in the matter, and we here give some extracts from letters addressed to the Messrs. Vilmorin by a person whom we should consider to be a competent judge, viz., M. le Comte Henri d'Arpoaré, Agricultural Commissioner of the Portuguese Government at Bolama, in Portuguese Guinea. Daily seeing these Vines, he was enabled to form an opinion concerning them, the more so as, being engaged in the study of

VINES CULTIVATED IN PORTUGAL, he was able to compare their relative merits. This is what he wrote in April, 1882. "It is exactly the same Grape Vine as that of Cochin China. Here (Portuguese Guinea) it bears a quantity of large and heavy bunches, the berries being of an agreeable flavour. This Vine would be of great use in our vineyards, and it is just there that it could be best acclimatised, especially in the warmer localities, as, for instance, at Douro, Madeira, &c. At Madeira they have been trying the American

Grapes, but the growers there have assured me that the wine made from them was detestable. In the north of Portuguese Guinea the tuberous Vine covers immense tracts and forms impenetrable thickets. There one finds both red and white Grapes, the white being better than the red, the soldiers garrisoned there making wine of it in the following manner: They gather the Grapes, press them, and immediately put the liquor in strong bottles, carefully tying and corking with wax. Some of the bottles burst, but those which do not furnish good wine. The white Grape is soft and agreeable in flavour; the red is rough." Commenting upon the above, M. Carrière observes: "Allowing for enthusiasm and for some exaggeration, we are authorised to conclude that these Vines may be grown in Europe, and may perhaps render some service." The first roots of the Cochin variety were sent to Messrs. Vilmorin in March, 1882. From a root stock, which sometimes attains very large proportions, extend long and large fleshy roots, which are so disposed as to form a very irregularly shaped mass, so much so, indeed, that no two roots are alike. One of these root-stocks, without the attendant roots, weighed over 15 lbs. In the case of nearly all these root-stocks the centre has a tendency to decay, forming a cavity so that the seat of life and activity is gradually removed from the centre to the circumference.

PROPAGATION is said to be effected either by means of seeds or from cuttings of the young growing shoots as soon as they can be had. Both cutting and seedling plants must be wintered the first year in warmth and kept gently moving, as the tuber does not generally form until the second season. The advice to rear these tuberous-rooted Vines from seeds is, however, certainly open to adverse criticism, for, as all know who have had anything to do with the raising of seedling Vines, few plants evince such a strong tendency to run away from the type as they do. The difference in size of berry is sometimes remarkably great. It may be that these tuberous Vines come true from seed, but there is no mention made of such being the case, and it is of the first importance that they should get a fair trial. It seems a pity to run the risk of failure by trusting to seedling plants when they can be had with equal facility true from cuttings. However this may be, I would counsel anyone wishing to give them a trial in this country to secure plants raised from cuttings, this being the only sure way to get the true variety. It is, however, unlikely that they will ever prove of any practical utility to English Grape growers; but, as representing an entirely new type of Grape growth, it would perhaps be worth while to see how they would behave under good cultivation. Nothing is known until proved, and these tuberous-rooted Vines may have a greater future before them than I am inclined to credit them with. J. C.

Byfleet.

TRAINED V. STANDARD PEACH TREES.

"P. G." (p. 284) refers to former remarks of mine on this subject, and quotes them pretty accurately, only I did not say standards produced "larger and better fruit" than trained trees. What I say is that standards produce better crops of as good fruit as trained trees with a great deal less trouble. Now when there appears to be a good many people taking up Peach culture, according to correspondents of THE GARDEN, I think it very desirable to ascertain which method of culture is the best, and, for my part, I unhesitatingly cast my vote for standards for crops to be ripened from August onwards. The plea of "P. G." is that fruit on standards does not colour so well as that on trees trained on walls, and is not so well flavoured—two qualities which go together. Very well; the reason why Peaches do not colour well is the want of air and sun, and I ask "P. G." if he really maintains that standard trees cannot be so grown as to get the benefit of these sufficiently to ripen fruit of excellent quality? This is "P. G.'s" position at present. What his experience may have been with orchard house Peach trees grown as pyramids I cannot tell, but,

according to his own account, it does not tally with that of Rivers, Pearson, and others. The former writer tells us that "few fruit trees give more satisfaction in the orchard house than Peaches and Nectarines" ("Orchard House," twelfth edition, p. 69), and he adds that the fruit "is lovely and perfectly ripened." This is, too, on orchard house trees of the sort "P. G." speaks of, and which I regard as the worst type of a standard tree. The trees I spoke of as having seen, and which had borne grand crops for about ten years, were about 15 feet high, and had heads some 12 feet through, and one of them, I think, had borne that year some 600 fruit, pronounced by all who saw it, including the fruiterer who bought a portion of it in Edinburgh, to be excellent, being well coloured and of good flavour. At White Hill there are large houses both of standards and trained trees, and the gardener said the standards were his best in every way, and were "ten times" less troublesome to manage. "P. G.'s" mistake consists in drawing his conclusions on the subject from restrictive-trained orchard-house specimens, which are necessarily mop-headed and of dense habit; but if, as Rivers says, such trees do ripen their fruit perfectly, there can be no doubt about the naturally shaped standards I recommend, for, unlike orchard house plants, they turn their buds, foliage, and fruit out like an umbrella, and the greater portion of the fruit is borne on the outside and fully exposed to the light. The objections raised are purely mythical, and one may safely predict a great future for Peach culture under glass with the aid of standard trees—the simplicity of the system rendering culture easy, even to a novice, as well as making it far cheaper. Moreover, it is only an assumption of "P. G.'s" that trained trees expose their fruit always properly to the sun and air. It is not so, for the fruit is often necessarily covered by the leaves, owing to the crowded condition of the shoots, and unless the leaves are removed, the fruit is often shaded badly. I find it so, and I train thinner than a good many. I had twice to go over the eighty dozen fruit on our two early trees last spring to put the leaves back off the fruit, and it was work and expense. Fruit on the under side cannot be properly exposed at all, and I remember a correspondent of THE GARDEN, Mr. Cowburn, I think, telling us he had as many Peaches on the under as the upper side of his trained trees.

J. S. W.

ENGLISH-RAISED NEW GRAPES.

THE peculiarities, not to say faults, of those varieties of Grapes raised within recent years from Vines grown under glass in this country have caused a good many cultivators to wonder what can be the cause of them. It is noteworthy that nearly all the really reliable and most generally grown Grapes in this country are old sorts, few of them home-raised, and nearly all of them hardier and better constituted than the new varieties, about which so much has been written of a controversial nature. Thus, the Black Hamburgh is one of the hardiest and most suitable Grapes, for all purposes, that can be grown. The Muscat of Alexandria needs a higher temperature, but is equally good and almost as extensively grown for summer and autumn crops. The Black Alicante is a remarkably sturdy variety too, a sure cropper, and hardly ever ails anything. Raisin de Calabre, Syrian, Barbarossa, Royal Muscadine, Sweetwater, Black Prince, the Frontignans, and in fact nearly all the old kinds generally grown, are fairly reliable anywhere, in that respect standing in marked contrast to the new kinds—in most cases derived from one or other of the above old sorts. For example, the Madresfield Court does not generally colour well, and is notoriously liable to crack and spoil just when getting ripe. The Golden Champion will not hang to ripen, but spots and decays to such an extent, that its culture has almost been discontinued; the Duke of Buccleuch is as bad, if not worse; Alnwick Seedling is a bad and uncertain setter; Venn's Muscat and Muscat Hamburgh have the same fault, and do not colour well; Lady Downes is the worst Grape to spoil that is grown; Busby's Golden

is so delicate and thin-skinned, that it discolours as soon as over-ripe, will keep no time, and is now hardly ever seen; Buckland Sweetwater is a poor grower and bearer, as a rule; Mrs. Pince constantly refuses to colour satisfactorily; the Canon Hall is a delicate sort, and a very bad setter, and so is the Royal Vineyard. There are other new sorts we know less about, said not to be without faults; but the above list of home-raised new Grapes, all with some marked constitutional weakness, is a rather remarkable one, it will be admitted. The new Grapes were presumably raised from healthy plants and good sorts that did not manifest any constitutional debility, but yet the progeny is weak. The Golden Champion, for example, is a cross between a Muscat and the Champion or Mill Hill Hamburgh, two strong kinds, yet it is inferior to both constitutionally; and the same may be said of the others. So far as one can see or may speculate, the cause of the debility, in some point or other, seems to be due to the fact of the parent plants and their ancestors having been so long propagated and grown under artificial, and on the whole unfavourable conditions under glass, thereby becoming constitutionally debilitated in the course of many generations. Evolutionists, like Darwin, at least say that permanent constitutional infirmity may be, and has been generated by similar means. Dr. Siemens, in his electric light experiments, found that good seed of certain cereals grew and produced seed under the electric light, but the seed so produced only vegetated and then died. The difference between this case and the Vine seems to be only one of degree. If our surmises be right, the probability is, that the best new Grapes of the future, of the English type, will come from America, Australia, and other countries where our favourite Grapes are being introduced to grow in the open air.

J. S. W.

THE PLANTING SEASON.

Now is the time to plant fruit trees and bushes of all sorts—work that should be done directly the leaves have fallen, and before frost and snow have set in to chill the soil. If planting cannot be finished by the end of November, it is safest to wait until the sun begins to exert its influence in February, for, although large market growers, who plant trees by the thousand, are compelled to plant whenever the weather is favourable, it is quite different with the owners of ordinary-sized gardens, who can usually make good all deficiencies at the best season for planting—that is, if the necessary preparation has been made; but in the majority of cases I have found preparations left until planting time has arrived, and then it would be best to defer the operation altogether for a year, putting in the meantime some crop into the ground that can be cleared off in good time for planting the following season. One season's thorough cultivation makes the soil not only clean, but mellow and friable—a condition in which it can be worked in around the tender rootlets in the best manner. Stiff soil that is best adapted for orchards is the very worst in which to plant directly it is broken up; therefore a season of preparation will be amply repaid by the more rapid growth which the trees will make after they are planted.

PLANTING COMPLETED, the stems should be securely staked and guarded from the attacks of rabbits; the roots, too, should be covered with a mulching of partly decayed manure. As to what to plant, the wants of various people and places prevent anything like a general answer being given to this question. If best quality in all cases ruled the selection, there would be little difficulty in at once settling the point. But in fruits, as in other things, we seldom find all good qualities combined in one individual. Where fruit is grown extensively for market, sorts that yield the largest crops are those which are most extensively planted; even in the most favoured districts in Kent it is not Greengages or Ribstons that make fruit culture pay, but sorts that would not receive attention as show fruits. Of late years the rapidly increasing demand for fruit has led to not

only much more extensive planting, but especially to growers taking more pains than formerly to find out what sorts will suit, not only the soil and situation, but the class of demand for which the grower has to cater. I am aware that the wants of private gardens are quite different from those of the market grower, but I firmly believe that many owners of gardens have given up hardy fruit culture in despair, simply from the meagre returns which they get in the way of fruit in proportion to the trees planted. In many cases this result is clearly traceable to the selection of too good sorts. We all like the best that we can grow, but for ordinary use a full supply of even second quality is better than little or no fruit; and certainly the market grower who has divested himself of all notions of what he ought to grow, and relies on what he can grow, manages to get the best returns in seasons both good and bad.

This, as we all know, has been an exceptional year of scarcity in the way of Damsons; but those who had crops of Farleigh Damsons or Shepherd Bullaces have realised prices for them that will put a value on such trees beyond what they ever had before. With Apples, too, the case is exactly the same. No one speaks well of the Goff Apple, or would think of comparing the many varieties of Codlins, such as Keswick, or Manks, or the Hawthornden, with sorts usually at the head of the list in private gardens; yet when cooked one is as good as the other, and in the case of dessert Apples there are now many kinds of very great excellence that are ten times more prolific than the Ribston. Tastes, too, differ greatly as regards fruits as well as other things; some like firm, sweet Apples, while others prefer a soft, juicy kind. Not only is it bad policy to take other people's selections as a guide as to what to plant, but no outsider can say what will suit various soils and situations. I find that in this locality the varieties of fruits most in favour are quite different from those most prized in the stiff soils of Kent. Here, on the south coast, the soil is light and stony, with perfect drainage. Under such circumstances, the surface-rooting Paradise stock is a great advantage, and, by mulching and attention to guarding against the effects of drought, the trees may be kept healthy for many years. I may remark that near the coast the effects of violent gales are the greatest of all drawbacks to fruit culture, and for this reason tall standard trees are in but little request. Dwarfs of some kind, that can be easily sheltered, or that shelter one another, are the sort mostly to be relied on. It is impossible to get here the immense crops that are sometimes grown in sheltered valleys; but that should not deter people from growing fruit. Make not only the sorts, but the mode of training, meet the circumstances of the case, and all will go right. Here we are compelled to adopt a restricted form of tree, not from choice, but necessity. One important consideration is to plant good healthy young trees; for, if we would keep a garden prolific, we must always have a succession of young trees coming on to succeed those that fail from old age.

Gosport.

J. G.

PEARS FOR COLD DISTRICTS.

THE following notes will, perhaps, be useful to growers situated as we are here. It is said the Pear does not ripen its fruit with regularity at a greater height above the sea than 700 feet in these islands, and I believe the statement to be true. The reason is that the fruit has not time to mature between the blooming period and the cold weather. Here we are exactly the above height above the sea level at the kitchen garden, and very few of the numerous varieties of Pears in common cultivation ripen with us, although they bear well enough. Some of our bush Pear trees are this year fairly bent down with the weight of crop—notably, the Althorpe Crassane and Easter Beurré, but neither will ripen. Two hundred feet higher up on the hill-side my neighbour's trees—Pears, Plums, and Apples, &c.—are all under glass, and do remarkably well. An orchard house is a good investment in cold situations. Our very

best Pears are the Louise Bonne and Marie Louise, grown on a warm south wall, on old and good horizontally-trained trees. Beurré Diel is equally fine looking, but does not ripen so soon or so surely. The crops of the first two are tolerably certain, and the fruit is, as a rule, excellent and of fair size. Both will be now in season in many places, but here they were only gathered on October 4, and quite hard. On bush trees in the open quarter both ripen, but do not succeed so well as on the wall. Williams' Bon Chrétien, of course, ripens with us, and the fruit is of good size on dwarf standards; but the crop is still on the tree, October 8, and has endured a severe gale of wind without being blown off, so is not ripe yet. Its season of use is from August to September in an ordinary way, but ours will not be fit to eat till about November. Napoleon, a nice looking and good Pear, also ripens with us, but at present is still far from fit to gather. It will hardly be credited that Doyenné d'Ete, which ripens elsewhere early in August, is still also on the tree with us, but it is on bush trees, and a heavy crop. Beurré d'Amanlis we have had occasionally on pyramids in the open ground, both large and finely flavoured, but it is not prolific. Easter Beurré attains to moderate size and bears freely, but has never yet been fit to eat as a dessert Pear. These are about all. Hacon's Incomparable, Althorpe Crassane, Forelle, Marie Bergamotte, Knight's Monarch, and others seldom or never come to anything more than mere woody knobs, often split and cracked all over. "W. C. T.," who lately doubted that it was heated walls to which good crops of Peaches were due in a locality where the above fruits behave in the way described, will now perhaps better comprehend the difficulties with which Harrison had to contend. J. S.

Pears cracking.—Some varieties are more liable to crack their fruits than others, especially when grown as pyramids or standards. Cracking, however, may be prevented in many cases, this being generally the result of too deep root action. By completely undermining, lifting, and replanting the trees rather above than below the level, we have cured this cracking propensity in the case of such sorts as Easter Beurré, Glou Morceau, and Beurré Diel, all of which are notoriously addicted to it. Besides, this lifting serves to check gross top growth, insures a free-bearing habit, and economises space.—I. M.

Kerry Pippin and summer Golden Pippin Apples.—These two widely distinct varieties are great favourites with Dr. Marsh, Egford, Frome, no collection, in his opinion, being complete without them. Both are rather small fruited, but for dessert purposes during part of September and October they are very serviceable, being most attractive in appearance and of excellent quality. They are sure bearers, and their not being strong growers renders them well adapted for garden culture. The Kerry Pippin forms a fairly good standard tree, and a considerable quantity of its fruit is thus grown for the London market.—W. I. M.

Pears damaged by tom-tits.—Pears are valuable this season, and it is very annoying to find so many of them with small holes picked out near the stalks by tom-tits. We generally suffer from the depredations of these bold little birds, but never so much as this season. We cannot keep any late-ripening Pears from them, and no matter how many we trap among these their name is legion, and the cry is, "Still they come." It is useless to attempt to ripen those damaged, as they will inevitably decay before they are fit to eat; consequently they are sent to the kitchen for stewing, and are much appreciated there for that purpose. They are also good in tarts, and better use them in this way than spoil them.—I.

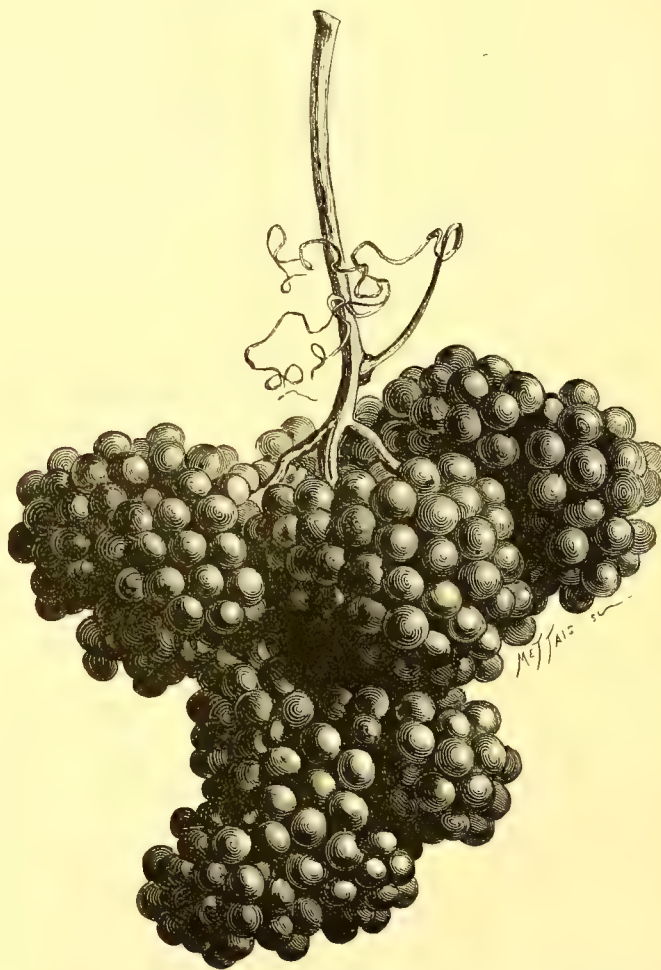
Golden Spire Apple.—This is not a local Apple, but one now cultivated throughout England, at present chiefly in private gardens. It is destined to take the place of Keswick and Lord Suffield. The tree, which is upright in growth, has a willowy appearance, and, as I think I have before mentioned in THE GARDEN, is especially well adapted for planting in shrubberies. It is an annual bearer and the quality is good. It was first found, I believe, in Lancashire about twenty-five years ago.—L. A. K.

FLOWER GARDEN.

WINTERING ALPINES.

THERE are always at this season of the year some either tender, rare, or scarce members of the rock garden which need special attention. In the case of improved varieties it is always advisable in some way, either by means of cuttings, seed, or division, to guard oneself against loss in winter. It is a good practice always to keep surplus stock in pots of the choicer kinds; for, besides having a few specimen pans for exhibition or for other purposes, one has always some to exchange with one's friends and for filling up gaps in cases

piece of *Cystopteris fragilis*, a patch of *Erpetion reniforme*, or be a hiding-place for slugs to devour strong rootlets of *Androsace sarmentosa*, *Silene maritima*, *Veronica verbenacea*, and many others; such vigorous plants bear pruning well. *Acantholimon glumaceum* and its pretty relative, *A. venustum*, will not stand the winter in a wet position, and would be all the better in any case if a quantity of sand, grit, and peat were run in amongst its woody stems. Then if the old roots died, as they often do, there would, in all probability, be young roots emitted in spring from above into the top-dressing. This plan of filling up the interstices with a sandy mixture is very beneficial in many ways. *Lithospermum prostratum* operated



Tuberos rooted Grape of Cochín China. (Bunch and berries one-third natural size.)

of loss. The final turn in the way of weeding enables one to make a careful survey, and at the same time to carry on all necessary work. Have a good heap of prepared soil ready—peat and sand, grit and peat, sand and leaf soil, grit and leaf soil—all prepared for the various plants for which these different soils are best suited. In the case of the alpine garden the inherent ideas of tidiness which cultivators in general possess ought to be dispensed with. I consider it most important that all leaves gathered, as they undoubtedly will, about the corners and hollows should be allowed to remain there, or rather carefully secured by means of a few loose stones about plants requiring special protection. In our desire to have natural effects we must not allow one species of strong rambling habit to smother its weaker neighbours. Such a graceful habited plant as *Aceria pulchella*, if allowed to ramble at will, looking beautiful in its fruiting condition at this season of the year, would soon smother a delicate

on in this way will probably furnish a goodly number of rooted offsets next spring. *Daphne Cneorum* is another plant amenable to the same treatment with the same results. Others are *Epigaea repens*, *Andromeda tetragona*, and *Bryanthus erectus*.

GLASS PROTECTIONS.—Placing odd pieces of glass, slightly sloping, to throw rain off plants is a capital winter protection. Many plants, hardy enough in this country, succumb through altered conditions to too much moisture in winter. *Agave Deserti*, *A. utahensis*, *Indian Meconopsis*, *Umbilicus spinosus*, *Dasyliroton Bigelowii*, various *Edraianthi*, *Houstonia cœrulea*, *Opuntias*, *Pelargonium Endlicherianum*, and some others are all benefited by having a covering of glass put over them. In order to effect this the best way is to get three or four lengths of lath, regulated according to the height of the plant to be protected, pointed at one end so as to enable them to be stuck into the ground; near the top of each piece cut notches deep enough to rest the glass upon. I

have found pieces of glass thus placed capable of protecting that lovely, but precocious, bloomer, *Epigæa repens*, in early spring, keeping it in beautiful condition for months when a week of snow showers would have finished its charms.

DUPLICATES.—Among kinds of which it is always advisable duplicates should be kept come the following: *Arabis pedemontana*, *Armeria juncea*, *Artemisia nitida*, *Astrantia minor*, *Callirhoe involucrata*, *Campanula fragilis*, *C. isophylla*, *C. Allioni*, *C. Raineri* (true), *Cheiranthus longifolius*, *Cyananthus lobatus*, *Cyclamen repandum*, and *C. ibericum*. Most *Drabas* are hardy, but if not good plants they are liable to be either eaten by slugs, or pulled out of the ground by frost or worms, so it would perhaps be well to take them up altogether for the winter. Take a few cuttings of *Epilobium obcordatum* and of *Cyananthus lobatus*. Look carefully about *Erodium cheilanthifolium* and *E. chrysanthum* for seedlings and pot them. Cuttings of all hardy or half-hardy *Fuchsias* should have been taken, but if not, it is not yet too late. I refer to such kinds as *F. globosa*, *F. Riccartoni*, *F. procumbens*, *F. corallina*, and *F. microphylla*. *Geranium argenteum* and *G. cinereum* may also be examined for seedlings, and probably some hybrids will be found between the two. If good strong shoots of *Iberis gibraltarica* var. *hybrida* be taken now and put in pots or pans, fine flowering heads will be had next spring. The new *Iberis*, *I. Fruiti*, seems to me to be doubtfully hardy, but I have no experience with it. It would be better to keep a bit or two of *Houstonia*, worms pile it up so with their castings. *Lewisia rediviva*, *Lithospermum petraeum*, and *L. Gastoni* are rather doubtful plants, unless well established. It is too late to take cuttings of *Onosma tauricum*, the "Golden Drop," but a piece of glass will fully protect it. *Petrocallis pyrenaica*, *Phyteuma Sieberi*, *P. comosum*, and *P. humile* are deserving of special attention. It would be well to secure some bulbs of the *Pinguiculas*. Duplicates of all *Primulas* should be kept, although most of them are quite hardy. The true *P. nivalis*, *P. sikkimensis*, *verticillata*, and perhaps one or two others only need special mention. Of *Sedums*, *Saxifrages*, and *Sempervivums*, most people keep a good stock in pots; *Senecio pulcher*, although doubtful, is generally safe under a good covering of leaves. *Soldanellas* must not be forgotten.

H.

The Hungarian Bindweed.—I lately noticed this plant, the great Bindweed of our gardens, growing up the stem of a dead Spruce to a height of nearly or quite 20 feet in the College Gardens at Dublin. As may be supposed, the effect was very good, and the place the true one for the plant which is not easy to control in a border of choice shrubs. In this case the stem it grew upon was isolated on the Grass, so that the plant could not easily ramble away; besides, it had plenty of room above. The large vase-like flowers of this plant, and its pink form and fine habit, go to make it worthy of a fit place in our gardens.—R.

Lilies in the shade.—Several of your correspondents have implied that I recommend growing Lilies only in shade and shelter and not in the open sun. I believe that in most gardens where not many Lilies are grown it is safest to plant them in the shade and shelter of a *Rhododendron* bed or otherwise protected. When the subsoil is at all moist they, of course, flower well in the sun, but are more exposed to be damaged by spring frosts and by hail or heavy rain when in bloom, and by hail even when in bud. On our experimental garden hillside we had this year some thousands of *L. auratum* in full sun. On two Saturdays running there were heavy hailstorms; this was at the time when *Iris Kämpferi* was in beauty; its great flowers were split to ribbons and the hailstones lay 4 inches deep on some of the rock plants. The storms bruised the leaves and buds of *L. auratum*, *speciosum*, *Batemanianæ*, &c., so much, that they did not entirely recover from the effects, many of the flowers showing blemishes, though not the least like those from spot. I have this

morning cut you a basket of Lilies. The *auratum* were grown in full shade under trees; the *speciosum* from a sunk pit where it has not seen the sun. I leave the flowers and deep green foliage to speak for themselves. We are making a bed at Wisley, where a great number of all sorts of Lilies will be planted in the complete shade of the wood. I will report results hereafter.—GEORGE F. WILSON, *Heatherbank, Weybridge*.

* * With this note Mr. Wilson brought us three stems of *Lilium auratum* and *speciosum* as examples of his Lilies that had never seen the sun while growing. They are by far the finest specimens of *Lilium auratum* that we have ever seen in the middle of October. The stems range from 4 feet to 6 feet high, and carry about half-a-dozen blooms, each about 8 inches across. The leaves are remarkably vigorous, measuring from 8 inches to 10 inches in length, of a deep, healthy green. They well bear out what Mr. Wilson has stated.—ED.

Tuberous Begonias and rain.—These grow well in Lancashire, and no flowers better withstand the effects of rain. In one of my rambles round Liverpool about a fortnight ago I saw at the Botanic Gardens some magnificent beds of them full of bloom, showing how valuable they are for late flowering. Begonia blooms are also very useful in a cut state, lasting, as they do, well in water, and the striking colours please the eye.—W. ROBERTS, *Seaford, Liverpool*.

Is *Narcissus incomparabilis* ever fertile?—It is confidently stated, as in THE GARDEN last week, that *N. incomparabilis* is a hybrid, and therefore sterile. A hybrid it may be, but does it never bear seed? I believe I have read somewhere (was it in the old "Miller's Gardening Dictionary?") that this *Narcissus* does seed in Spain. If this be true, it is possible that it may produce and ripen seed in England in some favourable seasons. These may, of course, occur rarely, but I am puzzled in this way. In my neighbourhood *incomparabilis* is so abundant as to be wild, I may almost say, in some spots. In these and in a small field of my own, where it has established itself, it grows in so scattered (literally sporadic) a way, that it bears precisely the appearance of a self-sown plant. I cannot say that I have ever found seed upon it; but I have really never looked carefully, for I have not been here very long, and have been very busy with other matters. But it would certainly seem difficult to account for the wide-spreading of this Daffodil, and in so scattered a way, if it increases only from the bulb.—G. H. ENGLEHEART, *Applesham, Andover*.

SHORT NOTES.—FLOWER.

The variegated tree *Sempervivum*, shown by Mr. Cannell at South Kensington on the 9th inst., is one of the best kinds of succulents for summer bedding, particularly for dotting over a dark groundwork of *Coleus* or *Alternanthera*.—W.

The single Dahlias grow as much as 9 feet high—fine things for breaking flat surfaces. Our sapient nurserymen are trying to get them dwarf, and those who do not devote themselves to pin-cushion beds will probably have to provide for themselves.—V.

Jonquills.—These we are growing in pots this year. Of the small flowered, single, sweet-scented variety we have planted a dozen bulbs in a 7-inch pot. The giant Jonquil *Campanelle* has larger bulbs, and nine are sufficient to put in the same space.—J. G.

***Corbularia conspicua*.**—We are now potting bulbs of the Hoop-petticoat *Narcissus*. A few potfuls of it exhibited by me in April last were greatly admired. Bulbs of it may now be purchased at half-a-crown a dozen, and six of them, in a 5-inch pot, will yield more than a score of flowers.—J. D.

Carnation Juliette.—Amongst perpetual flowering, Carnations, Juliette, now being distributed by Mr. Turner of Slough, is a very fine kind. It is dwarf and free-flowering, so free that a small plant which I had in summer has thirty flowers and buds on it. Its colour is deep rose, and the flowers are large and well formed. From a dozen plants of this variety one might cut and come again from October until April.—J. DOUGLAS.

Single Dahlias may well be popular; at this date (October 15) they are simply magnificent. The best half dozen kinds in our collection are White Queen, Paragon, deep maroon, striped with purple; Sunflower, light yellow; *Gracilis perfecta*, intense crimson; Cecile Teigner, purplish pink; and Plato, orange-buff. With us young plants produce the finest flowers, and the plants are more compact than those planted as old stools.—W.

TREES AND SHRUBS.

EDINBURGH FORESTRY EXHIBITION.

RAPID progress is now being made with arrangements in connection with the International Forestry Exhibition to be held in Edinburgh next year, and both from home and abroad the promoters are receiving most gratifying support. Although the idea of having such an exhibition only took a tangible shape a little more than six months ago, so much ability and energy have been thrown into the work by the executive committee, that its success is already ensured.

ORIGIN OF THE UNDERTAKING.—It may be remembered that in March last, at a meeting held in Edinburgh under the presidency of the Marquis of Lothian, the movement took a practical shape, a motion pledging those present to give their hearty co-operation and patronage to the promotion of such an exhibition having been unanimously adopted on the suggestion of Mr. Hutchison, of Corlowie. A guarantee fund was at once opened for subscriptions, and a provisional committee appointed. Matters went on smoothly till August, when the promoters learned with some anxiety that a proposal was on foot also to open an international exhibition of horticulture, floriculture, and forestry in London next year. It was felt that two exhibitions of forestry held simultaneously—one in London and the other in Edinburgh—would be injurious to both, and a feeling of great relief was experienced when this clashing of interest was averted by the timely interposition of the Marquis of Lothian and Lord Provost Harrison, the London committee having courteously agreed, at the request of the latter, to postpone their exhibition till 1885.

HINTS TO INTENDING EXHIBITORS.—The exhibition, as is well known, is intended to include everything connected with or illustrative of the forest products of the world, and will be open to exhibitors from all countries. The exhibits, as has been before stated, will come under one or other of the following classes: 1, Practical forestry; 2, forest produce, raw and manufactured; 3, scientific forestry; 4, ornamental forestry; 5, illustrations of forestry; 6, forest literature and history; 7, essays and reports; 8, loan collections; 9, economic condition of foresters and woodmen; and 10, miscellaneous. The entries will close on 1st March, and all exhibits must be intimated by a certificate of entry, forms of which will be issued on application to the secretary. The committee have agreed to reserve power to restrict the space applied for, or to decline any application, in either of which cases the secretary will, as soon as practicable, notify the result to the applicant. The floor rate is to be charged at the rate of one shilling per square foot, but the open air space is free. The cases for exhibits, however, must in no case exceed 10 feet in height, and exhibitors will require to pay all the expense of transit, delivery, fixing, and removing their exhibits. All packages containing articles intended for exhibition should bear the distinctive mark, "I. F. E., Edinburgh," in red paint; and also have painted on them the name and number (which will be sent on allocation of space) of the exhibitor. The way-bill is to accompany all packages, and contain the name of the exhibitor, his number and address. It should be borne in mind, however, that the date for the reception of exhibits has not yet been fixed. Exhibitors of machinery requiring the use of water, gas, or steam must state, on making their entries, the quantity of water, gas, or steam which will be required; and exhibitors of machinery in motion are to mention the rate of speed at which it is to be driven. The furnishing of all connections, shafting, pulleys, belting, &c., will, of course, be at the expense of the exhibitor; but gas, water, or steam power will be supplied on terms which are to be arranged by the committee, and be under their entire control. Medals, money prizes, and diplomas for exhibits and essays will be awarded by competent jurors. The executive have resolved that no photographs, copies, or other reproductions of any objects ex-

hibited will be permitted to be taken without the consent of the committee and the exhibitor. Contributors to the loan department are requested to communicate with the secretary, who will supply special forms to be filled up by them. Free space will be given for workmen's approved models. To ensure uniformity of decoration and general effect, no exhibitor is to be allowed to put up any sign, flag, banner, or other kind of decoration or erection without the approval of the committee. Exhibitors may mark the selling price of the articles exhibited complete, for the information of the jurors and visitors. All fulminating and explosive substances and all dangerous materials are absolutely forbidden to be sent. Smoking is strictly prohibited within the exhibition buildings, and all persons admitted to the exhibition shall be subject to the rules and orders of the committee. We understand that the committee will endeavour to obtain from the various British railway companies special terms for the conveyance of exhibits to and from the exhibition; and should they succeed, such arrangements will be duly intimated to exhibitors. The committee, however, do not undertake any responsibility between the railway companies and exhibitors with reference to the despatch, transmission, delivery, or return of exhibits.

COLONIAL, FOREIGN, AND CONTINENTAL EXHIBITS.—There is every prospect of a considerable number of contributions coming from the Colonial Governments, as the Colonial Secretary has officially forwarded the printed papers to the members. On account of the connection which the secretary, Mr. Cadell, and several members of committee, have with various forest officials in India, it may be reasonably expected that large contributions will come also from that quarter of the globe. Indeed, promises have already been received from Ceylon, Nova Scotia, Japan, Jamaica, the Andaman and Nicobar Islands, &c. A large number of trophies of the chase are to be forwarded from India by Colonel Michael, a celebrated sportsman. From the various Continental schools numerous appliances for floating, transporting, and converting timber will form an interesting feature of the exhibition.

DATE OF OPENING THE EXHIBITION.—It is proposed that the exhibition should be opened about the beginning of July, and continue open for three months or so. Many of the visitors who usually favour Edinburgh at that time will therefore find an additional inducement to prolong their stay. The results anticipated are a stimulus to trade generally, increase of useful information, and personal intercourse between the traders and artisans of other countries with those of Edinburgh. The exhibition thus becomes of national importance, and it is hoped that the Edinburgh Town Council may see their way to grant a site where the buildings and outdoor exhibitions of growing plants may be placed to the greatest advantage. In this, as in every other part of the enterprise, the executive committee are most anxious to carry with them the good wishes of their townsmen, and where benefits of such importance to the community are concerned, it is to be hoped that there may be unanimous and hearty approval of the efforts made by the executive to insure at once a financial success and the advancement of the educational interests of the world at large.

5071.—**Buddlea globosa.**—This bears pruning with impunity, and if cut back early in spring will throw up strong flowering shoots the same season. In the case of a wall plant this treatment is not necessary, although topping or cutting back strong branches might be pursued with safety and with the best results. A plot of standard Buddleas in our home nursery here was cut back, owing to overgrowth, and I was quite surprised at the quantity of flowers produced by the young wood during the following season.—A. D. WEBSTER.

—“A. J. C.” should not prune his plant of *Buddlea globosa* in any way in order to induce flowering. As it was only planted last autumn

and grew vigorously this season, there has been no time lost as yet. If not interfered with in any way, the probability is that it will flower freely next summer, and continue to do so every season without any pruning whatever, unless it gets too large for the position assigned it, when it may be cut back.—ALPHA.

Staphylea colchica.—I find this member of the Bladder-nut family to be very useful for forcing into flower in spring. The common Bladder-nut (*S. pinnata*), found wild in some parts of England, is more attractive in fruit than in flower, but *S. colchica* is valued for the beauty of its pure white blossoms, which are produced in large clusters. Like *Deutzia gracilis*, it is, as a rule, more attractive under glass than in the open air, as outside the blossoms are often tinged with green. This *Staphylea* has been known for some time, but it is only within the last few years that it has been used for forcing; indeed, its employment for that purpose is still very limited. Cuttings of it do not root satisfactorily; therefore a stock of it must be obtained by means of layers, or in the case of established plants it is often possible to detach suckers with a few roots attached to them, and these soon make good plants. Very early forcing does not suit it, the beginning of March being quite soon enough to have it in perfection.—H. P.

5075.—**Araucaria imbricata.**—The trees in question are suffering from superabundant moisture at the root, which the thick coating of Moss but too clearly proves. Drain the soil thoroughly and prune off all dead and dying branches, when the trees will doubtless improve. A prevailing evil with the *Araucaria* seems to be the loss of the lower branches, a circumstance due in a great measure to planting the tree in a low-lying, damp situation, where it is susceptible to the influence of frost, or under the shade and drip of other trees. The latter is perhaps the principal cause, as I have frequently noted the injurious effects produced on this tree by coming in too close contact with others, and as often watched the healthy development of foliage when allowed ample space and partially sheltered from the prevailing winds. By many persons the loss of branches is attributed to insufficient nourishment caused by growing the tree on poor soil, but this is quite a mistake, as the *Araucaria* will thrive in almost any class of soil, provided thorough drainage is attended to. No tree dislikes more being under the shade and drip of others than this *Araucaria*, and nothing is more adverse to its healthy development.—A. D. WEBSTER, *Penrhyn Castle, North Wales.*

Curious graft on a Silver Fir tree.—Growing alongside one of the drives in the park here is a large Silver Fir, on a branch of which a twig of *Picea Pinsapo* has at one time been engrafted. The graft, strange to say, is deciduous, the leaves or pins annually dying off in autumn and being again renewed in spring. To avoid mistake, I have duly noted this curious fact for the past five years, and, never having seen or heard of a similar occurrence, I should like to know if anything of the kind has come under the notice of your readers. As the tree in question is growing alongside the drive leading to Bangor and the graft placed on the side next to the road, I can only account for such a curious experiment in the following manner: A large *Picea Pinsapo* grows near the garden, and it may be that one of the young gardeners in going to Bangor, and while, perhaps, waiting for a friend, cut a twig from this tree and grafted it upon the Silver Fir, more, perhaps, as an experiment or for amusement than from any idea that a union of the two would take place.—A. D. WEBSTER.

The Tree Ivy.—It is curious to note how few use this fine shrub effectively. I saw one by a roadside away from all gardens a few days ago, many feet through the head, and forming one of the handsomest evergreens that could be desired. It was a plant of the common Ivy, which had grown up an old stone and mortar pillar, that once probably formed the gate-post of the small farmhouse. Above this 6 feet of pillar, finding

nothing to climb on, the plant assumed the tree habit, and spread forth with a roundish-flat head into a beautiful object. There are few country places where a few of these Tree Ives could not be placed with advantage. Native evergreens, they fear not frost, and no foreigner could give a happier effect.—V.

ORCHIDS.

ORCHID GROWING IN THE TROPICS.*

THE culture of Orchids, often attended with so many obstacles in temperate regions, presents little or no difficulty in the Tropics. When, after voyaging for some years on the Amazon, from Pará to Pebas, in Peru, a distance of some 2000 miles, and seeing Orchids in their habitats, I decided to remain permanently in Pará, I soon had a small collection of the more common Amazonian Orchids, such as many species of *Catasetums*, *Gongoras*, *Rodriguezias*, *Epidendrums*, *Oncidiums*, *Galeandras*, *Trichocentrum atropurpureum*, *Stanhopea eburnea*, and *Cattleya superba*, *El Dorado*, *Wallisi*, and *luteola*. These plants, although coming from regions hundreds of miles removed, all flourished under the same treatment. Those of which I had plenty were simply wired on to the trunks and branches of the Orange and Sapodilla trees in the orchard, but the choicer kinds (as, like almost every one else in Pará, I was only a tenant at will in my house) were fastened on to bare hard wood blocks which were hung on the trees, or on the shady side of the orchard fences. On the trees the growth of roots began at once and the distance the roots would run up and down the trunks was astonishing. For example, a medium-sized plant of *Cattleya superba* stretched its roots 4 feet up and more than 6 feet down the trunk of a Sapodilla tree, these long roots often branching and covering the bark like a network. On plants grown on blocks

THE ROOT GROWTH was far shorter, but no less strong and healthy. Such profusion of roots could not fail shortly to produce strong and healthy growth, and after a few months I was never without a good display of Orchid bloom. The treatment was simply, when two consecutive days followed without the afternoon shower, to give a syringing in early morning to the plants on blocks, those on the trees never requiring any. When the plants showed bud they were removed to the piazza and hung to the posts or to the rafters of the roof, where, being under cover and thus out of the reach of the rain, they received a morning syringing. When the plants were out of bloom they were returned to the orchard. The show of flower was at times very fine. Plants of *Cattleya superba* were seldom out of bloom; this species never rested and showed flower from every new growth, the colour varying from clear pink to deep lake. A single spike would often show seven blooms, and many individual flowers measured 3 inches in diameter, but, as a rule, the very large flowers were wanting in depth of colour. *Cattleya El Dorado*, blooming from November to March, presented a great difference of colour from deep pink to the pure white *Cattleya Wallisi*, which is only a white *Cattleya El Dorado* in flower, though very distinct in growth. The size and depth of colour of the blotch on the lip, varying from deepest orange to light yellow, was very marked in the various plants, as also the purple spot and the frilling of the tip of the lip. *Cattleya luteola*, like *C. superba*, was always in growth and bloom, the canary yellow flowers, produced two to eight together, showing a great variety in the carmine markings of the lip. *Stanhopeas* and *Coryanthes* usually bloomed from December to June, but if one has many plants, some can be found showing flower every month in the year. *Rodriguezia secunda* and *laxiflora* bloom in January. The former in the shape of a large plant makes a magnificent show. One of my plants is as large as a bushel measure, and had

* By E. S. Rand, jun., Pará, Brazil, in *New York Horticultural Society's Proceedings*.

last winter more than 100 long spikes of bloom. This *Rodriguezia* is no less ornamental in seed than in flower, the capsules bursting and showing the masses of infinitesimal white seeds which look like woolly flowers. It is very common around Pará, the Mango trees being full of it, and it is in fact almost the only Orchid which is found in the city itself. There is a great difference in the plants; some have thin leaves, few spikes and pale flowers, and others thick fleshy leaves, and many spikes with very rich cherry-coloured blossoms. The best are quite as handsome as *Saccolabium ampullaceum*. *Rodriguezia laxiflora* is a charming little plant with long pendent spikes of greenish yellow flowers with small white lip, which fill the whole air with a rich spicy fragrance. *Scuticaria Steeli* on the trees produced its Rush-like leaves 4 feet in length, and in February gives an abundance of bloom which lasts long in perfection.

CATASETUMS AND MYANTHUS were present in great variety, and, owing to their ever-varying flowers, are always a source of wonder and delight. Certain premises granted, one can usually tell what the flower of a plant will be like, but there is no telling what a *Catasetum* will do. If a plant produced at the same time a Rose and a Lily, the two flowers are not more unlike than those which many of my *Catasetums* have produced from the same pseudo-bulb, and the same plant in different years produces wholly different flowers. The few *Cynoches* which I have also develop some curious freaks in flowers, but their inconstancy shows some little rule. *Trichocentrum atropurpureum* is a little gem, blooming for many months and deliciously fragrant. Different plants vary much in markings, but all are lovely. *Oncidium lanceanum*, called here "Orelha do Burro" or Ass's Ear, is the best of the *Oncidiums*. It grows freely and yields great branching spikes of bloom from November to March. The flowers last long in beauty and are very fragrant. We have some plants larger than a bushel basket, with more than a dozen tall spikes. *Galeandra Devoniana* and a small white-flowered species, as far as I can find not described, bloom from January to July. The former often attains a height of 3 feet and develops its great fragrant blossoms in profusion. The latter is always in bloom, in fact will kill itself by blooming; it is very rare, and, although not showy, is a very attractive plant. The Rio Negro variety of *Epidendrum bicornutum*, if indeed I am correct in my name, is a very beautiful Orchid, but unfortunately it is very difficult to transport. Out of fifty plants sent me from Mañaos, which were only a week in the case, I only saved ten. Of a lot taken to New York in the spring of 1882 not one survived, in spite of every personal care. The pseudo-bulb is hollow with two terminal coriaceous leaves, from between which the flower-spike springs. This is long and, according to the strength of the pseudo-bulb, bears from two to fifteen large white flowers which somewhat resemble and are as beautiful as those of *Phalænopsis grandiflora*; they last weeks in perfection, and are deliciously fragrant in the morning. This plant, in contrast to the Trinidad *E. bicornutum*, which is a shy bloomer, flowers very freely; every little pseudo-bulb gives a flower-spike, and we have seen a large plant on a tree in a neighbour's garden which had twenty long spikes of bloom, not one with less than a dozen flowers. There is one other very beautiful

AMAZONIAN ORCHID probably undescribed—a very lovely *Zygopetalum* of the *Z. maxillare* or rostratum group, which yields semi-pendent spikes of large white flowers, the lip varying from chocolate to deep rich blue. The individual flowers last six weeks in beauty. The plant is scanty, producing its pseudo-bulbs from a running root stock, and each pseudo-bulb gives two spikes of bloom from the lower leaves on the opposite sides. Our first Orchids not Amazonian came from Bahia. They were generally long-leaved *Epidendrum* of little value, but plants of *Epidendrum dichromum*, *Cattleya Aclandiae*, guttata, *Leopoldi amethystoglossa*, *Harrisonæ* and

amethystina, *Lælia xanthina*, *Miltonia spectabilis* and *candida*, *Oncidium Forbesi* and *Harrisonæ*, and *Leptotes bicolor* proved great acquisitions. They all, though weak plants, did well under similar treatment to the others and made healthy growth and roots. The spring of 1882 found me in New York just at the period of the glut in the Orchid market, a time when valuable Orchids generally brought very low prices and at times could not receive even a bid at an auction. It was a favourable opportunity to take to Brazil many East Indian Orchids. I saw no reason why they should not succeed, but as in Pará there was not to my knowledge a single Orchid not Brazilian it was an experiment. I sent to Pará many *Dendrobiums*, *Vandas*, *Aerides*, *Cymbidiums*, and other more common East Indian Orchids; also many *Cattleya Mossiæ*, *Dowiana*, and *Mendeli*, and other American Orchids not indigenous to Brazil. These were dry auction imported plants bought for a trifle, but they have generally done well and are becoming established, with the exception of *Cattleya Mossiæ*, of which the losses have been large, the unusual rains of the last winter having rotted the young growths.

PHALÆNOPSIDS.—These charming plants have always been favourites with me, as with every lover of Orchids. I have never been a believer in the Russian bath treatment of *Phalænopsids*, and though accustomed to a moist tropical climate, I never enjoyed the temperature of a *Phalænopsis* house, but I had always believed, in common with all cultivators, that these plants required a greater quantity of moist heat than other Orchids. I believed that if the plants survived the ocean voyage, it would only be to die in Pará, as I have no conveniences of a greenhouse or any place which I would consider suitable for growing them, and the idea of *Phalænopsids* as basket plants on an open piazza would, if indeed it had suggested itself to me, have been considered to be almost absurd. A little clay-barred basket of *Phalænopsis rosea* given by a friend I accepted, however, by way of experiment. It was wrapped in cotton wool and put in one of the boats on board the steamer, on the deck. The canvas cover of the boat was thrown off every fine day, and plenty of light and air admitted. The foliage turned a little yellow, but the plant arrived at Pará, after a long and at first very stormy passage, in good condition. Plants of *Phalænopsis amabilis* and *Schilleriana* were also in the boat, but in a tight-closed case with other Orchids. Both were nice, healthy young plants on blocks. On opening the case in Pará, they came out in healthy condition. The question then was, what to do with them. As the best treatment, the blocks with the two plants were placed in baskets filled with rough charcoal and *Sphagnum Moss*, and the three *Phalænopsids* were hung under an easterly piazza, where they had a full light and direct sun for about an hour in the morning, but not where the wind could blow heavily on them. Daily I looked at them, expecting to see them grow sickly and die. Instead of this, *Phalænopsis rosea* soon regained a healthy green colour and showed a strong flower-spike, and the other two began to make new roots, which were soon followed by a new leaf on each. This was early in October, 1882, and by 1883 the plants had doubled in size and *Phalænopsis rosea* had been in bloom for five months, with two spikes of flowers. The plants never had any protection, day or night. The treatment was a syringing about seven o'clock each morning, which was omitted if the *Sphagnum* appeared moist. October, November, and the first part of December, 1882, were months of unprecedented dryness in Pará. Instead of an almost daily shower, no rain fell and the air, usually moist, was very dry. The daily afternoon rains began about the middle of December, and until May the rainfall had been unusually great. The plants have thus experienced the two extremes of excessive drought and unusual moisture in the air. I am unable to perceive that this change has had any effect upon them. The temperature of Pará varies from 78° to 85° in the shade. Rain occurs usually every afternoon, often only a slight shower,

but the mornings are always bright. The evenings after the shower are usually bright and still, though this past winter there have been many cloudy and some rainy nights. There is generally a cool, fresh breeze blowing during the day, but tempests, tornadoes, and such beatitudes of a temperate clime are unknown. About April 1 I was obliged to move from my house to one which had no open piazza for my *Phalænopsids*. As the rains were excessive, I was afraid to put them out under trees with other Orchids, though *Aerides*, *Vandas*, and *Saccolabiums* were there doing well, and making wonderfully strong, healthy growth and roots. The only place that offered was a shelf outside of a north-west window. There the three baskets were placed, and not even hung up, as I had my doubts as to the suitability of the place. The second day the strong afternoon sun, which rests for two hours directly upon the plants, burnt a large hole in the largest leaf of *Phalænopsis Schilleriana*, but the other plants received no injury. The plants receive more or less rain with every shower. Two months have now passed, and the plants remain in the window. The treatment is, if dry, to give them a little water in the early morning. They all show dark, healthy foliage, and the markings of the leaves of *P. Schilleriana* are remarkably bright. Messrs. Low's collector, who saw the plants a few days ago, said he had never seen three more healthy *Phalænopsids*. *P. Schilleriana* and *rosea*, in the last two months, have each made a new leaf and three new roots, and *P. amabilis* a very large leaf, four very strong new roots, and is pushing a very strong flower-spike. What shall we say? Is the experience of eight months too little to thence deduce the practicability of growing *Phalænopsids* as basket, piazza, or window plants in Pará? Can we not rather reasonably conclude that *Phalænopsids* are much more hardy than is generally supposed, that steam bath culture is a mistake, and that the plants with less heat and moisture would succeed, and perhaps do better and be more healthy?

ORCHID NAMES.

REFERRING to *Vanda Sanderiana*, a contemporary remarks: "It is a shocking thing for such a plant to bear a merely dedicatory name"—an observation in which there is much truth. When the present generation has passed away, and the next generation is admiring this beautiful Orchid, the question may be asked, "Who is Sander? what has he done that his name should be attached to this plant?" Some of us are old enough to remember the indignation of the Americans when the *Sequoia gigantea* was named *Wellingtonia*. The question then asked was, "Who is Lindley that he should attach the name of *Wellington* to this noble tree, raised and nurtured in the virginal depths of our Cordilleras?" "Why could not the name *Washington* be used, if a name of this kind was necessary?" The names of both these great men are interwoven in a nation's history, and if, after careful consideration by an independent and duly constituted authority, it was thought well to link their names with the tree in question, no one could object to it. Giving names to plants is not an English, but an "international" matter. There is a learned professor to whom the greater part of the work of naming Orchids is allocated. He has made the Orchid family his special study, but, nevertheless, the result so far is not entirely satisfactory, and some day in the not far distant future the work will have to be all done over again. It is sadly marred by merely "dedicatory" names.

Wherever it is possible a name should be given descriptive of the plant itself. Indeed, the names of all the old species amply prove that this desirable method was adopted more freely years ago than now. We have *Vanda teres* descriptive of the plant, *V. cærulea* and *V. tricolor* relating to the colour of the flowers. When the names of introducers are exhausted, even surnames are attached. The examples are numerous enough, but *Phalænopsis Stuartiana* occurs first to my memory. Surely the white and partially spotted flowers

might have suggested *P. guttata* or some equally desirable name. *Masdevallia Harryana* is an equally undesirable name, and it does not make things any better to say that the persons whose names are thus honoured had no hand in the work themselves. Attaching merely varietal names is equally undesirable. None have been more unfortunate than *Odontoglossum crispum* in this respect. This, originally named by Lindley, was lost and again introduced, when the names *O. Alexandræ* and *O. Bluntii* were given to it almost simultaneously, and circulated far and wide. Messrs. Veitch, I fancy, were the first to exhibit it after this under its true name. I well remember an Orchid grower pointing the name out to me, with the remark that it was a mistake to do this after the Orchid was so well known under its new names. It was, however, no mistake; on the contrary, it was the right thing to do. Whoever gave the name of *O. Alexandræ* to an Orchid previously named *O. crispum* (descriptive of the flower) committed a serious blunder. Besides this, the varietal names attached to this species are perplexing enough. There are scores of them, and anyone who thinks he has a good and distinct variety tacks to it a name which may at the time happen to take his fancy. These remarks are not intended to do more than just touch upon a subject that requires the serious consideration of all who are interested in Orchids, and especially of those who have the responsibility of naming them.

J. DOUGLAS.

Vanda teres var. pallida would be an appropriate name for a most beautiful light variety of this *Vanda* which has been sent to us by Mr. Denny from Sir William Marriott's collection at Down House, Blandford. The flower, moreover, is much larger than usual and altogether finer. It measures over $3\frac{1}{2}$ inches across the sepals, the two lateral of which are fully 2 inches across and very much rounded in outline. The colour of the sepals and petals is pure white; the hanging lobe of the labellum is a delicate rose pencilled with deeper hues; while the incurved wings of the lip are white, exquisitely margined with deep rose. Owing to the thick texture of the sepals, they do not droop, as is commonly the case in the ordinary forms of this *Vanda*. It is indeed a lovely variety and quite as worthy of a distinctive name as the white variety called *candida*.

NOTES ON AUTUMN FLOWERS.

EVEN now—a kind of intermediate or transition period between autumn and winter flowers, and when no class of plants is really in season, so to speak—there are many objects of interest in Messrs. Cannell's nursery at Swanley, soft-wooded plants of all descriptions being the leading features. Noteworthy among the many plants in bloom are the following:—

Dahlias.—Though the season for these is fast drawing to a close, there is still sufficient here to show to what a great extent their culture is carried out, some acres being entirely devoted to them. Each of the three classes—the show doubles, the Pompones, and the singles—are grown in separate quarters, the largest area being taken up by the singles, for which there is an increasing demand. There has been almost a standstill as regards new varieties of the show class, but not so in the case of the Pompones and singles, the list of which has been largely augmented during the past year or two. The most remarkable strides have been made with the singles, indicating apparently that a good deal of the seedling raisers' energies have been focussed on this class. The list of named kinds is now very long—far too long—and we are pleased to see that Messrs. Cannell are discarding the old sorts as soon as they are surpassed by newer kinds of a similar colour. The collection here embodies seedlings of the three principal single *Dahlia* raisers, viz., Mr. T. Moore, of the Chelsea Botanic Gardens, Mr. Cullingford, and Mr. Teesdale. Each season these raisers originate seedlings in greater or lesser numbers, and all are supposed to be improvements on older kinds. Mr.

Cullingford and Mr. Teesdale seem to have confined their energies to obtaining a variety of distinct colours, while Mr. Moore has apparently devoted himself to the all-important point of habit of growth. Now that there is such a diversity of colours, it is unquestionably a step in the right direction to improve the growth, and thereby substitute a dwarf, neater, and more compact habit for the tall and coarse growth possessed by a large number of the sorts now in cultivation. In this collection there is a greater number of Mr. Moore's best seedlings, all of which are characterised by compact growth and extreme floriferousness. On the other hand, his seedlings do not possess great diversity of colour, but the foundation of a dwarf and floriferous strain is laid, on which seedling raisers can build a dwarf and many-hued race. Some of Mr. Moore's seedlings do not exceed 2 feet in height, and the majority of them are fairly smothered with bloom. In this race the foliage is narrow, and therefore much more elegant than in the taller and coarser kinds, and it is evident that one or two particular species have been worked upon in order to produce such a distinct strain. Among the multitudes of single *Dahlias*, there was none that attracted us so much as that named *gracilis perfecta*, one of the Chelsea seedlings. It is *par excellence* the sort suitable for a bed by itself, say on a lawn, or in some such place where its full beauty could be best seen. One plant only of it here occupied a space some 6 feet in diameter, and the whole was a perfect mass of elegant foliage thickly studded with flowers of a brilliant crimson-scarlet. Among other dwarf varieties of the Chelsea strain may be mentioned *gracilis concinna*, of a bright orange-scarlet; *igneæ*, with flowers of a coppery red, very bright and pretty; *rubro-nana*, a brilliant red; and *luteo-nana*, similar, but of a clear yellow, very dwarf and floriferous. These are the types of this very desirable race which we hope will continue to be improved. The variety *Little Midget*, that was certificated at South Kensington a short time ago, is very beautiful seen as a good-sized specimen. It is dwarf, and the small vivid scarlet flowers are produced in abundance. Among Mr. Cullingford's and Mr. Teesdale's new seedlings are some strikingly beautiful varieties, which no doubt will be seen at the exhibitions next season. Among Messrs. Cannell's own seedlings, one of the most noteworthy is one named Mr. S. Barlow, which is of remarkably fine habit of growth, and the colour, a brilliant scarlet-crimson, is very telling. In the general collection, which embraces every named variety of importance, we made note of *La Reine*, *Little Beauty*, *Lady Norton*, *Cromwell*, *Chryso*, *Rose Queen*, *Burgundy* as being among the most desirable of the lesser-known kinds. Of course, such well-known sorts as *Paragon* and a host of others are admirably represented, and is remarkable how fine all the *Dahlias* look at this late date, notwithstanding the storms of wind and rain we have had lately. Throughout the entire collection it is very clear that the dwarf compact-habited kinds had the best of it, for while these tall vigorous sorts are broken and battered about, they remain intact and uninjured by wind and rain. We must not pass the *Dahlias* without mentioning the white *Juarez*, or *Constance*, as it is most correctly called. A long row of it is quite a sight in itself, every plant being loaded with large snow-white blossoms, which are invaluable at this season for cutting. A mass of this sort associated with the scarlet *Cactus Dahlia*, or *D. Juarez*, would be a fine sight on a lawn. As decorative plants the Pompones rival the singles, and they certainly surpass them in many respects. In the collection, which is a most comprehensive one, we noticed a new sort named *M. Huber*, which is the sweetest little flower we have yet seen among this class. The blooms are only about a couple of inches across, and the colour, a sort of reddish buff, is most pleasing. *White Aster* is the best among the white sorts and is an extremely valuable variety for cutting from.

Winter-flowering Salvias, since they have become so popular, have been grown here

extensively. They are certainly admirable plants for the greenhouse in autumn and winter, as they continue to bloom so persistently, and most of them combine elegant growth with brilliantly coloured flowers. There are here upwards of thirty distinct kinds, but only the showiest are grown on a large scale, such as *Bethelli*, *Pitcheri*, *Bruanti* (the three finest), *Hoveyi*, *splendens*, *coccinea grandiflora*, and *patens*. Several are already in flower, notably *S. Pitcheri*, which bears long dense spikes of bloom of a lovely turquoise blue colour. In the *Salvia* house a group of this species in full flower constitutes one of the prettiest floral sights we have seen for a long time. Those who do not know this greenhouse plant ought to make its acquaintance and grow it well. It never fails to please. Its habit of growth is slender, and its flower-stems rise about a yard in height. Among other kinds in bloom are *S. farinacea*, a rather rare Mexican species which produces long dense spikes of purplish lilac flowers covered at their bases with a white woolly substance. It is pretty and in the open border in autumn makes a really attractive plant. *S. Grahami* is a neat growing species with small foliage and flowers of a rich carmine colour. A variety of it named *purpurea* is of a deeper tint and prettier. *S. chamædrifolia* has small wrinkled whitish green foliage and small sky-blue blossoms. All these are in flower together with the well-known *S. splendens* and its variety *Mons. Issanchou*, remarkable for its bracts being a milky-white, streaked with scarlet. In a short time this *Salvia* house will be aglow with colour effected by such *Salvias* as the scarlet *Bruanti*, the magenta *Bethelli*, the crimson *rutilans*, the Pine-apple-scented *Salvia Heeri*, *calacæfolia albo-cerulea*, *Hoveyi* or *ianthina*, and numerous other beautiful kinds. Before the rarer greenhouse *Salvias* were exhibited, three or four years ago, these were seldom heard of, but Messrs. Cannell have done much to popularise them by exhibiting them in winter, chiefly in the *Chrysanthemum* season.

Begonias of all kinds are among the specialties of this nursery, and the stock of them occupies a large amount of house room. Although the season for the tuberous section is on the wane, a house 100 feet long packed full presents a fine sight even now, and admirably illustrates the adaptability of the tuberous *Begonia* for greenhouse decoration in autumn as well as in summer. Every named variety of note is included in the collection, which numbers upwards of 150 sorts. But among this multitude there were a few that so boldly asserted their superiority, that it was not a difficult matter to single them from the rest. Among these we made note of *Mlle. Personneau*, one of the finest blush-tinted sorts we have yet seen, being fine also in size and form of bloom. *Mrs. Highgate* was uncommonly good; it is a deep salmon and has large bold flowers. *Rêve d'Or* is one of the best orange-yellows. It has large flowers, freely produced on branching plants, neat and compact in growth. Of the whites, *White Perfection* and *Alba floribunda* are still unsurpassed in their way, and both are indispensable in a collection. *Annie Laing* is one of the finest rose-pink sorts, and here it was better than we had ever seen it. It is indeed a superb variety. *Fourrier* among the reds stands out prominently as an autumn flowerer; it is large in flower, bright and free. The "*City*" strain comprises a set of new sorts just being sent out. There are half a dozen sorts belonging to this strain, all of which are characterised by a dwarf, sturdy growth, and by extraordinary large, thick-textured, and perfect-shaped blooms. Among the sorts of this "*City*" strain in good flowering condition was *City of London*, the flowers of which we measured and found them 5 inches in length, proportionately broad, and of a deep-glowing crimson colour. The plant was only about a foot in height, but bore several such large blooms. Another, called the *City of Paris*, had even larger flowers of a vivid crimson, and quite as fine as regards the form and substance of the petals. The other sorts of this strain are named *City of Peking*, *City of New*

York, City of Vienna, and City of Berlin. All these are characterised by a dwarf growth, producing exceptionally large flowers, and all seem to possess a good deal of the Veitch stamp in them. Another new sort that arrested our attention was that named King of Kings. It is indeed a king among Begonias, the flowers being enormous, and the colour a fiery crimson. It was somewhat a relief to turn from these gigantic flowered sorts to the elegant beauty of the Davis strain, which is readily distinguished from the rest of the tuberous section by the small, dark foliage, and by the small flowers abundantly produced on moderately tall and elegantly drooping stems. The colours of the various sorts of this class are of all shades of crimson, but vary considerably in their intensity. In one, named Mrs. A. Potts, the colour is strikingly brilliant, and the sort is a most desirable one. Those who are not acquainted with this Davis section deprive themselves of very interesting plants, possessing quite a peculiar beauty of their own. The

Winter-flowering Begonias are just commencing to carry on, so to speak, the beauty of the tuberous class, now fading. The best of the varieties receive considerable attention here, there being a great demand for them for affording winter bloom. Those in flower at the present time are *B. ascotensis*, *fuchsoides*, *welltonensis*, *knowsleyensis*, *digswellensis*, *insignis*, *Dregi*, *semperflorens*, and other well-known sorts, together with the newer ones, such as *semperflorens rosea*, a lovely variety, the exact counterpart of the original, but with pink blossoms. Seen as it is here, intermingled with hundreds of plants of the white form, it is a beautiful sight. Another new variety that is likely to prove a valuable addition is *B. Carrièrei*, which seems to be a hybrid between *B. semperflorens* and *B. Schmidtii*, as it bears the impress of these two kinds rather deeply. It is dwarf in growth, and produces an abundance of rather small flowers inclined to a pinkish hue. The loveliest Begonia, however, of all in flower at Swanley at the present time is *B. Martiana gracilis*, a variety of a well-known species common enough in some gardens. This new variety, however, is much superior to the type, inasmuch as the flowers are larger, and the colour a deeper rose-pink. The plant is of rather thin growth, producing quite erect stems sparsely furnished with foliage, but thickly wreathed with blossoms. This Begonia is admired by everyone on account of its distinct appearance and the lovely colour of the blossoms.

Chrysanthemums of the winter flowering section were hardly forward enough to make much of a display, but in a few weeks they will form the chief attraction of the nursery. The early or summer flowering class, however, make an attractive display in the Chrysanthemum house, and among the numerous sorts there is none so prominent as the beautiful *Mdme. Desgrange*, which is unquestionably the finest white of the race. The flowers are large and similar to the Japanese section; the colour white with a yellowish centre. This superb sort and the new deep pink kind *Alexander Dufour*, that was certificated last week, are two real additions to this important class of plants. There were two sorts among the late flowering class that were prominent among all the rest on account of being in full bloom. These were the new white *Lady Selborne* and another new Japanese variety named *Rayonnette* or *Hedgehog*. The latter has very large flowers composed of long and slender quilled florets of a reddish purple, which spread in all directions, thus rendering the bloom very shaggy looking. It is an attractive sort and valuable on account of its earliness. The new *Lady Selborne*, it may fairly be said, is the finest sort that has been put in commerce for years. It has already won considerable popularity, although it has not been sent out but a year or so. It may be best described as a pure white *James Salter*, itself one of the most highly esteemed Japanese varieties. Turning to another class of Chrysanthemums, the *Marguerites*, we made special note of the new *Aurora* variety as being

a most valuable plant, not only for pot culture, but for bedding out during summer. There is a good-sized bed of it here, which at the present time is quite a mass of yellow, all the plants being spreading and bushy, and profusely laden with its small double rosette-like blossoms. It is a perpetual flowerer, as these bedded-out plants will, when lifted and potted, continue to bloom the whole winter through, and then probably will be planted out again in spring. Even if it were only for its winter bloom it is a worthy plant to cultivate, as it is so useful for affording cut blooms.

Rubus roseifolius coronarius is grown by the thousand since it has proved such a useful winter-flowering plant. The pot plants of it range from 1 foot to 1½ feet high and are bushy and full of buds, which in a few weeks will expand in succession and continue to do so throughout the winter. It is a deservedly popular plant, of easy culture, and moreover most accommodating, for it will flourish in a stove temperature, and will thrive if planted out in the open border during summer; in fact the plants are all the better for being planted out and lifted again in autumn for greenhouse decoration. It is a capital plant, moreover, for planting out in a cool greenhouse.

Open-air flowers of other kinds make a goodly display of bloom for the season. The most striking are the broad masses of *Antirrhinums*, than which we have never seen finer, particularly at this late period. The value of these Snapdragons for autumn bloom is evidently overlooked, for nothing could possibly produce a finer effect after all the tender bedding plants are past than beds of a good strain of these plants. Here the flowers are of all colours, many very uncommon and distinct, and all are bushy plants, having tall, dense spikes thickly wreathed with bloom. The *Gladioli* and *Phloxes* are past their best, but several classes of hardy perennials are just in perfection, such as *Michaelmas Daisies*, of which there is one of the best collections we have seen and finely grown. The principle acted upon here is to treat these hardy plants as liberally as one would Cabbages, and they well repay it. Among other hardy plants in season are *Coreopsis lanceolata*, one of the very best dwarf yellow-flowered plants one can have in an autumn garden, and perfectly hardy; *Anemone japonica* *Honorine Jobert* is also fine; likewise the rarely seen *Butterfly Weed* (*Asclepias tuberosa*), which has dense heads of orange and scarlet flowers of curious shape terminating stout erect stems about 2 feet high. The soil of this nursery seems to suit the requirements of this plant admirably, as we have never met with it in better condition. We are glad to see that Messrs. Cannell are taking up the hardy plant department in earnest. It is an evident sign that the demand for hardy flowers is becoming greater every year. In a few weeks the housefuls of Zonal *Pelargoniums*, specially grown for winter bloom, Chinese *Primulas*, *Cyclamens*, *Chrysanthemums*, and other classes of winter flowers will be in perfection.

HORTICULTURAL EXHIBITIONS.

I AM pleased with what "Peregrine" says (p. 285) in reference to these. Favouritism at exhibitions, if not checked in time, is sure to end in ruin. Over forty years ago I exhibited at the show of a society rich in funds about seventy miles west of London, but it was impossible to gain a first prize if either of the presidents or committee-men exhibited in the same classes. Favouritism was the order of the day, and if one complained, "mind your own business" was the curt reply. The sun, however, did not always shine on that society; many withdrew their subscriptions, and on several succeeding exhibition days rain poured down all day. This society, therefore, became bankrupt, and for the last thirty-five years it has been unable to hold more than one exhibition a year, and sometimes not even that. Again, in 1866, 1867, and 1868 I exhibited at the show of a society about thirty miles south of London, where favouritism also prevailed. The

president's gardener carried off the lion's share of the prizes; he not only exhibited, but was the foremost man on the committee, and always one of the judges, even judging his own exhibits. This state of things was, however, altered in time, and now this once-decaying society is healthy and vigorous. For many years past I have exhibited at one of the metropolitan shows which has very precise rules, one of which states that all exhibits must be in the tent by nine o'clock in the morning, or they will not be received. Well, a few years ago, I noticed an exhibitor bringing his exhibits into the tent considerably after the time thus prescribed. I immediately protested against their being staged for competition, yet this exhibitor was not only allowed to do so, but was awarded the prize due to others who had staged in time, and who had equally good exhibits. I then wrote to the council, but was not vouchsafed an answer in any form. There can be no doubt that horticultural societies need considerable reforms in more ways than one. When a man becomes a member of the council, let him at once leave off exhibiting, with the exception of new importations or new plants from seed. Let judges be frequently changed, never allowing them to judge at two succeeding shows. Let prizes be as liberal as the society can afford, and let them be allotted with care, not giving as much for six dishes of fruit or other small things which could be placed on a handbarrow, as is given for six large flowering or fine foliated plants, which require a large van and pair of horses to convey them to the show; also, when there are numbers of prizes not competed for, let some of them be given in classes in which there are five or six exhibitors, all with meritorious collections; and, above all, let large cards showing who is the exhibitor of each collection be placed out of sight, and let some efficient system of numbering and entry supply their place until after the judges have made their awards, when the cards showing the owner of each exhibit may be at once placed in front of it. Moreover, let all rules be strictly enforced. If these things were done, I think we should soon find that we had advanced several steps in the right direction. R. B.

AMIES' CHEMICAL MANURES.

IN March last I received from Messrs. Amies two bags of manure, one marked "Horticultural," and the other "Vine" manure. In order to test them fairly, special plants were selected for the purpose. These consisted of Pines, Strawberries in pots, Roses, *Pelargoniums*, *Carnations*, herbaceous *Calceolarias*, *Cinerarias*, *Primulas*; also hard-wooded plants, consisting of *Camellias* and *Azaleas*. In some instances the manure was used in a dry state by placing it on the surface of the soil—about a teaspoonful to a 12-inch pot and a proportionate quantity to the smaller pots at intervals of about a fortnight. In other instances it was dissolved by introducing 4 ounces into a four-gallon pot of soft water. This was given every second or third watering, according to the condition of the plants. Those which were subjected to the latter treatment appeared to derive the greater benefit, but in each case except one (the *Calceolarias*) the results were very conclusive. The effect on the *Calceolarias*, however, was to produce a too exuberant growth, the leaves being increased to an unusual size, but the plants lacked sufficient stamina or substance to carry them through the blooming period. Had the manure been withheld altogether, or given in a very moderate degree till the flowers had been well formed, I have no doubt the results would have been different. The Pines quickly assumed a dark and glossy appearance, and the increased breadth of the foliage was particularly noticeable, but upon the Strawberries the effect was more perceptible. They had been potted in poor, but strong loam, and did not receive any stimulant till the fruit was fairly set; this manure was then administered rather more freely and in somewhat stronger doses than were given to the other plants. The foliage quickly assumed a dark green colour, the fruit swelled with unusual rapidity, and when ripe was both brilliant

in colour and delicious in flavour, the average number of fruits to each pound being from eight to twelve.

The effect on flowering plants, especially on the Roses, Pelargoniums, and Primulas, was very marked, producing not only dark, robust foliage, but flowers of unusual size and brilliancy. On the hard-wooded plants the effect was equally good. In both cases it was given just as the flower buds began to expand, and the size and colour of the flowers were thereby perceptibly improved. To Camellias it was also given when making their growth with excellent effect.

The Vine manure was also applied in the same manner, both in a dry and dissolved state, to Vines established in an open border with similar results, viz., the latter method appeared to produce the best effects, both the foliage and the fruit attaining unusual size and vigour. In order to obtain a comparative test, similar plants and Vines were subjected to exactly the same treatment by administering to them respectively three different kinds of artificial manure, procured from as many different vendors. With one or two exceptional plants, the results obtained from the use of Amies' manures were decidedly the best and most satisfactory.

T. CHALLIS.

Wilton House, Salisbury.

NOTES OF THE WEEK.

The National Rose Show.—This society has decided to hold its annual show next year in Salisbury. Preliminary meetings have already been held, but no definite date has yet been fixed. —W. C. T.

National Apple congress.—In consequence of the vast amount of labour involved in the examination of the Apples exhibited at Chiswick, and the great interest that is being taken in them by the general public, it has been decided to keep the exhibition open until Thursday, the 25th inst. Exhibitors who desire to do so, may remove their fruit on Friday, the 26th inst.

Hybrid Narcissi.—We inadvertently omitted to place the names of the hybrid Narcissi on the plate issued with the last number of THE GARDEN. The topmost flower represents N. incomparabilis Charles James Backhouse, that immediately below it is N. incomparabilis albus Crawfordii, that to the right of the latter is N. Barri conspicuus, while the lowermost bloom represents N. Vincenti Minnie Hume.

Pinetum Britannicum.—We are glad to learn from a circular which has been sent to us that this important work is about to be completed, as originally arranged, in fifty parts. Of these thirty-seven have already been published, and the remainder will be issued as follows: Parts 38 to 42 on November 1, 43 to 48 on December 1, and 49 and 50, with title and index, on January 1.

The Apple crop is not only an abundant one in this country this year, but in France it is equally good—such a crop, it seems, as was not witnessed even in 1870. The average crop since 1866 has been 28,300,000 bushels. During this period the quantity produced has varied from 5,760,000 bushels in 1871, and 11,800,000 in 1880, to 47,100,000 in 1881, and 52,800,000 in 1870.

Certificated Apples.—Among the large numbers of seedling and new Apples in the Chiswick exhibition only two have been selected by the committee as worthy of first-class certificates. One is named Bramley's Seedling, and is shown by Mr. Merryweather, Southwell, Notts. It is of moderate size and in the way of Echlinville Seedling; in form it is somewhat oblate and is sometimes angular; the fruit is heavy and the flesh, which is white, has a brisk flavour. It is a cooking sort, and is ready for use as soon as large enough. It is, moreover, said to be a strong grower and a certain and productive bearer. It was raised by Mr. Bramley, of Southwell, after whom it is named. The other sort certificated is named Grenadier, and is exhibited by Messrs. Bunyard,

of Maidstone. It is also a moderate sized fruit, round, and somewhat flattened. It has, when ripe, a pale yellowish green skin and white flesh. It is said to be a first-rate cooking sort and possesses all the essential characters of an excellent variety.

Rosa rugosa.—Some fruiting sprays of this Rose have been sent to us by Mr. G. F. Wilson, in order to show how beautiful the decaying foliage is associated with the large oblate hips, which measure in this case over an inch in diameter, and are of a bright orange-red colour. The foliage, as winter approaches, assumes a bright clear yellow colour marked with blotches of green. Bushes of this Rose at this season are highly ornamental, more so than any other species with which we are acquainted.

New park at Coventry.—A new park was opened the other day at Coventry, amid great public rejoicings. The occasion was utilised to perform two other interesting ceremonies—the opening of a new recreation ground and the unveiling of a statue to Sir Thomas White, a London alderman of the 16th century, and a liberal benefactor to the city of Coventry. The Mayor opened the recreation ground and unveiled the statue to Sir Thomas White, thence proceeded to Spencer Park, which was declared open to the public in the presence of about 10,000 citizens. The park is the gift of Mr. David Spencer, who, in addition to presenting the land, gave a further sum of 4000 guineas for the laying out and ornamentation of it.

The Vine disease.—This year, in wine-growing districts, a new trouble has been added to the long list of the enemies of the Vine grower, and in addition to the Phylloxera and anthracnose, there is the mildew, which has done considerable damage in certain places. In all wine-producing districts, however, less is said this year as to the damages wrought by the Phylloxera. It would, in fact, seem as though the treatment of the Vines by sulpho-carbonate of potassium has had a good effect, not so much in destroying the insect as in strengthening the Vine to enable it to resist its attacks. This treatment is now pursued on all the more important estates, as will be understood when it is stated that an order was given only a few days ago for the shipment from England of 50 tons of sulpho-carbonate of potassium for use on one property only.

Rhus succedanea.—Among the many brilliant and varied hues that the decaying foliage of deciduous trees assume at this time of the year we have seen none to equal in splendour that of Rhus succedanea, one of the Japanese Sumachs, a shrub little cultivated in this country, but well deserving attention if only for its resplendent autumnal tints. In the temperate house at Kew, where there are some plants of it, their long pinnate leaves are of a glowing crimson-scarlet colour, exactly like that of the common stove Poinsettia. Nor is this colour ephemeral; it has been the same for some weeks, and will continue equally brilliant for some time to come—in fact until the foliage drops. Amidst the surrounding green these plants have a very striking effect and arrest universal attention. The Japanese Maples, too, in the same house are also remarkable for the rich tints assumed by their decaying foliage.

Nova Scotia Apples.—An interesting contribution has been added during the past week to the great Apple exhibition at Chiswick. It consists of a grand collection of Apples, numbering some fifty sorts, from Nova Scotia. Every fruit shown is a first-rate example of its sort, and some are exceptionally fine as regards size and colour. The collection consists mainly of sorts well known in English gardens, but there are a great many American kinds, some of which are extremely handsome, whatever their edible qualities may be. The collection is well and legibly named, and an asterisk affixed to the name indicates that the sort is grown for exportation to the English market. Among these are the Ribston Pippin, King of the Pippins, Old Golden Pippin, Mammoth Pippin, Sweet Russet, Baldwin, Rhode Island Greening or Green Newtown Pippin,

Cooper's Russet, Hubbardson's Nonsuch, Talman Sweet, Flushing Spitzbergen, Willoughby, King of Tomkins County, Pomme Grise, and Blue Pearmain. It will be seen from this list what a small percentage there is of sorts cultivated in English gardens. Among the sorts not marked by an asterisk are Gravenstein, Golden Ball, Tall Harvey, Ben Davis, Drap d'Or, Old Nonpareil, Cox's Orange Pippin, Holly, Gloria Mundi, Yellow Belle Fleur, De Rocas Seedling, Emperor Alexander, Dutch Codlin, Cat's-head, Nicknack, Concord, Pearmain, Blenheim Orange, Lyscom Rambo, and Chebuck Beauty. The last named sort is the finest in the whole collection, the fruits being of extraordinary size, highly coloured, and distinct from any other. The collection is in excellent condition, and excites general admiration.

Lilium auratum.—We have received from Colonel Heyworth, Wain Vawr, Newport, Monmouthshire, a good photograph showing a very fine Lilium auratum. It has seven spikes and bears 215 blooms. This Lily was planted as one bulb amongst a group of Rhododendrons in the spring of 1881, and has never been protected or has received any special treatment. The first summer it threw up three spikes well furnished with blooms, and last year it had five spikes with about 120 fine blooms. The flowering stems, shown in the photograph, are about 8 feet high, and, with the exception of being tied securely to sticks to prevent their being broken by high winds, have been permitted to grow as they liked. The bed in which this Lily is planted consists principally of peat or bog soil, and is fully exposed to the sun, the wind, and weather. This bulb was one amongst several other Liliums that were purchased at an auction in London. Most of the other bulbs have grown and flowered almost equally well.

Grapes (W. F.).—The berries sent are "bletted," a disease probably in your case arising from the bad state of the roots.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received. In all cases where the numbers of the specimens sent are not mentioned, it must be inferred that the fruits to which they were attached are either local sorts, and therefore unknown at Chiswick, or that they are not in a fit condition for naming.

Names of fruits.—G. F. G.—1, Louis Bonne; 2, Beurre Rance; 3, Beurre Hardy; 4, not known.—C. F. O.—1, Lord Suffield; 2, Brabant Bellefleur; 3, Golden Noble; 5, Rymer; 6, French Crab; 9, Norfolk Beautif; 11, Beauty of Kent; 12, Syke House Russet. Please observe our rule is to name but four specimens each time.—S. K.—3, Carlisle Codlin. Others cannot be named; probably local varieties.—C. S. Alsen.—Please send again.—W. Roate.—1, Blenheim Orange; 2, same, but smaller; 3, Duchess of Oldenburg (fine specimens); 4, King of the Pippins.—T. S.—1, Small's Admirable; 2, Waltham Abbey Seedling; 3, Cornish Gilliflower.—Fareham.—7, Braddick's Nonpareil; 8, King of the Pippins; 9, Cockle Pippin.—Subscriber (Paignton).—The green Apple is unknown; the other is Cox's Pomona.—H. G. M.—Lady's Finger.—G. H.—1, Requette du Canada; 2, Golden Noble.—G. P. card.—2, Knight's Monarch.—R. C. M.—1, Ribston Pippin; 3, Court of Wick; 4, Dumelow's Seedling.—S. Gaved.—3, Lucombe's Seedling; 4, Minchal Crab; others not known.—Miss Storey.—Cellini (kitchen).—L. C. R. T.—1, Emperor Alexander; 2, an early Codlin; 3, Cat's-head.—G. G.—1, Cox's Orange Pippin; 3, King of the Pippins; 4, Royal Russet.—A. P. Thornley.—Sisterian Crab.—E. S.—1, Cox's Orange Pippin; 2, Ribston Pippin; 3, Ross Nonpareil; 4, Pearson's Plate.

Naming plants.—Four kinds of plants or flower; only can be named at one time, and this only when good specimens are sent.

Names of plants.—R. Wilson.—1, Ansellia africana; 2, cannot name; probably a Bulbophyllum.—S. K.—1, Clematis Vitalba; 2, C. Flammula.—F. R. Smith.—Oncidium pulvinatum.—O. R.—1, Dendrobium chrysanthum; 3, Adiantum pubescens; 4, Goniophlebium subauriculatum.—D. D.—Tricyrtis hirta is a hardy perennial. The seed of the Cattleya appears to be perfectly ripe and sound.—A. Tyrrell.—Asplenium Veitchi (Belangeri).—S. O.—Epidendrum ciliare (large white), other is Odontoglossum Sanderiana (new).—O. R.—2, Selaginella Galeotti; 3, Adiantum pubescens; 4, Goniophlebium subauriculatum.—A. Elder.—1, Poterium Sanguisorba; 2, Symphytum caucasicum; 3, Anchusa sempervirens; 4, Heuchera Richardsoni.—A. K.—Androsace lanuginosa, Bamboo is Arundinaria Falconeri.—J. Smith.—Next week.—J. Cripps & Son.—1, True Platanus orientalis; 2, Platanus flabellata of Gordon; 3, London Plane (Platanus acerifolia).

This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ROSES AND CLEMATISES.

THE Rose is a plant that so readily adapts itself to the purposes for which it is required that it is not difficult to induce it to associate agreeably with other plants, and one of its most suitable companions is the Clematis. Whether it be the pearly *C. montana* or the snowy *C. Flammula* that is closely associated with the Ayrshire, Boursault, Banksian, or sempervirens Rose, trailing over the cottage porch, the rusting fence, the rugged rootery, or up the trunk and leafless branches of some forest tree, or where they are even still more beautiful, rambling at will in unrestricted luxuriance in the wild or woodland garden; or whether it be the deep violet-tinted *C. Jackmani* or one of its similarly coloured descendants intermingling with *Maréchal Niel*, straggling over the sunny half-ruined wall, the effect is invariably pleasing; but when seen as an appropriate edging, as a carpet or groundwork to dwarf, thinly planted, pegged-down Rose beds, the appearance is, if possible, even still more beautiful. A mass of the *Souvenir de la Malmaison* Rose in full flower with an edging of *C. lanuginosa*, a few shoots creeping carelessly over the bare soil underneath, and occasionally entwining themselves round a casual shoot of its more sturdy companion, exposing on all sides its marvellous star-like cerulean blooms in sweet harmony with the delicate blush of the Roses overhead, is a sight worth seeing. The crimson *Charles Lefebvre*, too, in full vigour and bloom, surrounded and carpeted by the beautiful *C. lanuginosa candida*, with its numerous satiny white stars, makes when planted together in a bed a pleasing contrast; or the good old *Gloire de Dijon*, clothed in all its inimitable beauty, associated with the deep mauve-coloured *C. Mrs. Hope*, produces an equally good effect. There are always, however, two sides to a picture, and the reverse side to this one at the present time is the unfortunate tendency of the finer varieties of Clematis to suddenly, like good intentions, die away in a somewhat mysterious manner; and thus these pleasing combinations can only be maintained by frequent renewals. The exact cause of this sudden dying off does not at present appear to be well understood, as some of our principal growers differ considerably in their conclusions respecting it. Although some plants die outright, others will start into growth again from the root in the succeeding year, and this fact only makes the subject more perplexing. There must, of course, be a cause. Is it from climatic influence, improper cultivation, parasitic affection, or inherent disease? My own impression is that it is the result of insects attacking the roots, but I must admit that I have not yet been able to discover, although I have carefully inspected numerous affected plants, sufficient cause to fully substantiate this belief. At the same time, the sudden collapse of the plant while in full and vigorous growth, and the fact that when examined the rootlets in many instances show signs of injury, and also that some of the plants again start into growth from under the surface after a period of rest, each tend to point to sudden and partial

injury rather than to constitutional disease. Having been informed, on good authority, that this affection is very prevalent throughout the country, I for one, being deeply interested in Clematis culture, should feel glad if from any discussion of the subject the real cause of the evil could be made clear, and so perhaps lead to the discovery of a specific which would arrest its progress.

W. C. T.

RAISING NEW ROSES.

THAT the operations of the raisers of new Roses should almost wholly have been directed to the production of varieties that come up in form to the exhibition standard is only what might have been looked for, considering that those who have hitherto bought from the French raisers have been guided in their purchases by the exhibition properties which the Roses displayed, whilst the English raisers have almost all been exhibitors who have paid little attention to what may be termed garden Roses. The accepted symmetrical exhibition form is, no doubt, taking to the eye; yet flowers of this shape invariably are deficient in one important essential—endurance; no sooner have they attained anything like fair size than they shed their petals, not lasting half the time that varieties of the *Gloire de Dijon* and *Souvenir de la Malmaison* type will—Roses which exhibitors look on with little favour, as their confused centres count the wrong way on the exhibition stage. But there can be little doubt that Rose raisers mistake their own interests in confining their practice to the raising of show varieties. Where there is one buyer of Roses who is guided in his selection by the exhibition form there are half a dozen who would give preference to the less formal, confused centres, with the additional property of lasting so much longer either on the plant or when cut—the last no unimportant consideration at the present day, when there appears to be no limit to the demand for cut flowers.

The next question asked by gardeners now, after learning that a flower is suitable for cutting, is, will it stand well? Taking *Gloire de Dijon*, with all its excellent qualities—strong, vigorous constitution, growing either on its own roots or on the Brier, in almost any soil or situation where a Rose can live at all—it would almost seem that in it the full length of the possible in that direction has been reached; for, although several varieties have appeared that were represented as of a like habit, with some difference in the flowers, yet they have each turned out much inferior. If, in all the decided colours of Roses existent, there was a *Gloire de Dijon*, so far as habit and general properties go, raisers of Roses for general use might rest and be thankful. Until more in this direction is accomplished the raisers of Roses have no room to say their occupation is gone.

T. B.

THE RAINS AND THE ROSES.

THE recent heavy rains seem to have suited our Roses in East Anglia. As a rule, the cut-backs yielded but a scant harvest of second blooms at the usual period in August and September. Those favoured with abundance of maidens had, however, plenty of Roses at that time, as not a few of those on the *Manetti* hardly finished flowering for the first time by that period. Apart from this unusual supply, autumnal Roses were somewhat scarce till quite recently. But the plants that did little at the usual season of second bloom have recently been stimulated into vigorous growth and profuse flowering by the heavy rains, and not a few of the flowers cut through October would have been creditable on prize stands in June or July.

Fortunately, the Roses have far greater staying power in the late autumn-tide than in the heat and blaze of hot summer weather. The lighter Roses especially also come out with purer tints in the autumn, as if the longer time in their development has been well spent in imparting greater delicacy of colouring. The form, as well as the

colour, is likewise improved, and the flimsy Roses, such as *Mabel Morrison*, have greater substance, and look less scantily petalled in October than in June. So great and obvious is this improvement, that this has recently been one of our most popular Roses for decorative purposes. Baroness Rothschild is also more chaste, as well as far more useful now than at any other season.

It may be a fancy, but I think it a fact, that not a few Roses have a more refined, if not a fuller, perfume in the late autumnal months than at any other season. The Roses, being much longer in growing, have more time to distill and elaborate their odours. Their perfume is also more permanent, as the sun, while probably the chief source of odour, as it is the cause of colour, speedily destroys the latter as well as distributes the former. In the heat of summer hardly have Roses been perfectly painted and filled with sweetness than the colours fly and the fragrance passeth away. It is very different now, and hence Roses are not only more welcome, but more permanent in October and November than at any other season.

Amongst those that have been specially good with us lately are Baroness Rothschild, *Mabel Morrison*, Captain Christy, Alfred Colomb, General Jacqueminot, *Mdlle. Marie Rady*, *La Ville de St. Denis*, Mr. Baker, Dupuy Jamain, *Beauty of Waltham*, Jules Margottin, Madame Charles Crapelet, Duke of Connaught, Camille Bernardin, Marguerite de St. Amand, and Madame de Cambracères.

That fine, though rather gross Rose, *Monsieur Paul Néron*, has been induced to become fair in form and moderate in size, and that rather uncertain summer Rose, *Comtesse de Serenye*, is one of the surest and most useful of all the late autumnal or early winter Roses. The refining process is also strikingly developed in *Souvenir de la Malmaison*, *Triomphe des Rennes*, and *Homère*, though the latter suffers somewhat from any excess of moisture or of cold. The colour, as well as form, of *Celine Forestier*, are also much improved by the cool, moist earth and air of this mild October weather. D. T. FISH.

Notes on Roses.—The autumnal bloom, though fine in some localities, has not reached an average in quantity. Complaints of a comparative scarcity of Roses reach me from numbers of private gardens. From this estimate late maidens in nurseries must be excluded. Not a few of these bloomed so late, that their first and chief bloom was an autumnal one, and not a few Rose gardens were equally or more brilliant in August and September even than in June. Teas have also yielded a good rich harvest of fine bloom, but the ordinary run of cut-backs of Hybrid Perpetuals have yielded fewer flowers than usual.—D. T. F.

Rose cuttings.—Tea Roses may be rooted all the year round; but there are three seasons or rather conditions of the plant in which Hybrid Perpetuals may be rooted with most certainty. These are the end of June, the end of September, and from the middle of October to the middle of November, inclusive. The first and the last batch of cuttings to be rooted in the open air, and the middle lot in bottom heat; place the first lot in sandy soil on a north or east border and the last on a south or west border. These are to be inserted with a heel and cannot be rammed in too firmly. September cuttings succeed best placed on a gentle hotbed, which can be covered with glass and frost excluded with mats in the winter. About a month after insertion these cuttings will be found callused, and from that period they may be gently urged to become plants by being sheltered from all extremes of temperature approaching to frost.—D.

Roses a hundred years ago.—In Mawe's "Every Man his own Gardener," published in 1787, a list of garden Roses is given, which is interesting as showing what a modern thing our Rose garden is. Besides Roses, the only hardy flowers which are lost to our modern gardens are a double blue variety of the Wood Anemone, a white Nar

cissus with a purple cup, and a cluster Pink called the Deptford Pink, which may still be lurking in old gardens, as it is mentioned in much later works on gardening. The following were the garden Roses in 1787: Early cinnamon, double yellow, single yellow, red Monthly, white Monthly, double white, Moss Provence, common Provence, double and single Velvet, Dutch and blush Hundred-leaved, blush and red Belgick, marbled, large Royal, York and Lancaster, red and blush Damask, white Damask, Austrian yellow, Austrian with flowers having one side red and the other yellow, double Musk, Royal Virgin, Rosa Mundi (*i.e.*, Rose of the World or striped red Rose), Frankfort (used as a stock for budding), cluster and Maiden Blush, Virgin or Thornless, common red, Burnet-leaved, dwarf Scotch, striped Scotch, Apple-bearing, single American, Rose of Meaux, Pennsylvanian, red cluster, and Burgundy Rose. It may amuse our modern rosarians to hear of the Moss Rose being described as a kind which does not produce suckers when grown on its own roots, and which can only be propagated by budding.—J. D.

Tea Roses.—Our two finest beds in the flower garden this season consist of Tea Roses; all through the summer and up to the present time they have rewarded us with a grand show of very fine blooms. When planted out, the beds were top-dressed with two parts maiden loam, one of leaf soil, and one horse droppings. After applying the top-dressing, I sowed thinly seeds of a little Mignonette from which I find the Roses to derive great benefit all through the summer. It keeps their roots cool, and, therefore, they require little or no artificial watering. The Mignonette should be thinned out and the strong-growing shoots pinched back. It will then form a fine even growth under the Roses. The latter are all on their own roots; they have been forced for these last five years, and will be again taken up for that purpose. The following are the names of the varieties in the beds, viz., Adam, Alba rosea, Bougère, Catherine Mermet, Devoniensis, Climbing Devoniensis, Duchess of Edinburgh, Homère, Isabella Sprunt, Madame Bravy, Madame Willermoz, Marie Sisley, Moire, Niphetos, President, Rubens, Sombreuil, and Souvenir d'un Ami.—RICHARD NISBET, *Aswarby Park, Fellingham.*

HOPETOUN HOUSE.

THIS, one of the residences of the Earl of Hopetoun, stands amidst some of the most beautiful scenery in the Lothians. The view from the house looking eastwards embraces the Firth of Forth, dotted, as it is, with its numerous islands, prominent amongst which are Inchkeith, Inchcolm, and Inchgarvie, the first of which has been recently fortified, while, on the contrary, the fortifications of the last have been destroyed to give place to the central pier of the new Forth Bridge, now being built to shorten the east coast route from London to Aberdeen. Approaching the park from Port Edgar, the road widens along the very edge of this, so to speak, inland sea. It is wooded on the left with magnificent specimens of Firs, Larch, Yew, Oak, Ash, and Birch; the stone wall, too, dividing this wood from the road adds much to the surrounding beauty by its covering of gray and deep orange-coloured Lichens picked out by lines of emerald green Moss. In front, wooded promontories, fringed with scarped and rugged rocks, stretch into the Firth, beyond which, across the water, dotted with odd sails, Ben Lomond, fully forty miles away, may be clearly seen. Turning sharply to the left, we enter the grounds proper, through an avenue of Beech of picturesque, though not of extensive proportions.

THE FLOWER GARDENS cover an extensive area on both sides of a steep valley, and are approached by a walk, on one side of which is a fine Holly hedge about 100 yards long and 20 feet high, most of the trees having stems a foot and more in diameter; these are not clipped and shorn so that no stem may be seen, but in past years have been headed, and now, being probably over 200 years old, they have hidden all unnatural cropping by their own leaf beauty. Such a park as this would

be incomplete without its lover's walk, and here is one 600 yards long. Limes, Beeches, and Yews are allowed to grow "au naturel" on the opposite sides from the path, but inside have been cut into uniform shape. Unlike many such walks, an improvement has been made by planting the trees at such a distance apart that beautiful views may be obtained on either hand; overhanging arches high in air, being only occasional, the aisle-like appearance is thus always distant and well lit up, instead of being, as in most cases, continuous and gloomy. A side glance through one of these side openings reveals the palatial mansion, about which the only thing noticeable from a gardener's standpoint is the planting of Yew bushes in over-arched stonework recesses, and keeping them clipped parallel with the surface; these recesses are arranged on the two horns of a half-moon and are about 20 in number, the mansion dividing them; the dark green of the foliage of these Yews contrasts effectively with the stonework. At a considerable height from the sea level and skirting the edge of the Firth of Forth, on a brink of cliff-like declivities stretches the North Walk, one of a series of terraces. The marginal hedge is here clipped flatly and very low down, so as not to obstruct the magnificent views to be obtained of the opposite shore, beyond which the Fifeshire and Ochill hills form imposing backgrounds. This walk is occasionally opened out into bastion-like compartments provided with rustic seats, whilst near at hand the woodland walks, under trees and over greensward, are freely planted with Primroses, Daffodils, Snowdrops, and various other semi-shade loving subjects, which give in spring and early summer just that floral colour which is wanted to vary the monotonous shades of green and brown. The Rose garden is, as a matter of course, delightful in summer and early autumn. Through a deer fence we enter the park, containing herds of fallow and red deer, lazily and proudly passing from shade to shade of noble Beeches and Oaks, planted in years gone by by someone who evidently knew how to take full advantage of the undulating sweeps arranged by that most skilful of landscape gardeners—Dame Nature. Pheasants, hares, and rabbits in swarms, with distant herds of Scotch cattle, red herds and black herds, give an air of naturalness to this portion of the estate.

A VIOLA BORDER, although unfortunately arranged geometrically, is very pleasing. In it the yellow and white bedding kinds are used effectively with the pale purple *V. cornuta*, the deeper hued *Lady Diana*, and deeper still *Holyrood*. Another border is still more pleasing, because less formally planted. In this *Hollyhocks* stand in front of a tall *Holly* hedge; then *Delphiniums*, *Pentstemons*, *Pompone Chrysanthemums*, *Tagetes*, *Lobelias*, and *Violas*. A novel use is here made of sloping beds; they are gradually inclined up to the height at which it is estimated *Hollyhocks*, *Dahlias*, and *Tritomas* will reach, behind which they are planted. Thus treated, the blooms are only a reasonable height above the dwarfier things planted in front. Here and there beds are devoted entirely to *Snapdragons*, *Stocks*, the coronarium varieties of *Chrysanthemum*, *Pentstemons*, and *Tropæolums*, with giant *Hollyhocks*, 10 feet high, planted in the rear as wall-hiders. One bed of *Lobelia* intermixed with *Gazania splendens* was most effective as a colour group. There is here, too, a long herbaceous border, in which, amongst other things, are quantities of *Campanula carpatica*, *Sempervivums*, *Sedums*, *Saxifragas*, *Gentians*, *Forget-me-nots*, *Larkspurs*, autumn *Crocuses*, *Iberis*, *Irises*, *Hepaticas*, *Pinks*, *Potentillas*, and *Phloxes*, backed up by a hedge of *Sweet Peas* and *Nasturtiums*.

UNDER GLASS are Ferns, *Crotons*, *Marantas*, *Caladiums*, *Begonias*, and other decorative plants, together with a fair assortment of *Orchids*, *Panicum variegatum* being planted on the edges of the staging, and hanging down in curtains quite to the ground. R. A. H. G.

Horsforth, near Leeds.

THE site adopted for the drainage works of the lower Thames Valley Main Sewerage Board con-

sists of 55 acres of market-garden land between Kew Railway Bridge and Mortlake, where it is intended to erect works for the chemical treatment of the sewage of the district, with its population of nearly 150,000. The works are estimated to cost about £300,000.

FLOWER GARDEN.

THE BAVARIAN GENTIAN.

OF all the alpine Gentians the individual flowers of *G. bavarica* are perhaps the most beautiful. They are similar in size to those of *G. verna*, but of a deeper blue, and their brilliancy is, if possible, even more intense. At some angles of vision a "glance" of deep rose colour is observable, blending charmingly with the dark cœrulean, and producing an effect which no words can describe.

In habit this species resembles *G. verna*, inasmuch as it is dwarf and densely tufted. Its leaves are shorter, blunt, and closely imbricated on the sub-cylindrical, prostrate, or ascending shoots. The flower-stems of *G. bavarica* are taller than those of *G. verna*. But, though so charming, this beautiful species has long baffled the skill of most cultivators, ourselves among the number. Time after time we have received importations of it, and occasionally have had grand displays of bloom; but the "success" was usually limited to the first few months, or at any rate to the following year. Then they gradually "grew less," and eventually dwindled away. Now all is changed; and, after trying this and that plan for some ten or fifteen years, we are rewarded with a success which is simply delightful. They are growing like weeds, doubling and tripling in size in a single season.

Under the slight shade of an evergreen hedge to the southward we formed a bed of mixed peat and rich loam 12 inches or 15 inches in depth. In this they were placed, and when planted were covered with white sand, which was washed in among the tufts till these were perfectly firm and solid. Abundance of water is given in warm weather—heavy soakings, and once or twice a year fresh white sand is placed upon them and washed in, so as to counteract the inevitable gradual loosening of the soil by worms. Constant moisture, though not excessive, combined with perfect drainage and rich, firm, elastic soil of good depth, seem the only needed conditions for complete success. JAS. BACKHOUSE.

York Nurseries.

AURICULAS IN AUTUMN.

MR. DEAN, I see, takes exception to some of the details respecting *Auricula* culture recommended by me in *THE GARDEN* (p. 277). The system recommended is that which I practise, and my success is the best proof of its soundness. I had not been a grower of *Auriculas* more than four years or so when the southern section of the National Society was established, and yet the first prize for fifty show *Auriculas* was awarded to me at the first exhibition of that society, held at the Crystal Palace, and I have been first at every subsequent exhibition in the same class, although Mr. Charles Turner, of Slough, has invariably been a competitor. The blue ribbon, however, so to speak, of these National exhibitions is the class for twelve show *Auriculas*, and this year both Mr. Horner and Mr. Simonite were good enough to say that my twelve were the best, although the judges ultimately placed Mr. Horner's twelve and mine equal. Mr. Dean has always been a competitor, but not a very successful one, and if he continues to treat his *Auriculas* as he recommends in *THE GARDEN* (p. 277), he is not likely to be more successful in the future than he has been in the past. In reference to water, I do keep "the plants moderately dry during August and September," and this little point in *Auricula* culture I learned from Mr. Horner when on a visit to him at Kirkby Malzeard at that time of the year. As far as I can remember, Mr. Horner told me that some of his plants were allowed to go a week at a time without water. Mr. Dean

says if they become too dry at that time, there is danger of the roots being injured. Of course there is, but a careful cultivator would see that they did not get too dry. Then as to the use of Cocoa-nut fibre, the roots of almost every plant run freely in it, but it is not the pabulum on which to feed Auriculas. I would certainly not use it. The glazed pot system is also constantly cropping up, but I am quite sure that if a grower fails with ordinary pots, glazed ones will not help him much. Mr. Dean's system of watering is faulty, but not so bad as syringing Auriculas overhead. No collection of Auriculas is more vigorous than ours. I have been frequently told that this has been a fault, even while the first prize cards have been attached to them; and yet I use less manure than most people. I never gave an Auricula a single drop of manure water, or even soot water. Whatever vigour they have is derived from care in watering and strict attention to keeping the plants clean, and the house in which they are growing thoroughly well ventilated.

J. DOUGLAS.

NOTES FROM KIRKSTALL.

WHEN the spade has made a deep cut at the roots of many plants with the view of lifting them, it is well known many young ones come forth after the parent plant has been removed. This is not, however generally known, I believe, to be the case with that charming Crane's-bill, *Geranium argenteum*, which seldom ripens seed, and when it does, the seedlings seldom come true to the original; moreover, for a considerable depth it mostly has but one tap root, so that increasing by division is a puzzle. Taking into consideration, however, the fact that if pieces of root are left in the ground, they form good crowns in a year, this plant ought not to be so scarce as it is. That such results can be obtained by digging up roots, cutting and replanting them, I am not able to say; but this plant is as easily propagated as some other things which I treat in the following way, but it requires more time, viz., *Dodecatheons*, *Primulas*, *Senecio pulcher*, *Stokesia*, &c. These grown on raised beds are removed when strong enough; the spade is put 3 inches or 4 inches under the crowns, and the soil is removed to that depth, so that the long and fleshy roots at their cut parts are level with the new surface; the advantage of this method is that the growing rootlets are left undisturbed, and they push freely the following growing season.

LONICERA SEMPERVIRENS (p. 288) is hinted at as of questionable hardiness; not only is it perfectly hardy in Yorkshire, but I have a thriving specimen of it in the most exposed part of my garden, getting all the cold and wind that comes from the north; it has just done flowering and is a truly handsome climber or trailer. Finding some roots of

CYPRIPEDUM CALCEOLUS in the way in an old frame that for three years had held sand for plunging purposes, I have just had them dug out, and it was a refreshing sight to see their thick white roots, nearly a foot long, formed in nothing but sand. The plants had been noted for their healthy appearance, and were left in order to see what they would do in such material; they were strong, clean, and finely flowered for two seasons, and the roots and crowns are finer now than any I ever saw before early in October.

EDRAIANTHUS DALMATICUS is certainly not a biennial in this climate, according to my experience of it. The plants which flowered well last year also flowered freely this summer, and promised to bear seed, but instead of that produced a second set of its procumbent flower-stems, and specimens are now in flower for the second time in one season. In short, the Grass-like foliage is as verdant as ever.

PRIMULA SCOTICA has been in flower since June; the plants were a year old, and some raised within the present year have their little hearts full of buds. I have just gathered a beautiful crop of seed grown in pans of sandy bog peat.

PAROCHÆTUS COMMUNIS is one of the loveliest objects in the garden at the present time; prac-

tically it is a bed of Shamrock and Violets; the pretty blue flowers are in twins, and pleasingly borne above the zone-stained leaves. This does well in half-shady places, as, for example, between dwarf shrubs. I find that the new creeping stems are much aided in their flowering if in summer they are lightly top-dressed with wood ashes and leaf-mould, which I fancy screens them beneficially from the hot sunshine and feeds the young roots. This plant was much thought of and cultivated by the late Mr. Niven at Hull.

SAND.—All that Mr. Ewbank has said about sand I have proved here. I have not had the green sand, but simply a kind manufactured by cart wheels going over a road formed and repaired with common sandstone and clinkers. During heavy rains, of which we are just now having too many, the finely ground part is washed into hollow places and collected from time to time. This seems to be a capital material for assisting the formation of roots; it is clean and sweet, and a kind that holds moisture, and it does not bake; made into beds or heaps in the full sunshine, root action in it is almost magical. I do not think greenness has much to do with the matter. Sharp, clean sand will not bake, neither does it so soon become dry; its loose character, under moisture and sunshine, seems to form the most perfect set of conditions for rapid root action that I have ever yet experienced. One instance I will give: In it cuttings of the fickle *Onosma tauricum* were inserted, and in less than four weeks tufts of roots formed. I am a believer in clean sand, but it wants moisture and plenty of sunshine to produce roots.

JOHN WOOD.

Woodville, Kirkstall.

Gentiana Andrewsii, a plant which is rather disappointing as a single example among other flowers, is a fine sight in a mass of something like two square yards and away from other flowering plants. It seems to like growing in peaty sand in a half-shaded place. Most of the heads have from eight to ten of the rich purple, closed, globe-like flowers, and this large mass of it shows a plant of distinct and rather striking character.—G. J.

Sedum Sieboldi can scarcely be seen to greater advantage than as we have it—growing out of a rock wall facing north-west. In one plant the foliage is of a fine crimson, richly harmonised with the rosy flowers; in another it has the usual glaucous colour, but each leaf is margined with crimson, and the stalks are of the same colour. These, with intermediate colourings, make a rich mass that shows finely against the mossy wall.—G. J.

Androsace lanuginosa.—Although this was alluded to in THE GARDEN (p. 312), nothing was said of its perpetual flowering character. We have had it in flowering condition since June, and it seems, weather permitting, that it will flower the year round. It occupies a sunny bank. *A. sarmentosa* is a neater plant, and perhaps even prettier when in flower; but it has an unfortunate habit of damping off during winter, both in pots and planted out. We have a number of strong plants of it, but not one of them has flowered.—J. DOUGLAS.

Winter flowering Violets.—The time has now arrived for getting these into their winter quarters. Young plants grown from runners planted out in April will now be fine clumps showing bloom. The best position I have found for them is a Cucumber frame, which by this time is mostly vacant. For Violets it should be set in the sunniest position at command, and raised well up at the back by means of temporary brick piers, so that it may catch every ray of sunlight; for, although it is advisable to screen Violets from the scorching rays of a summer's sun, it is of the highest importance to utilise every ray in winter, so as to tempt the blossoms to expand during the dark short days. When the frame is fixed in position, fill it three parts full of dry leaves and stable litter, trodden firmly, to give a gentle lasting warmth; on this put 6 inches of good soil, then lift

the plants with good balls of earth, and plant them about 1 foot apart, giving a good soaking of water to settle the soil about their roots. The glass lights will only be needed to ward off heavy rains and should be tilted up at the back to allow a free circulation of air night and day, until danger from sharp frost compels their being closed, and well covered with mats and dry litter. I find *Marie Louise* the earliest flowering sort, and a decided improvement on the older Neapolitan, having longer flower-stalks and being of a darker shade of blue, or rather lavender. Let the blooms be fully expanded before they are gathered, as it is a great waste to gather half-expanded flowers, and a dozen blooms as large as a shilling make a good bunch. Violets garnished with violet leaves look better than in any other way, but the foliage of hardy single kinds may be utilised for this purpose.—J. GROOM, *Gosport*.

Seedling Narcissi.—Having raised some seedlings from *Narcissus Bulbocodium*, I should feel obliged for advice as to the treatment they ought to receive during the coming winter and onwards. Having been sown in August, they are now over an inch high. Will they be safe in a cold frame? Will they stand any degree of frost?—G. H. WHEELER, *Cromkeysham, Rochdale*.

* * The seedlings will be quite safe in a cold frame, which should be well ventilated during winter; in fact, the lights should be entirely off whenever the weather is favourable. You must guard against excessive moisture, the drier the better during hard weather. During severe frosts you will of course cover the frame with mats. In April plant the bulbs in an open, sunny border in a good loamy soil. The following season they will probably flower.—G.

Variegated Ivy on rockwork.—The small-leaved variegated Ivies show to great advantage when rambling amongst rockwork or rootwork, especially in cool, shady situations, as the moist atmosphere generally prevailing there appears to bring out the variegation to a greater extent than when the foliage is exposed to hot sun and drying winds. For bordering a fernery I know of nothing better than these Ivies in summer; their bright foliage forms a charming contrast to the rich verdure of the Ferns, and in winter when these have lost their beauty there is always something pretty and cheerful to look at. By the way, has anyone tried these small-leaved, variegated Ivies as a carpet for Ferns? they would, I think, look very nice pegged down on the soil, as, unlike the green kinds, they do not exhaust it, at any rate not to any great extent.—J. C. B.

Lilies half shaded.—Seeing notices of *Lilium auratum* grown in shade and sunshine, I send some blossoms as specimens of growth in half shade, that is, the shadow of an espalier Apple tree between them and the mid-day heat, the shelter on another side of a tall crimson *Salvia*, and the coolness at their base of a bushy white *Marguerite*. While all other blossoms lie torn and battered from the wild storms that have left our trees as leafless as in mid-winter, these Lilies, with much strength of endurance, have waited, and are only now disclosing their wealth of beauty and revealing their golden rays hitherto sealed so securely from all the ills of weather. The roots, which were planted in spring, grew some 5 feet high, and each is bearing from three to ten blossoms on stems thickly clothed with glossy dark green foliage, while those planted in an open space, though with some root shading, were all sun-struck, and bore less perfect flowers on the top of bare brown stems. To have blossoms of such regal aspect growing in perfection out of doors at this season seems not a little gain.—ST. BRIGID, *Hill of Howth*.

* * Lovely specimens of the true *Lilium auratum* charmingly spotted with crimson.—ED.

Fuchsias in autumn.—Those who do not grow the florists' varieties of Fuchsias in the open ground miss an excellent and easy way of rendering their gardens bright in autumn. We have some here which have been in their present position five years, and all the attention they get is a mulch of some kind in winter over the crowns and some liquid manure in summer. From September onwards they form handsome bushy specimens, carrying hundreds of flowers.—J. C. B.

Decaying flowers.—These should be constantly removed; nothing terminates the blooming of any plant quicker than allowing it to form seed-pods, and decaying flowers soon assume that condition. If in the case of a Dahlia, for example, every flower that decays is left on the plant it will quickly cease to bloom, and long before the autumn comes it will be worthless; while another plant which has been seen to once weekly or so, and has had all the old blooms constantly gathered off, it will go on producing an abundance of flowers till the very end of the season. It is the same with Sweet Peas and all our flower garden plants, and under glass our experience has been in no way different.—CAMBRIAN.

Tuberous Begonias.—With regard to tuberous-rooted Begonias being in the Liverpool Botanic Garden, your correspondent (p. 349) must have made a mistake. We have not had any planted out here, and I question very much whether they would grow to any state of perfection if tried out-of-doors in this locality. I have seen them planted out across the water at Hooton Hall, and they seemed quite at home and looked very fine. But the air is much more pure there than here. Perhaps your correspondent was alluding to single Dahlias which have been planted out rather freely here this season. They have well repaid us, for at the present time, notwithstanding the heavy rain and strong winds which have prevailed in this neighbourhood for the past week, we have beds of Vivid, Mauve Queen, Lutea, and Paragon looking quite gay, as well as a quantity of seedling varieties.—THOMAS E. POWELL (foreman), *Botanic Garden, Liverpool.*

Duration of the Carnation season.—It is stated in last week's GARDEN that the time the Carnation lasts in flower about Edinburgh would surprise London growers. The long season of flower of both Cloves and Carnations is one of the best points about them. Hereabout, in Yorkshire, good plants come into flower early in July, and flowers continue to be produced in abundance till the end of September or October if the weather be dry, for the cold and wet rots the buds at this season. During the above period until now we have been cutting quantities of flowers daily for various decorative purposes. Plants layered and left outdoors bloom far best. Carnations should really need no more protection than any hardy border Pink, provided the plants are fairly rooted into the ground before winter, and at the most a mulching round the collar is sufficient protection.—J. S.

Schizostylis coccinea.—You ask (p. 336) whether our *Schizostylis coccinea* noticed in THE GARDEN was grown in shade or sun. Two of the six spikes cut for you came from a border in full sun, two from one in partial, and two from one in full shade; there seemed no difference in them. I believe that strength of growth is due to rich soil rather moist. As I am writing I may mention an experiment begun in our Wisley Wood yesterday. We planted out a Camellia which the catalogue called about 14 feet by 14 feet, though it is hardly so wide. This was one of the grand plants which, under Mr. Pilcher's skilful care, were such splendid specimens of health and vigour in Mr. Rucker's winter house at Wandsworth. It was bought at the garden sale on Tuesday. It was impossible not to feel the wisdom of the family on retiring farther into the country before the constantly nearing smoke and noise of London, but it was very painful seeing the dismantling of a place with which I had had happy associations reaching over more than half a century, from the times of the old glories of Chiswick when Orchid growers were few, and when among amateur growers Sigismund Rucker stood *facile princeps*. I hope my memorial Camellia will thrive and be a constant pleasant reminder of old days. We have tried many small Camellias planted out; they do not appear to stand exposure to cold winds or sun after hard frost, but otherwise I believe the old saying is true, that they are hardier than Laurels.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath.*

NOTES FROM HECKFIELD.

Autumn tints.—The year 1883 will assuredly take rank as one in which the foliage and growth of deciduous trees were extra fine, at least as regards this, the south-western part of the kingdom, and from hearsay I believe the same is true of other parts—a circumstance easily accounted for by reason of the absence of spring gales, or rather the late period at which the trees put on their best dress and their consequent escape from the spring gales, and the effect has been, and still is, all that one could wish in the way of autumn beauty. Beech, Oak, Spanish Chestnut, Hornbeam, Birch, and Elm are nearly as grand as are the Maples, Thorns, and Tulip trees, there being every hue of colour, from the deep green of many of the Oaks and the scarlet of the Thorns to the deepest yellow of the Tulip trees. But my forte is not poetry; so here the descriptive must stop and the practical begin, and it is this: Plant more deciduous trees—more timber trees. Conifers are handsome, but just now, by contrast with this autumn picture of coloured deciduous foliage, they cut a poor figure—certainly such a one as does not justify their jostling their deciduous brethren out of the landscape, as they promise to do at the present rate of planting them, in proportion to the neglect of planting deciduous kinds.

Making potash.—The transition from grand foliage to burning the same seems a very unnatural one, but nevertheless it is really what we do, for after having had the beautiful as long as is possible, the manufacture of the useful by fire begins. Every scrap of twig, branch, and leaf not required for stacking for decomposition as leaf-mould we burn, the fire already having had supplies from Limes, Horse Chestnuts, rakings from under hedges, and the clearings of the vegetable quarters, Cabbage stumps, Bean, and Pea haulm, and the like; the ashes from such a smother we find to be one of the best of manures for our light soil, and for almost every description of crop. Hence the winter through our manure manufactory is in full work, and our rubbish heap kept at the minimum point as regards accumulation of material. This last is a consideration of no small moment in places where it is difficult to find a spot to tip such material, and where the cartage is expensive.

Winter greens.—The conditions as to weather have lately been such that Broccoli and other winter greens have grown abnormally large, and are so succulent that if we get a severe winter the worst results may be anticipated, and by way of prevention of some portion of such mischief, the more robust Broccoli should have their roots disturbed with a fork—simply a chop round with that implement so as to check growth and harden that already made. Savoy, Brussels Sprouts, and Kales may be given a check by denuding them of their large lower leaves; such clearance, by letting in more air, does much towards hardening them to withstand the winter. Spinach and Onions should be well thinned out and the ground kept open and airy by hoeing.

Trenching.—Rather early to talk of this work yet; perhaps so, but what matters it if the ground be vacant; most of us are not so overdone with labour, that we have no need to take time by the forelock; nearly all of us have much need to look ahead, if we keep abreast of the work; and therefore my advice is begin at once, and do not fear getting too deep; if the soil below be better than that at the top, bring it up. I know there are soils that cannot be worked deeply, such as stiff clays, and where the land is so full of springs that to go deep would cause them to burst up; in this last case it is best to leave well alone, and manure more highly in lieu of deep tilth. On clay lands the cost of trenching should be spent in draining, and in the end it will amount to about the same thing as deep trenching. On all soils where there is a stratum of hard gravel, or pan of conglomerate, it should be broken, but not brought up. Having had considerable experience with hard gravelly subsoils, my opinion is that, till broken, the land does not yield a third of the produce, even where

there is a considerable depth of soil, as it does afterwards. The why this should be so is explained by the added root run; the crops have the moisture of the stones, and the washing down of the manure enables any and every crop to withstand drought with impunity. In trenching such soils the manure should always be placed immediately under the top spit, otherwise the soil proper will get but little of it, especially if the trenching be done prior to the winter rains, as in that case much of the goodness would be washed out of the reach of the roots ere the crops were sufficiently advanced for the roots to descend so low. W. WILDSMITH.

VEGETABLE REFUSE.

In all gardens at the present time there is a great deal of vegetable refuse being formed which may either be allowed to go to waste, or be converted into valuable manure. Of the materials which come under this heading, tree leaves are amongst the most bulky and valuable. They are falling fast now, and it is only at this time that they can be collected to make manure. In collecting them in parks and pleasure grounds, they are sometimes thrown here, there, or anywhere so long as they are out of sight, and when deposited in this way they ultimately form small heaps of decayed matter which may be lifted and used for some purposes in spring, but this kind of material is never good manure, and cannot compete with specially prepared refuse. As the leaves are gathered they should all be carried, wheeled, or carted to that part of the garden set apart for manure heaps, and this should be a general receptacle for them throughout the autumn. At the same time all old Pea straw, decayed leaves, and all kinds of Cabbage and Cauliflower stumps from which the heads have been cut should be brought from the kitchen garden and thrown into a heap close to the leaves. Light stable manure should also be brought here and everything else in the way of refuse. The whole should then be mixed up in one large heap to decay. As there may be a good deal of matter which would not readily decay, it is a good plan as soon as the heap has been made up, to begin making the top of it a receptacle for all kinds of slops and soap-suds from the house. This will enrich the leaves and induce decomposition. In about a month the whole should be turned over, keeping the loosest of the material to the bottom and the most decayed on the top. By January, or throughout the spring, this will make one of the finest heaps of manure anyone could desire for digging or trenching into vegetable quarters or dressing flower beds. All the year round it is a good plan to make a point of emptying all kinds of vegetable refuse in a heap by itself, and it is surprising how valuable it will be found in the course of time. Weeds or any refuse containing a quantity of seed which would germinate in the ground where not wanted should never be mixed up with anything useful, but, with the exception of weeds, stones, and wood, there is hardly any kind of refuse about a garden which cannot be converted into manure. CAMBRIAN.

Averuncator or tree pruner.—I have seen two or three notices respecting this implement in THE GARDEN of late, but no mention made of the particular one in use here, which is by far the best I have seen. It is the kind used by the postal telegraph engineers for cutting branches of trees that interfere with their wires by the sides of country roads. Seeing them so used, I got the loan of one for trial, and was so satisfied with it that I at once purchased one, and have since had good proof of its utility. It consists of four strong canes, each length being 5 feet, with strong brass screw joints at each end precisely the same as those used by chimney-sweepers, only theirs are 3 feet in length instead of 5 feet. At the end the cutter can be screwed on. It has a simple, but very powerful spring, worked by a cord passing over a double purchase brass pulley. It will cut any branch the hook can grasp; but should the branch be too large for the hook, you can unscrew the averuncator and substitute a small saw, with re-

versed teeth, which cuts with the pull-down stroke and enables the operator (if of ordinary height), with the four lengths of cane, to cut a branch as large as his arm 25 feet from the ground. It is, in short, an implement which should be in the hands of all who have the management of ornamental trees and shrubs where it is often impossible to use a ladder. Before getting the pruner just described, I purchased one that had been extensively advertised in gardening periodicals, but I found it to be a mere toy.—SANGUINEA.

PLANTS IN FLOWER.

Torenia Fournieri.—A handful of blooms of this pretty *Torenia* has been brought to us by Mr. Guyett, Lynton House, Clapham Common. They are the produce of plants raised from seeds sown about the middle of July, and now, owing to their charming combination of colours, are marvels of beauty in 3-in. pots.

The Jalap Plant in flower.—This plant has lately been flowering charmingly in the garden at Bitton Vicarage. It runs about over shrubs, and is a most graceful climber, with beautiful lilac purple crimson flowers, like a graceful stove *Convolvulus*. It was, indeed, grown in the stove until Mr. Ellacombe put it in the open air for trial, and with such a happy result.

Sunflowers at Laxenburg.—In reference to some notes on *Helianthus* which appeared recently in THE GARDEN, allow me to state that we have at present fine groups of *H. orgyalis* and *H. argophyllus* planted in sheltered places near shrubberies; they withstand light frosts and the destructive gales which prevail here in autumn well. Equally fine is *Gynerium roseum* now in flower.—LOUIS KROPATSCHE.

Nerine meadowbankensis.—This new variety is one of the most remarkable as regards colour that we know. The nearest tint to which it can be compared is a glowing scarlet, a colour which we have not seen in any other variety. The form and size of the flower resemble those of *N. Fothergillii*, and the petals are curled in the same manner. Its habit of growth, too, and style of flowering is similar. We saw it the other day in Mr. B. S. Williams' nursery, Upper Holloway.

Convolvulus Cneorum.—This beautiful South European shrub with silvery leaves and conspicuous white flowers, produced in clusters terminating the slender branches, is now finely in bloom in the open air in Mr. Ware's nursery at Tottenham, where there is a large bush of it which has been planted out on the rockery for several years. It is reputedly a tender plant, and no doubt it is, except in light and well drained soils, such as that of a rockery. It is a plant one does not often meet with, but a most desirable one.

Solanum Little Gem.—Quite distinct from the common berried *Solanum Capsicastrum* is this neat little variety lately introduced for conservatory decoration in winter. It rarely exceeds a foot in height; it is of spreading habit and very twiggy in growth. At this season every plant of it is profusely laden with berries the colour of red sealing-wax and about the size of large Peas. On account of its size and peculiarly neat habit it is better adapted for many purposes than the other. It is now a pretty object in Mr. Williams' nursery, Upper Holloway, whence it was sent out a year or so ago.

Dahlias Mrs. D. T. Fish and Union Jack.—Since sending you blooms of the former I have, through the courtesy of Mr. Ware and others, been favoured with specimens of the latter. The most casual comparison of the two shows them to be quite distinct. The former, too, though given to sport at first, like most of the parti-coloured single Dahlias, has now settled down into confirmed good habits of the same character as the first flowers sent to THE GARDEN. I now send you a box of blooms in confirmation of both statements. The ground colour is a purer white and the stripe of quite a different shade from that of

Union Jack. But I will leave you to give your own opinion of the flowers sent. The habit is dwarf and most compact, qualities in which most of our single Dahlias here far excel all other strains. I have seen the parent plant, which has now twenty blooms and buds on it, and is only 2½ feet high.—D. T. FISH.

* * The two kinds are certainly distinct as far as the blooms sent are concerned, but both belong to the red-striped white-ground class.—ED.

Miltonia Clowesi major.—A fine spike of this variety (true) has been sent to us by Mr. D. Kemp, Dunlop Gardens, Stewarton, who states that there is a plant there carrying at present fifteen spikes, numbering in all about 100 blooms. This variety is remarkable for the large size of the flowers, the great breadth of the labellum, and its bright and clearly defined colours.

October Pansies are not so often seen as they might be. At all seasons Pansies are beautiful, and particularly so on the verge of winter, when the tide of open-air flowers is at its lowest ebb. Some fine bunches have been sent to us by Colonel Stuart Wortley with the following remarks: "A pinch of carefully saved Pansy seed is a useful thing to sow early in the year. My seedlings are blooming freely still, and have been so for three months. You will see what a bright and cheerful show they make by the flowers sent."

Dipladenia profusa.—This may be said to be almost a perpetual flowerer, since it blooms from spring to far into the winter. At the present time when there is a general barrenness of bloom in the stove the large rosy carmine flowers of this variety are more attractive than at any season. This and *D. amabilis* are two valuable stove plants for autumn, as the flowers are so useful for floral decorations, both being of a colour that everyone admires. Among the numerous kinds of *Dipladenia* grown in Mr. B. S. Williams' nursery, these are the only ones in bloom just now, and they adorn the roof of one of the stoves in a charming manner.

The Zanzibar Balsam, as the beautiful new *Impatiens Sultanii* is called, has proved to be a capital greenhouse plant; in fact, it seems to flourish better in a lower temperature than that of an ordinary stove. In the conservatory No. 4 at Kew there are a good many plants of it which, being in profuse bloom, make an attractive display. This Balsam seems to be coming more and more popular and widely distributed. The other day we met with it in an out-of-the-way garden in Oxfordshire where only common-place plants might have been expected.

Chrysanthemum blooms.—Some of the finest blooms of *Chrysanthemums* we have ever seen in the third week of October have been sent to us by Mr. Underdown, gardener to Capt. Levitt, Colhayes, Bovey Tracey, Devon. The flowers are of the Japanese and incurved varieties. Among the former were some grand blooms of *Elaine* measuring over 6 inches across, and equally fine among the incurved sorts were Mr. George Glenny, a beautiful pale yellow; Mrs. Dixon, a bright golden yellow; and Mrs. G. Rundle, one of the best of all the whites. It is evident by these fine examples that *Chrysanthemum* culture is carried out well at Colhayes.

Rhododendron Pink Beauty.—The race to which this new variety belongs, that of *R. javanicum*, is such an important one in gardens, that any addition to it is welcome, especially if beautiful and distinct, as *Pink Beauty* unquestionably is. In order to describe it intelligibly, it may be compared with the Princess Royal variety, one of the first that was originated and which is now pretty well known. *Pink Beauty* bears massive trusses of large well-shaped blossoms of a deep rose-pink with a long blush white tube, a colour admired by everyone, and being particularly bright by artificial light, it is very suitable for dinner-table decoration. Two or three individual blooms associated with Maiden-hair Fern make a charming combination. We saw this new *Rhododendron* the other day in Mr. W. Bull's nursery at Chelsea, where it originated, and where there is a

good sized bush of it well furnished with bloom, a beautiful object, and moreover one which shows well the excellent habit of growth and the luxuriant foliage which the plant carries.

Begonia geraniifolia.—Of all the species of *Begonia* now in flower in the T range at Kew none are so deserving of a word of praise as this *Geranium*-leaved species. When well developed it forms a compact tuft of densely-placed stems and leaves, the latter small, round, and cut similarly to those of some species of *Geranium*, and of a peculiarly bright green. The flowers, about the size of a shilling, have pure white sepals encircling a tuft of golden stamens; they are borne profusely, and therefore the plant has an extremely pretty effect. We have not met with this plant in nurseries, hence infer that it is not much known, but for winter blooming it is one of the best in the Kew collection.

The Cape Plumbago (*P. capensis*).—Throughout the summer, all through the autumn till now has this lovely shrub been in bloom in the Water Lily house at Kew, where there is a large plant of it planted out in the border of the entrance vestibule. This position seems to exactly suit its requirements, for it could not possibly thrive better or flower more profusely, each branch being garlanded with its matchless pale blue blossoms. It is to be regretted that such a glorious plant as this should be so much neglected as it is, simply because it is old and its place taken up in greenhouses by newer plants possessing not a tithe of its beauty.

Cheiranthus mutabilis.—This, though a pretty plant, and one of the few open-air flowers of the present season, is seldom seen except in botanical collections. Some flower-spikes sent to us by Messrs. Paul from their nursery at Broxbourne, remind us of its usefulness at this season. It is dwarf and neat in growth, and has narrow foliage, clustered rather densely on the semi-shrubby stems. The flowers, produced in short, thick spikes, are about the size of those of a Virginian Stock, and change, according to age, from a deep purple to a pale pink; hence its specific name. Being a native of Madeira, it is not a plant that will withstand our severe winters; therefore it needs some sort of protection.

Batatas paniculata.—This is a plant to bear in mind when it is required to adorn the roof of a stove with a few of the most suitable and beautiful climbers. It is an ally of the *Convolvulus* and *Ipomœa*, and partakes strongly of their growth and general character. The stems are long and slender and have a twining tendency; the leaves are deeply cleft into three or more lobes, and the *Convolvulus*-like flowers are about 3 inches or 4 inches across, and of a lovely rosy purple marked with a star of a deeper colour. It is an easy plant to grow if given the treatment usually required by stove plants, but it likes rather more water than the majority of them do. It has been for some time and still is a beautiful object in one of the stoves at the Royal Exotic Nursery, Chelsea.

Comte Brazzi's white Neapolitan Violet is such a good and welcome addition to our autumn-flowering Violets, that it fairly deserves notice in the pages of THE GARDEN. It is a healthy and vigorous variety, and produces its fine, pure white and fragrant flowers in abundance. It commences to flower before the old Neapolitan, but is not so early as *Marie Louise*. All who have seen it here are in love with it, and I am much mistaken if it will not soon become as great a favourite and be as generally grown as the other two well-known varieties.—WM. ALLAN, *Guntton Park*.

* * Large and beautiful Violets, fragrant as the spring. The white Neapolitan is especially lovely, and we have never seen it in such good condition.—ED.

The Zanzibar Water Lily is unquestionably one of the finest of all the *Nymphæas* now in cultivation. We have alluded several times this year to the beauty of this plant as seen in the tropical Water Lily house at Kew. It still con-

tinus to throw up flowers which, if possible, are of a deeper and richer purple than those produced earlier in the season. It is a rare plant at present, having but recently been introduced from Zanzibar, but when commoner it will undoubtedly become a popular plant for embellishing water tanks in stoves. *N. zanzibarensis* with its purple flowers, *N. devoniensis*, with deep peach-red, and the pure white form of *N. Lotus*, form a trio of Water Lilies that embody all the beauty of the different species now in gardens.

Lilacs in bloom in October.—I send you two sprigs of Lilac just bursting into flower. They were cut from a bush in Clifton Gardens, Folkestone, where I counted, a few days ago, between fifty and sixty bushes covered with heads of blooms similar to those now sent. These Lilac bushes had evidently suffered from drought during summer—no remains being left of spring foliage, but they are now quite covered with fresh leaves and shoots which have been much spoiled by the gale of the last few days.—JOHN CHURCH.

*** Very good bunches of Lilac and richly coloured.—ED.

Coburghia incarnata.—This handsome and rare bulbous plant has been in flower for some weeks past in a cool greenhouse at Kew. From a good sized bulb a stout, erect stem is produced, some 2½ feet high, surmounted by an umbel of about a dozen flowers. These have tubes about 4 inches in length, of a beautiful glaucous coral colour. The limb of the perianth is about 2 inches across, each division being pea-green, broadly edged with coral-red. Flowers such as these being of peculiar form, and of a still more peculiar combination of colour, arrest the attention of everyone. It is one of those plants that the present fashion precludes from ordinary gardens, though it is quite as showy and far more interesting than numbers that are commonly grown. It is a native of Quito; hence requires to be kept in an intermediate temperature.

Eucharis candida.—I send you a double flower of this Eucharis, and should like to know if a similar one has come under your notice before. I have also enclosed two other flowers showing some strange freaks. The whole of our plants of *E. candida* are very robust and wonderfully floriferous, greatly superseding the old amazonica.—F. NEWMAN, *Ferniehurst, Shipley, Leeds.*

*** The so-called double flower sent is not really double in the ordinary sense of the term. It is a fusion of two flowers laterally, all the parts being perfect. The other monstrous blooms are more interesting. One has its parts in twelves instead of sixes. In the other the corona is transformed into fleshy filaments and quite free, and each is terminated by a perfect anther, thus showing that in *Eucharis* the corona is nothing more than the cohesion of the flattened filaments.—ED.

Antigonon leptopus.—I send you a spray of this twining plant, which is now in full flower in the stove. Every shoot is just bursting into bloom.—E. C. A. BYROM, *Culver, near Exeter.*

*** The best flowering specimens we have yet seen of this South American twiner, still among the rarest plants to be met with in flower in gardens. As the plant in question seems to be exceptionally fine, our correspondent's experience as regards its treatment would be welcome to many of our readers. It belongs to the Knotweed (*Polygonum*) family. It has long, slender shoots, heart-shaped leaves, and bears its flowers, which are small, in axillary racemes. The colour of the blossoms is a beautiful rose-pink, and when numerous strikingly pretty.—ED.

Rhododendron Tylori is still among the most beautiful of greenhouse Rhododendrons, though one of the first that was raised. One of the greenhouses in the Royal Exotic Nursery, Chelsea, is now lit up beautifully by this variety and the equally handsome Princess Royal, likewise one of the oldest sorts. The flowers of *Tylori* are pink, but of that lovely clearness that is so seldom seen among flowers. All the plants here of this

variety are laden with large trusses of bloom—a sufficient proof of its floriferousness. This variety was raised years ago by Mr. George Taylor, in Messrs. Veitch's nursery, Exeter. The Princess Royal variety was another of the same set of seedlings, and, like *Tylori*, has not been surpassed in its way. There is also in this nursery an exceptionally fine unnamed seedling just coming into bloom. Its first truss carries no fewer than twenty-one flowers, in colour a warm orange suffused with yellow.

Gilia coronopifolia.—I send a flower-stem from the open border which I take to be *Gilia coronopifolia* (Sweet Brit. Flower Garden, vi., 289), as I fancy that it is not often seen in English gardens, nor perhaps on your table. The seed, from a garden in South Russia, was sown in a cold frame at the end of March, and the plants were put out in May. The first flower did not open till the end of September—too late for seed to ripen. On the strongest stem, nearly 4 feet in height, there has been about three times as much flower, now mostly faded, as on the enclosed specimen; but the lowest buds will probably not open, owing to the lateness of the season. I also send a late flower of *Nicandra physaloides*, another annual not mentioned in the seedsmen's catalogues, which has been flowering freely for three months.—F. W., *Abingdon.*

*** The *Gilia* is synonymous with *Ipomopsis elegans* Michaux, but different from the plant to which this name was applied by Lindley, which is now named *Gilia aggregata*. *G. coronopifolia* is indeed a pretty plant, having tall, slender stems furnished with finely-cut foliage, and terminated by numerous flowers disposed in small clusters. Their colour is scarlet blotched and mottled with yellowish white. It is an old plant in gardens, having been introduced many years ago from Carolina. It is of biennial duration, somewhat tender, though hardy enough on dry, light soils. It may be found in some seedsmen's catalogues under the name of *Ipomopsis elegans*. The varieties *superba* and *rosea* are distinct and pretty. The *Nicandra*, though pretty, is hardly a plant fit for general culture.—ED.

FLOWERS OF OCTOBER.

THE Dahlias were blackened by 3° of frost yesterday morning, and yet to-day it is bright and sunny, with a brisk wind blowing, and so Anemones dance and flutter—odd blossoms here and there in a little meadow of their own fresh green leaves. The pretty little *Linarias* of the annual race give very pleasant glints of bright colour here and there, and the dainty little cushions of *Violet Cress* (*Ionopsisidum acaule*) nestle here and there by the sunny margins of beds and of borders. The autumn Blueberry (*Billardiera longiflora*) and *Hydrangea paniculata grandiflora* have been alike effective, but differently—the one with purple berries, the other with its plume-like masses of pale blossoms thrust out at all angles from the parent stem in quite a generous way. Late autumn Lilies and Sunflowers have disregarded our first bite of frost, and struggle on bravely in the waning warmth and light of our shortening October days. Hollies are profusely berried, and their colour now asserts itself, berries (red, orange, scarlet, and yellow) peeping plentifully from among the glistening leaves. If a profusion of Haws, Hips, and Holly berries be an augury of a hard winter, then shall we have a severe one; but it is not so, for last winter was the mildest here for several years, while the harvest of wild or hedge fruits was most abundant. The birds of passage are, as I fancy, a better augury. That the great mottled thrushes are arriving in quantity thus early to our fruity old garden by the sea is more suggestive, and the gulls are by no means easy, but are already exploring inland as if in expectancy of a hard time. Mignonette still lingers in sunny spots, and its fragrance, with that of golden Thyme and odd sprays of Lavender, make a nosegay of the sweetest, albeit, not showy. For freshness and show the Anemones now bear the palm from all other hardy blossoms, and will continue to do so

in the open air until next spring comes round. Shrubby Veronics are now at their best; silvery Pampas sways in the wind, and Ivy leafage begins again to assert itself on the old walls, and the white trumpets of the Crimean Bindweed (*Calyptegia sylvatica*) still open on its climbing shoots or dangling vines; Bamboos are ever fresh and graceful. You must look at the force and harmony of the spray in Mr. Miles' picture ("Pity and love are akin") quite recently engraved. No other spray, neither Palm nor Orchid, could have told us half as much as that bit of common Bamboo in—an epitome of all the grace and elegance possible in a grassy stem.—W.

—Some flowers have been sent to us by Miss Owen, from her garden at Knockmullen, Gorey, Ireland. Of these we append a list of some of the best, in order to show what an amount of bloom may be obtained from hardy flowers even as late as the end of October, when tender bedding plants have long been past. All the plants enumerated below are excellent, and can be recommended for autumn blooming. Miss Owen remarks that she has not included Dahlias, which, with the exception of *D. glabrata*, are all hardy with her in mild winters if protected with coal ashes:—

Celsia cretica	Anemone japonica
Fuchsia Riccartoni	alba
Menziesia polifolia alba	Phloxes in variety
Saponaria Vaccaria	Rudbeckia Newmanni
Chrysanthemums (early-flowering)	Lysimachia clethroides
Lobelia splendens ignea	Hypericum patulum
cardinalis	reptans
Milleri	prolificum
Pyrethrum serotinum	Gladioli (gandavensis varieties)
Lithospermum prostratum	Pinks in variety
Senecio pulcher	Salvia patens
Campanula Hostii	Eurothera fruticosa
Primrose (coloured, single and double)	Ceanothus Gloire de Versailles
Meconopsis cambrica	Parnassia palustris
Helleborus altifolius	Helianthus decapetalus
Carnations in variety	Aster turbinellus
Gaillardia grandiflora	versicolor
Roses (good blooms)	Amellus
Colchicum autumnale fl.-pl.	Novae-Angliae
Tritonia aurea	roseus
Schizostylis coccinea	pulchellus
Pansies in variety	laevigatus
Monarda didyma	ericoides

Wasps' stings.—The best remedy for these, according to two correspondents of the *Times*, is the juice of an Onion. Scrape a raw Onion and place the pulp on the sting. If stung in the mouth or throat, chew a piece of raw Onion and slowly swallow. This remedy has never been known to fail.

Insects on Vines, &c.—Will you kindly furnish me with the names of the grubs which I enclose? Box No. 1 is making sad work in our vineries; it forms a web in the middle of the bunches, and punctures the berries around, causing them to rot. Box No. 2 contains grubs which attack both foliage and buds of Azaleas. Any information respecting them will be esteemed a great favour.—G. M.

*** In box No. 1 I could not find any grub; they had probably made their escape. The Grapes are probably infested with caterpillars of a small moth, one of the family Tortricidae. I can suggest no cure but picking them off and destroying them, and so prevent the grubs from becoming chrysalides from which the parent moths will emerge next year. Kill any moths about the size and somewhat larger than clothes moths that you may find in the vinery next season. Box No. 2 contained grubs belonging to the same family as those above mentioned. If the plants are not too large dip them or syringe them with the following mixtures, which will probably kill the caterpillars or make them drop from the plants: Tobacco water and soft soap, or a quarter of a pint of petroleum and double that quantity of soft soap well mixed and dissolved in 4 gallons of water. Dipping the plants in water at the temperature of 120° Fahr. will probably clear the plants.—G. S. S.

A sign of the times.—Mr. Cannell is taking up Michaelmas Daisies; the best kinds, we hope.

INDOOR GARDEN.

MYOPORUM PARVIFOLIUM.

WHEN reading "Veronica's" paragraph in THE GARDEN of July 28 (p. 64) concerning *Myoporum album*, I was greatly interested to know what this plant could be. To Mr. Poë and "Veronica" we are indebted for bringing to notice afresh a plant which was fairly common during the earlier years of this century, but which has latterly been lost sight of, as many other plants of the same class have been. As the name *Myoporum album* is not to be found in books, so far as I can discover, it conveyed no information to me, but by the kindness of Mr. Poë I was soon in possession of cuttings of the plant and a specimen in flower. It was so unlike what could be expected of a *Myoporum* in its very charming and floriferous cha-



Flowering spray of *Myoporum parvifolium* (natural size).

racter, that I did not at once recognise it as an old acquaintance; and I thought, as did "Veronica," of *Eriostemon scabrum*, which in a general way it closely resembles. Being convinced, however, after examining its structure, that it did belong to the genus *Myoporum*, I was able some time after to find a figure of it in the *Botanical Magazine*, where it is called *M. parvifolium*, and this is its correct name. It was cultivated ten years ago at Kew, as I find by my notes of the genus taken there at that time, so that probably it has never been altogether lost since its introduction by Mr. Good in the year 1803. From the *Botanical Magazine*, where it is figured (vol. xli., tab. 1693), I learn that it used to be placed under Andrews' genus *Pogonia*, as *P. asper*, *P. scabra*, and *P. tuberculata*, and it has had even other names in addition to these. *Myoporum tuberculatum*, properly so called, is quite a different plant, and one of about eight kinds which are cultivated in botanic gardens. *Myoporum parvifolium* is the best of them all by far, and very valuable. There is one other kind sometimes found in the gardens of the curious, and that is

M. lætum, which is singularly dotted with pellucid resinous glands. *M. parvifolium* is valuable in botanic gardens because of its affording flowers freely of an order of which flowers are not easily obtainable. For general culture it is also valuable, as "Veronica" pointed out. He says, "Near Paris it is quite commonly grown in small pots for room and window decoration, and is most graceful as seen with its pale green branches drooping around the pot sides, and more especially so when the shoots are wreathed with sweet snow-white blossoms." It is a New Holland plant, and will succeed well under the treatment usually given to hard-wooded greenhouse plants. I can give no special points of culture, but there would seem to be no difficulty whatever in growing it, provided ordinary care and attention are paid to it. Of the fourteen cuttings which I received from Mr. Poë twelve are striking, and will undoubtedly succeed. The pot containing them stands in a cool frame, and is covered with a bell-glass. The specimen from which the annexed illustration has been prepared was supplied by Mr. Archer Hind, but whether he grows it as *M. album* or *M. parvifolium* I am not informed. The flowers are well shown, but the leaves and stems are covered with tiny warts, which are not clearly indicated.

R. IRWIN LYNCH.

Botanic Garden, Cambridge.

** Our drawing was made from a specimen sent to us by Mr. Archer-Hind, Coombefishacre House, Newton Abbott, July 7, 1883.—ED.

SCUTELLARIA MOCCINIANA.

THIS evergreen shrub grows to a height of about 2 feet; it has handsome foliage and bears from the points of the shoots close, compact bunches of tube-shaped, bright red and yellow flowers. It is a remarkably free bloomer, keeping on flowering almost the whole year round when any growth is being made, and on that account one of the best plants that has been introduced for years, as the flowers are equally effective on the plant or in a cut state, in which they last a considerable time. It succeeds in ordinary loam made moderately rich with rotten manure and mixed with sand. It may be propagated at any time of the year when bits of half ripened wood can be had, such as the young growths which spring from the joint below where a stout shoot has been cut back; if these are taken off early in spring and put five or six together in pots just large enough to hold them filled in the ordinary way, kept moist and covered with a propagating glass, they will root in a few weeks; after that shift them singly into 3-inch pots, using fresh loam fairly enriched, to which add a full complement of sand. The latter is needed for all free-growing subjects of the nature of this plant, as they require a plentiful supply of water, which makes it necessary that the soil be of a character so that it can pass freely away, or the roots, though not delicate, are sure to get out of order.

As soon as the cuttings are fairly rooted pinch out the tops, repeating this when the plants have made a couple more joints. An ordinary moderate hothouse temperature will answer through the year. With all plants of a continuous blooming habit it is advisable never to over-excite them by too much heat, or, on the opposite, keep them so cool as to wholly stop growth. Directly the pots are pretty full of roots shift into others proportionate to the size to which the plants are expected to grow; they will flower at almost any size from that obtainable in 6-inch pots upwards. Water liberally as the roots get plentiful, give air freely in the daytime during summer, shading when the weather requires it, and syringing in the evenings during the season of active growth.

When the flowers are wanted in a cut state, it is well to use those produced by the strongest shoots, at the same time cutting these shoots moderately well back, so as to encourage the weaker branches and keep the plants in a symmetrical form. In spring, about the time the usual rise in temperature takes place, it is well to cut the plants freely back, so as to keep them from getting too tall,

after which they may be turned out of the pots, a portion of the soil removed, and larger pots given using loam of a moderately free character. If they are thus treated annually, with the additional help of manure water through the summer, they may be kept in a thriving state for several years; but it is advisable to always have some young stock on hand, as moderate-sized examples for ordinary purposes will usually be found the best.

The frequent use of the syringe during the most active period of growth generally keeps the plants free from insects, but if aphides or thrips affect them fumigate or dip in tobacco water.

T. BAINES.

MARANTAS AND THEIR CULTURE.

MARANTAS, which are very handsome plants, differ considerably as regards the size to which they grow. Amongst the numbers that have been introduced of late years, there is to be found great variety with respect to the marking of their leaves, some having the surface beautifully variegated with broad, well-defined blotches, others with delicate hues of distinct colour running through a considerable part of their leaf blades. They mostly belong to hot regions, and, therefore, require a good deal of warmth. They are not so quickly propagated as plants that can be struck from cuttings; they are increased by division of the crowns early in spring just before growth commences; the most suitable plants for the purpose are such as have grown to a considerable size and consist of numerous crowns. About the beginning of March turn them out of their pots, shake most of the soil away from the roots, and disentangle them as far as can be done; after that, with the help of a stout knife, the whole may be reduced to single crowns if desired, or they can be simply divided into two or more pieces as occasion may require; in the latter case each portion should be placed in a pot that will allow space enough for the roots and a fair quantity of new soil. If a total separation of the crowns has been effected, each piece should be put in a 5-inch or 6-inch pot, or whatever size is found sufficient to hold them, with as much soil as seems requisite for the roots to ramble in. Marantas like a moderately moist atmosphere with shade when the sun gets powerful, otherwise their rich, glossy appearance will be lost. Sufficient water should be given to slightly moisten the new soil, and where they have been much divided they should have a confined atmosphere, such as that afforded by a propagating frame until they root, and the young buds, which will break from the crowns of the old growth, begin to move; after that inure them to the full air of the house.

AFTER DIVISION in this way they should be kept in a temperature of 60° or 65° at night, with a rise by day proportionate to the state of the weather. As the summer advances they will bear more warmth but it is not well to keep them too hot, and although, as already stated, they will not do with exposure to full sunshine, still they must not be over-much darkened and kept too far from the glass, or the growth made will be so soft and tender as not to stand removal to a cooler atmosphere, even for a short time later on in the summer, which such plants are often required to bear. To still further induce a robust condition they should have a moderate quantity of air admitted for a time each day during the growing season, with the atmosphere fairly moist; they should also at that period be syringed daily. By the beginning of July those that seem to require more room ought to have pots a little larger. They will succeed in either peat or loam; in the latter their leaves are often higher coloured than in peat, in which they grow fastest. In autumn discontinue shading and the use of the syringe, giving a little more air. A temperature of 60° in the night during winter will suffice. All afterwards required is pot room proportionate to the size to which the plants are wanted to grow.

The following are distinct and beautiful kinds, viz.: *M. Veitchi*.—A handsome species from Peru, with large finely marked leaves. *M. Warscewiczii*.—Another strong-growing sort very distinctly variegated. A native of Central Ame-

rica. *M. Seemanni*.—A beautiful, bright green, velvety leaved kind, with whitish midrib. Introduced from Nicaragua. *M. Makoyana*.—A dwarf-growing species, the leaves of which are of a greyish white ground colour, and furnished with broad oblong blotches of bottle-green with paler lines running through them. *M. regalis*.—A species that attains a moderate size; ground colour dark green with handsome red lines. *M. albo-lineata*.—A fine kind from Columbia of stout habit; ground colour pale green with narrow, distinct, white lines running partly through the outer portion of the leaf blade. *M. ornata*.—A Bornean species with small roundish leaves, distinctly and handsomely variegated. *M. pruinata*.—An elegant kind from Nicaragua, with narrow leaves of a deep green shade, obliquely ribbed. *M. orbifolia*.—This comes from Brazil, and has very broad short leaves of a green colour, with greyish oblique streaks. *M. nitens*.—A handsome small-growing species, with bright green leaves, regularly variegated with conspicuous dark-coloured markings; from Brazil. *M. leopardina*.—An erect-habited kind that has medium-sized leaves, pale green, regularly barred with dark green; Brazil. *M. concinna*.—Leaves light green, blotched with blackish green; South America. *M. pulchella*.—A small growing species. The leaves are short, of a bright green colour, blotched with darker green; Brazil. *M. leuconura Massangeana*.—Another small-growing kind of distinct appearance; midrib banded on each side with grey, lined and blotched with greyish white and reddish brown; Brazil. *M. inscripta*.—A medium-growing species. The undersides of the leaves are red; upper surface clouded green, distinctly barred with white; Brazil. *M. bella*.—Handsomely variegated with pale greyish green and dark green in the way of *M. Makoyana*; Brazil. *M. rosea lineata*.—A neat-habited kind with glossy green leaves, distinctly marked with red; Columbia. *M. vittata*.—A strong-growing species with large, stout, glossy, pale green leaves, handsomely variegated with distinct white lines.

INSECTS.—Marantas are liable to the attacks of most insects that affect stove plants, but, from the formation of their leaves, they can be easily cleaned by syringing and sponging. T. B.

CLIANTHUS DAMPIERI.

THIS plant is much harder than is generally supposed. It may be grown and flowered satisfactorily out of doors in the southern counties, and even in the colder northern parts of the country it may often be seen flowering when planted in sheltered nooks. Several years ago it used to be trained on a south wall in a garden near Aberdeen, and it used to flower most profusely during September and October. It will withstand 2° or 3° of frost, lasting after the Dahlias and other tender-leaved plants are cut off. The most satisfactory mode of growing this plant is to procure seed, which should be planted in light soil, consisting of good brown fibrous peat, one-third yellow loam, and a good portion of rotten leaf-mould, with plenty of sharp silver sand to keep the whole porous. I have found by experience that it is best to use 3-inch pots filled with the compost just named. One seed should be placed in each pot, as young seedlings seldom start freely into growth if the roots are disturbed in repotting. Place the pots upon a warm hot-bed, or in a house having a temperature of from 60° to 65°, with bottom-heat if possible, so that the seeds may soon germinate. If the seeds be long in moist soil they sometimes rot. The best time to sow is early in February to get strong flowering plants early in summer. As soon as the young plants are large enough shift them into 4½-inch pots, using the same compost as that already named for filling the seed pots, but with less sand in it. Place the plants in the same temperature for a few days until they commence to root into the fresh soil, when they may be placed in a cold pit or greenhouse, where they will grow freely until they require another shift, which will only be in the case of plants that are to be grown in pots for house decoration. Those to be planted out will be best left

in 4½-inch pots until they are planted out late in June. Plants grown in pots will be greatly benefited by frequent waterings with liquid manure, or with any artificial manure which may be used for pot plants. They will commence to bloom in from four to five months from the time when the seed is sown, and if carefully attended to will continue to bloom for several months. In order to grow plants of this *Clianthus* out-of-doors they require to be well hardened off in a cool pit, leaving the lights off during the daytime for some time, but replacing them at night. The middle or end of June will be found early enough to transfer them to their open quarters. They should be planted in peaty soil, and given some protection for a week or two, when they will soon commence to grow and flower, and will well repay any trouble which may have been bestowed on them. In several situations they may succeed, but the best is against a south wall; they may, however, be grown with success either in the herbaceous border, or in small beds in some sheltered place. I saw several plants once of this *Clianthus* growing upon a lawn in a garden in the village of Merriott, in Somerset, where they had a good effect; they were planted by the side of a main walk, and grew in tufts upon the Grass, their shoots being from 18 inches to 2 feet high, and when in flower they had a striking effect.

WILLIAM CHRISTISON.

Woodham Hall, Woking.

CISSUS DISCOLOR.

AMONGST all the variegated plants that have been introduced to this country there are few, if any, which have attracted so much attention as this *Cissus*, the exquisite markings of its leaves being very handsome. It is a climber, easily propagated, and its subsequent management is equally easy. Cuttings made of the young shoots, consisting of some three or four joints each, put singly into small pots in sand and kept in a close, moist atmosphere in a brisk heat form roots quickly, after which they should be inured to the air of the house and moved into proportionately larger pots, using good open, rich soil—either peat or loam will answer—as the plants are such free rooters that they grow and do well in anything, provided it is not retentive of moisture, so that the large quantity of water they need can pass freely off. If to be

TRAINED ON TRELLISES, they should not be put on these until in the pots which they are for some time to occupy; consequently, in their younger stages, the shoots should be trained round a few sticks till they are large enough to be placed in the pots they are to be confined to. One stopping will generally be sufficient to cause enough shoots to break to furnish the specimens sufficiently. An ordinary stove temperature is requisite to grow them well with shade when the sun is powerful; this is especially necessary in the case of *C. discolor*, the variegation of which cannot be preserved if the plants are too much exposed to the sun. Large pots are required to grow the more vigorous kinds, such as *C. discolor*, which will fill a 12-inch or 15-inch pot in six or eight months after it is struck. When to be planted out so as to cover a pillar or portion of a wall in the stove, for which purpose they are quite adapted, the plants may be turned out as soon as they have filled 6-inch pots with their roots. In all stages of their growth they require to be plentifully supplied with water and syringed daily overhead during the growing season. In the winter they may be cut in freely to keep their heads in bounds. If grown in pots, as soon as they have broken again into growth they may be partially shaken out and fresh soil given. When planted out they soon exhaust the material in which their roots are placed, and should be assisted by surface dressings of good loam, enriched with decomposed manure. The plants can be used for filling large baskets for hanging up, where they can be kept in a stove temperature, without which they make little progress. There are a number of species in cul-

tivation, but the undermentioned kinds are the ones that find most favour with the generality of cultivators. *C. discolor*.—This is a climbing plant from Java of very free growth, with oblong-cordate leaves, deeply ribbed, ground colour deep green, beautifully marbled with white, and whilst young with pinkish red. *C. porphyrophyllus*, a free grower, very suitable for covering a wall in a hothouse where there is not so much light as most plants require. A native of India, not nearly so handsome as the preceding. *C. Lindenii*, also a climber, like *C. discolor*, with, tendrilled branches; the leaves are medium-sized bright green, mottled with white. It comes from Columbia. *C. gloriosa*, another free-growing climber, with velvety green leaves, veined with red. Introduced from Costa Rica.

INSECTS.—Thrips, aphides, mealy bug, and scale will all live on these plants, but the daily use of the syringe will usually be found sufficient to keep the least troublesome of them in check, and should bugs or scale affect them sponging must be resorted to. T. BAINES.

PENTAS CARNEA.

I DO not think the value of this plant is so well known as it should be. The method of culture generally followed is by no means the one best calculated to develop its best qualities, as, grown strictly as a warmhouse plant, amongst the miscellaneous contents of a stove, it does not often get the amount of light and air necessary to the formation of strong wood and ample foliage. In the case of flowering plants which are to bloom in winter it is of the highest importance that the wood should be well ripened by late autumn, and *Pentas carnea* forms no exception to this rule. Therefore the plants ought to be grown either in a light house near the glass or in frames. Young plants are best, and, as propagation is easy and growth quick, cuttings struck in March have good time wherein to form good-sized blooming specimens. Cuttings strike freely in the ordinary temperature maintained in a stove in early spring, when placed under a bell-glass or something similar. When rooted inure them to the general atmosphere of the structure, and put them into 2½-inch pots in rather light soil, shifting them as they need it. An important point in their culture is the amount of light which they get when in full growth, as, being naturally of a lanky habit, it takes but little to draw them up so as to seriously enfeeble them and quite mar their value from a decorative point of view. Keep them as near the glass as possible, and when they have got their last shift, which should be by the middle of July, let them have cool treatment in a frame or in a light house. They should be pinched to induce a bushy habit, and should have for the last shift good fibrous loam, a little peat and leaf soil, and some silver sand. To flower them well a temperature of 55° is quite sufficient. J. C. B.

AUTUMN AND WINTER HEATHS.

HEATHS collectively are not now so much grown as they used to be; with the exception of a few winter-flowering sorts which are popular, it is only here and there they are now to be met with, yet their absence from greenhouses and conservatories is the reverse of a gain; in most cases the commonplace plants that occupy their place are as inferior from an interesting point of view as they are for general effect. Possibly there are more reasons than one for their neglect. Many gardeners who prefer confining their practice to such plants as are found easiest to manage, if the choice of subjects is left to them, care little for Heaths, which require more study and application to become acquainted with their cultivation as well as more diligent attention to their every-day wants. Added to this it is not unlikely that the stifiy, over-trained specimens from time to time seen on the exhibition stage may have had something to do with the disfavour into which they have fallen; yet for profusion of flowers and the continuous succession of bloom which a judicious selection affords throughout the circle of

the year, they have few equals. Now, when flowers that will last well in bouquets and button-holes are sought after, it might have been supposed that Heaths, the flowers of many of which are most enduring, would have been used for these purposes.

LATE KINDS.—The varieties that flower during the latter part of summer and on through the autumn and winter are much more numerous than those would suppose whose acquaintance with Heaths extends no further than to the few kinds that are now generally met with. In August and September there is the species *retorta*, a free-growing kind and a profuse bloomer, with pretty pink and white flowers, with several beautiful varieties that are allied to it, all of which bloom

and June, often blooms again from November to February; the red and white colorans comes in during the two last months of the year; *princeps coccinea* is another pretty and distinct late autumn kind; *pyramidalis* and *ramentacea* both bloom as late as December; *vernix coccinea* comes in from February to late in the spring; whilst *vernalis*, as its name implies, is in season during March and April.

WINTER HEATHS.—*Hyemalis*, of which there are probably more grown than any other half dozen varieties put together, is so well known as not to need describing; its erect shoots are studded with flowers that open through the dull months from December to March along with *Willmoreana*, a companion variety that comes in at the same season or a little later. The bushy, slender-growing *mutabilis* has no particular season, its long, delicate, tube-shaped, pale red flowers coming in at various times all the year. These are only a portion of the late autumn, winter, and early spring sorts, jotted down from memory; others there are that might be included, making collectively a lengthy list of these chastely beautiful flowers that come in in the dull season when every flower has a joyful influence. As to the Heaths that bloom through the spring and summer, their name is legion, many of them so distinct in form, colour, and general habit as, independent of their usefulness for ordinary decorative purposes, to rank them amongst the most interesting of cultivated plants.

T. B.

RUSSELLIAS.

THESE are graceful-habited plants, and very distinct as regards general character. *R. juncea* is the best known and most usually cultivated species. It has slender, Rush-like branches, which droop in such a way as to give it at all times a handsome appearance, enhanced by its scarlet tube-shaped flowers. *Russellias* root freely from cuttings made of small pieces of the shoots. If, in spring, these are inserted, five or six together, in 4-inch pots filled with sand, and set in a warm house or pit, shaded and moist, under a bell-glass, they will root in a month, after which shift them singly into 3-inch pots in fibrous loam with a little sand added; place them in a light position in a temperature that will do for ordinary stove plants, giving air in the daytime and maintaining a moderate—not too humid—atmosphere; little shade will be required, except in very bright weather.

Plants of this *Russellia* are inclined to branch naturally, but it will be advisable, as soon as the growth is fairly commenced, to pinch out the points of the shoots; this will promote a bushy condition. Syringe them overhead daily through the summer; by the end of July shift them to 5-inch or 6-inch pots. Each plant should have a stick to support the centre shoot, letting the side branches hang down naturally. Reduce the heat towards the end of September; a minimum temperature of 60° will be sufficient in winter. In spring, about March, shift them into 7-inch or 8-inch pots, and when fairly got into growth pinch the points out of the strongest shoots; keep them supplied with water at the roots, but they do not require to be so moist as some plants. Give increased warmth as the summer advances and treat them generally as in the preceding season; they may be expected to bloom about July or a little later, and will keep on flowering for some time. Nothing more will be needed except additional root room each spring until they occupy pots 12 inches or 13 inches in diameter; after that each season some of the old soil may be shaken away and new substituted, giving a little manure water during the height of their growth. They are good plants for hanging baskets. *R. juncea* has very narrow leaves, bears bright scarlet, pendent, tubular flowers, and is a native of Mexico. *R. multiflora* bears red flowers, which are produced freely when the growth is well matured through being exposed to sufficient light and air. It comes from South America.

RUSSELLIAS are not much subject to the attacks of insects, but mealy bug and scale will live upon

them; if affected by the former, lay the plants down on their sides and syringe them freely with tepid water. Scale must be removed by sponging.

T. BAINES.

Tuberous Begonias in the open air.

Plants intended for bedding out should never go into heat; set the tubers out in March in a cold frame in light soil, move to the open air as soon as possible, and place in their permanent positions not sooner than the 10th June. Choose a sunny, sheltered situation, and let the soil be sweet and free, and success is almost certain. Coddling in conjunction with a root-bound state at planting time are the main causes of failure.—J. C. B.

Vallota purpurea.—In reply to "B." (p. 340) allow me to say that the plants in question gave each twenty-five flowers, borne on five stalks, not twenty-five flower-heads. I thought this number of flowers good for 4½-inch pots, but merely gave the fact as evidence that the *Vallota* does not need frequent repotting or much pot room. The bulbs were repotted about five years ago, and from the second year have given from twenty to thirty blooms annually. I have never had more than two spikes from the same bulb, or more than seven flowers to a spike, the average being five.—J. C. B.

Yuccas.—It is astonishing how seldom these handsome plants are used with good effect. The other day, in the gardens at Chiswick, I saw an artificial stone-edged bed filled with them alone. The effect was admirable. Where these plants are used, they are too often put about in a weak, scattered way, instead of being grouped gracefully and naturally. The flowering kinds, *i.e.*, those that flower frequently, such as *Y. filamentosa*, are excellent, and should be always grown where autumn flowers are desired. I lately saw them flowering freely in Scotland at the end of September.—V.

Eupatorium odoratissimum.—This is one of the best plants for supplying white flowers for cutting at this season of the year, or as a pot plant for conservatory and room decoration, the blooms being light and feathery, and produced in great profusion. Cuttings of it should be struck early in spring, and kept pinched in, so as to make nice bushy plants by the end of May. They should then be fit for shifting into 6-inch or 7-inch pots and watered. Thus treated, they will, during the summer, develop quite a thicket of shoots, and every one will produce a head of flowers that will look extremely well in any kind of floral decoration. Not the least, too, of the many good qualities possessed by this useful plant is, that it does well in a greenhouse temperature, and is not at all liable to insect pests. Those who have not grown it should not let another season pass without giving it a trial.—J. G., Gosport.

Agapanthus umbellatus.—This fine old plant has been one of the showiest we have had in our greenhouse for several weeks, and it is equally effective in the open air, where it has been flowering most profusely. A well-grown specimen of it, bearing ten or twelve umbels of bright blue flowers, is a striking object. It is easily increased by means of offsets, which, if potted in rich soil, soon make fine plants. It has strong, fleshy, fibrous roots, and when these fill the pots the plants should be shifted into larger ones. By giving them liberal shifts they soon make fine plants. They will be found to be suitable for outdoor decoration either plunged in the ground in their pots, when they can be shifted at any time without injuring the plants, or the pots can be set in positions in which they will be most effective whether singly or in groups. In winter they merely require protection from frost.—WM CHRISTISON, Woodham Hall, Woking.

Cleaning Camellia leaves.—During the bustle of summer work the cleaning of *Camellias* is often neglected and the leaves become coated with dust and a glutinous deposit caused by scale. We are now entering upon the dull days of winter, and leaves will be unable to perform their functions if they are not clean. An opportunity, therefore, should be found to wash both wood and leaves with a sponge and soft soapy water.—J. D.



Ericx Aitoniana turgida (natural size). Drawn in Mr. Lee's garden, Downside, Leatherhead, Sept. 26, 1883.

through August and September. Amongst these seedling varieties may be named *Jacksoni*, pink and red; *Irbyana*, pink and white; *Austiniana*, crimson and black; *Turnbulli*, deep pink; these are remarkably free growers. During the same months is the scarlet-flowered *cerinthoides coronata*, also a species that makes annually such long shoots as to especially adapt it for cutting. The white-flowered species *Aitoniana* often blooms as late as September, as also the rose-coloured seedling from it, whilst the beautiful *Aitoniana turgida*, the subject of the accompanying illustration, has its season of flowering from August to October, coming in, as many other Heaths do, sooner or later, according to the treatment it receives; it is one of the best white sorts, a good grower, and a free bloomer. The large white-flowered *ampullacea obbata*, a beautiful Heath, often blooms as late as September, as also does *metuleiflora* and *m. superba*, both high-coloured sorts; the deep scarlet flowers of the last have a black band round the extremity of the tube, giving a pretty contrast in colour; *reflexa rubra* and *reflexa alba* both frequently bloom in October. The beautiful kind called *Bowieana* is a late autumn flowerer, coming in as far in the season as the end of October; its blooms are of the purest white; *mammosa major* produces its pretty flowers at various times from August to November; *cupressina*, alias *pendula*, which flowers in May

Storing Caladiums.—With reference to an inquiry upon this subject in a recent number of THE GARDEN, I may state that a very successful grower of them always made a point of plunging the pots quite to their rims in an old tan bed in winter. They, of course, had no water given them, but the soil never became dry, remaining in just that condition which seems natural to the Caladium when in a state of rest. At any rate, the tubers came out as sound and plump as when growing in summer, never by any chance decaying or falling a prey to dry rot, which so often takes them off wholesale when allowed to become dry. It is easy to understand that tubers thus preserved would retain undiminished their full vitality, and would start with great vigour in spring. As a fact, they did so, and I never saw Caladiums increase so fast or grow so strongly under any other system of storing.—J. CORNHILL.

Smilax indoors and outdoors.—Miss Adeane writes to us from Penrhos as follows: "Some time ago Mr. Stanley was applied to by Lady Llanover, in South Wales, for a few cuttings of the Smilax, which grows up the walls of the house here. She planted them in a cool greenhouse without heat, but they have grown into plants with enormous leaves, of which two are enclosed, with sprigs of the parent Smilax, as Mr. Stanley thinks it may interest you to see how curiously they have developed."

* * The leaves sent are those of Smilax mauritanica. The ordinary size of the leaves of this plant when grown in the open air is from 1 inch to 2 inches in length, and from half-an-inch to three-fourths of an inch in breadth, and in form they are heart-shaped, pointed and edged with prickles. The leaves from Lady Llanover's plant grown under glass measure 5 inches in length by 5½ inches in breadth, and instead of being mottled, as usual, are wholly green. Their form is, moreover, quite different from that of the leaves from the outdoor plant. We have rarely seen a more striking instance than this of a plant altering its character under diverse conditions of growth.—ED.

Marie Louise Violet in frames.—No bottom or artificial heat of any kind is required for this invaluable Violet. Probably a little bottom heat may result in the production of a great number of blooms early in the season, but in the majority of cases this is a doubtful gain. I prefer growing a considerable number of plants, and these, with cool treatment, continue to yield fine blossoms from the present time till March. They are planted in a brick pit firmly in good soil about 4 inches from the glass. Each plant is placed just clear of its neighbour. All the "blind" runners are previously cut away, those with good crowns attached preserved, and these, being pegged down close to the parent plant, soon root into the soil and produce blooms freely. It is these rooted runners that are detached and planted out in April on a well-enriched border, to form plants for lifting in the autumn. From the time the Violets are established in the pit till spring they receive all the air possible whenever the weather is favourable; but during frosty weather the lights are closed, and covered with mats and rough stable litter, according to the anticipated severity of the frost.—W. I.

Heliotropes being such universal favourites never flower at the wrong time, and when frost stops the supply from outdoor beds there should be a reserve and glass ready for use. For this purpose I find it a good plan to put some plants in large pots during the summer and allow them to grow wild in some open sunny position until August when they should be set on a shelf near the glass of any warm greenhouse and the main shoots fastened to wires stretched horizontally, allowing the side sprays to grow at liberty. These will produce fine flower-heads and be most useful in a cut state. A good supply of cuttings should also be inserted at this date, and if potted off singly as soon as well rooted, and kept growing gently through the winter, they will make nice bushy plants in spring. There are several new kinds of Heliotrope, amongst which one called

White Lady is an excellent kind for growing under glass, being much whiter so grown than when out of doors.—J. G. H.

FRUIT GARDEN.

COAL TAR AND VINES.

THE remarks (p. 314) on coal tar for healing tree wounds remind me that this may be a convenient time to record my experience with it for killing mealy bug on Vines. I remember reading a discussion which took place in your columns some three years ago on this subject, some of your correspondents at that time holding up to ridicule the idea of using coal tar in any form as a dressing for Vines. The first to use it, I think, was Mr. Hunter, of Lambton. We have here a vine of Hamburgs that have been more or less infested with mealy bug for some years. Fortunately, it has not hitherto done much actual damage to the fruit, but, as is well known to those who have had to contend with it, it causes a great amount of labour to keep it in check during the summer months.

Having tried various winter dressings for several years coupled with thorough washing and cleansing the house, and yet not entirely eradicating the bug, we determined last year when we pruned the Vines to use the coal tar mixture. We prepared it thus: To one pint of coal tar we mixed some well pulverised dry clay, adding sufficient rain water to make the whole into a gallon of mixture. After washing the Vines (which are about seventeen years old, and have stems nearly as thick as an ordinary man's wrist) with strong soapy water and a softish scrubbing brush, we at once dressed them over with the mixture, working it well in around the base of the spurs. At the same time we painted the whole of the woodwork with paraffin, and also added a pint of paraffin to a bucket of hot lime wash, and gave the walls and all the brickwork a good dressing with it, being very careful to fill up every crack and cranny we could see. I confess I did not like the look of the Vines after they were tied up, so, to improve matters a bit, we again dressed them over with a mixture of lime and clay, simply to give them a more natural appearance. This was done in December. When the Vines commenced to break in March following, I was somewhat anxious as to whether the tar would injure them or not. They certainly broke somewhat weaker than usual at first, but they soon got stronger, and produced as good a crop of fruit as could be desired. The only bug we have seen on them this year was on one Vine just at the base of an old spur, where the tar mixture had not been well worked in.

With a view to test the matter more thoroughly, we left a Vine at one end of the viney undressed, save with the usual mixture of soap, tobacco juice, &c. This Vine had bug on it in several places early in the season. It is very necessary to keep the mixture well stirred while using it, though there is not so much danger of the tar rising to the surface as paraffin, which, according to my experience, requires very great care when using it on Vines, especially as a winter dressing.

Grimston.

H. J. CLAYTON.

Gas tar and tree wounds.—I see gas tar recommended last week for painting wounds where branches have been cut off. I tried it once in thinning out the branches of some Apple trees, and it injured the bark very much, causing it to die back from the wounds, which never healed over. For these reasons I have never used it since; its effects were very marked. I now always use white lead, well rubbed into the pores of the wood, and it is perfectly harmless to the bark, which soon grows over it. I consider gas tar one of the most deleterious substances that can come near plants in its pure state.—J. S. W.

Strawberries.—There are so many excellent things which cannot be enjoyed without injurious after-effects, that one is glad to hear on good authority that Strawberries, in moderate or even

in immoderate quantities, are good for the health. At breakfast and, better still, before breakfast, at dinner, after dinner, and at any odd moment of the day they are never out of place; and a writer in the Paris *Figaro* has pointed out that nothing is better at an evening party for those who do not sup. The ancient Chinese proverb, then, which declares fruit to be "Feathers in the morning, silk at noon, and lead at night," does not in the case of Strawberries seem to hold good. Fontenelle, who lived so long that, according to his own grim joke, the powers above appeared to have forgotten him, attributed his longevity, in some measure at least, to the effect of Strawberries upon his digestion. When he was dying, his friend Comte de la Place called to see how he was going on. "Not going on at all," said Fontenelle; "going off." He added, however, that "if he could catch the Strawberries, he believed he should live another year." Before the Strawberries came in, however, he was dead.

TOP-DRESSING POT STRAWBERRIES.

Mr. WILDSMITH in criticising my remarks upon this subject implies that Strawberries in pots are never in need of top-dressing in the early part of October, and in the next breath says that he has "no faith in starvation;" neither have I; and therefore I ventured to give the advice that a little stimulant would be of much value in the case of early potted plants, which by the frequent waterings they get when growing freely and heavy rains have nearly all the goodness washed out of the soil. I will ask Mr. Wildsmith one question: When does he suppose the fruit germ upon which the next year's crop depends is to form? Is it not during the month of October? and if so, is it not important that the germ should be well supplied with good food? I think that on reflection your correspondent will answer in the affirmative, and will take my remarks as good and timely, the more so as he censures the practice of withholding water at this season, attributing blindness to want of moisture. Surely if want of moisture will cause barrenness, want of food will have the same effect. Anything lacking which the fruit bud needs to build up its strength must have a prejudicial influence on that fruit bud. And here I would remind Mr. Wildsmith that top-dressing does not imply taking off any of the surface soil. I have never advocated or practised the root disturbance which the so doing involves. I consider it pernicious; but I do counsel the application of a little stimulant in the case of root-bound plants as a means of increasing their fertility. My favourite autumn dressing is soot; it gives colour to the foliage and adds vigour to the crowns, whilst not stimulating over much. Take three parts soot to one of sand. A watering or two will bind this down; whereas pure soot is apt to float off in watering. Before condemning my advice I would ask Mr. Wildsmith to try it, although it is getting rather too late for it to have the effect which it would have had earlier.

J. C. B.

DRYING ADPLES.

THE crop of Apples which this season has produced is one of extraordinary abundance, not only in England, but on the Continent and in America. Although other fruits, especially Plums, have been scarce, Apple trees have been so loaded that artificial means have had to be resorted to to enable the branches to sustain the weight of the produce. In many orchards a large proportion of the trees bear fruit that will not keep in its natural condition, and the process of decay commences very soon after it is gathered. Even keeping Apples require to be spread out, and cannot safely be packed in bulk; consequently a large space only suffices for a comparatively small amount of fruit, unless the room is specially designed for their reception by the provision of numerous shelves. During the equinoctial gales, which always commence concurrently with the ripening of the Apples, enormous numbers of the latter fall to the ground, and the bruises they sustain necessitate their being used immediately or destroyed. Unlike

most other fruits, the Apple cannot satisfactorily be made into jam, and thousands of tons of this wholesome and useful article of diet must be annually wasted, where cider is not made, through ignorance of any method by which it can be safely stored and its nutritive properties retained. Everyone is familiar with the Normandy Pippin, dried whole and pressed, but the American dried Apples are comparative strangers in England. Those we have seen exposed for sale in London are not good specimens, the pieces being small, uneven in size, and, moreover, the cores have not been properly extracted. This principle, however, of drying Apples provides us with one of the most valuable methods of preserving the fruit that has yet been devised. Anyone, even a child, can prepare the Apples, the only difficulty being in the possession of the means of drying them. The fruit is first pared in the ordinary way, cut into quarters, and the cores extracted. Each quarter is then divided into two, three, or four slices, according to the size of the Apple. These slices must not be too thick, or they will not dry readily. Long skeins of thread are then taken, and with a large needle the pieces of Apple are threaded till the string is nearly full. The threads must then be hung in such close proximity to a fire that the fruit is kept quite warm, but it should not be subjected to a cooking heat. The improved ranges and projecting stoves now in common use are best adapted for the purpose, as the threads can be suspended across the stove from side to side, and about 2 feet above the top. Very little attention is required. The positions should be changed occasionally, as the heat is greater directly over the fire than at the sides, and care should be taken to prevent the pieces adhering to one another, as this retards the evaporation of the water they contain, the long-continued presence of which promotes decay. If the heat is sufficient, two or three days are enough to complete the drying. It is necessary, however, that every particle of moisture be withdrawn, otherwise they will not keep. In the process of drying the size rapidly diminishes, and it is astonishing into what a small compass they can then be packed. The best plan of keeping them is to press them down firmly in tin cases, and they may then be stowed away in any warm, dry place, as they will keep perfectly sound for years. When required for use, all the labour of preparation has been accomplished, and they have only to be soaked over night in cold water. In this they expand to nearly their original size, and strongly impregnate it with their juice and flavour. They may then be stewed and flavoured to taste, or can be used in any of the innumerable ways to which this invaluable fruit lends itself.—*Field*.

TRAINED V. STANDARD PEACH TREES.

I AM glad to see (p. 346) that "J. S. W." gives me credit for quoting him "pretty accurately," seeing that I quoted from memory. He asks if I really maintain that standard trees cannot be grown so as to get the benefit of sun and air sufficiently to ripen fruit of excellent quality. To this I answer that I do not maintain anything of the kind; what I maintain is this, viz., that a portion, at least, of the fruit of a standard or pyramidal tree cannot possibly have the advantage of sun and air in the same degree as that of a tree whose branches are trained under a glass roof at say a distance of 18 inches or 20 inches from it. I am not aware that my experience has not tallied with that of Rivers, Pearson, and others who have grown fruit upon standard trees "loosely and perfectly ripened." I, too, have done this, and so have hundreds of others. But what I said before and what I repeat now, is that I have grown finer fruit upon trained trees than I ever grew upon standards or pyramids. I have not, as "J. S. W." asserts, drawn my conclusions on the subject from restrictive trained orchard house specimens, but, on the contrary, from free growing, planted out standard and pyramidal trees, some 12 feet high, and which were always greatly admired by all who saw them. I have not, as "J. S. W." asserts, assumed

that trained trees expose their fruit always properly to the sun and air; but if the fruits on trained trees "are allowed to become covered with leaves, owing to the crowded condition of the shoots," this cannot surely be considered as a fault pertaining to the system. It would be very interesting and desirable to have the opinion of the gardener at White Hill (alluded to by "J. S. W.") and others who have had experience with both systems upon the matter, which at present stands thus: "J. S. W." says standards produce better crops of as good fruit as trained trees with a great deal less trouble." And I say trees trained under a glass roof require little more attention, and will produce quite as good crops of fruit as standard trees, and which will generally be found to be of better quality. P. G.

PEACH CULTURE UNDER GLASS.

VARIETIES.—Much of the ultimate success in Peach and Nectarine culture depends upon a selection of varieties suitable for the various positions in which they are to be cultivated. Ordinary fruit tree catalogues issued by nurserymen, correct as may be the descriptions appended to each kind of fruit, are yet most bewildering to the inexperienced, so many are the varieties it would appear a mistake not to grow. I always contend that neither the compilers of the majority of these catalogues nor the salesmen in the various nurseries are competent to give good advice upon this subject. It is their business to propagate and train the young trees, and the sooner these are sold the better they like it. It must be understood I am not underrating or endeavouring to depreciate the value of the work done by nurserymen and their assistants; on the contrary, I am an admirer of the way in which they conduct their business, and especially of the careful manner in which they keep the innumerable varieties separate. But it is gardeners who fruit the trees and test their constitutions; therefore, they are in the best position to form a correct estimate of the value of each variety. It is a mistake to grow many kinds of any variety of fruit, but in the case of Peaches and Nectarines, I do not think it wise to fill a house with a tree of one sort. A specimen covering a trellis space of say 36 feet by 12 feet may be an object of interest to the grower, and I myself have a great admiration of such fine trees, but at the same time from actual experience I find that in the same space three trees in three varieties would prove much more profitable. At any rate this would be the case where a constant and not very heavy supply has to be maintained for a considerable time with the aid of a limited amount of glass. I do not mean to insinuate that the whole of a crop on a large tree ripens at one and the same time, but I do assert that a healthy tree, as such fine specimens generally are, ripens simultaneously larger quantities of fruit than are usually required, and that the supply from three judiciously selected trees lasts at least fourteen days longer. Of

EARLY VARIETIES probably, the most valuable is the new Early Alexander. With me it is a free grower, and blooms and sets freely, and the fruits, which are medium sized, colour fairly well, are of good quality, and ripen fully a week earlier than any other variety I have grown. Hale's Early, also of American origin, is the next best, and is certainly superior to any early English raised variety. It is to be regretted that an inferior variety has been largely distributed as Hale's Early. If the demand for any fruit happens to be in excess of the supply, why not say so? I for one did not thank a certain nurseryman for supplying me with a tree of each sort. The true variety is a sturdy grower, with chocolate-coloured wood where exposed, the leaves being long, of a dark green, and with round glands; the flowers, which are large, set well, and the fruits are of a medium size and round, with a depressed apex, and highly coloured. These characteristics correspond, I believe, with those of the tree from which Mr. Austin, of Ashton Court, successfully exhibits fruits at

the great summer shows of the Royal Horticultural Society. Early Alfred is the best early English raised variety with which I am acquainted. It is a good grower; the fruits set well, grow to a fair size, and are very highly coloured and good in quality. I have not grown Dr. Hogg, but a friend writes to me very glowingly respecting its merits as a very fine early variety. Early Louise, Early Beatrice, Early York, Acton Scott, and similar small-fruited sorts, although good in their way, are yet no longer required. Early Grosse Mignonne still deserves a place in an early house. I prefer it to Royal George on account of its superior constitution, and as a rule we secure abundance of better coloured fruits from it, second to none in either appearance or point of quality. A Bec is a very handsome second early variety, but with me it has not done well.

SUCCESSIONAL VARIETIES.—Grosse Mignonne, or one of its synonyms, such as Neal's Early Purple, Royal Kensington, and Padley's Seedling Purple, is still worth including in large collections. It is a hardy free growing sort, sets abundantly and rarely fails to finish off a heavy crop of good sized fairly well coloured fruit. Bellegarde is one of if not the handsomest Peach in cultivation, and good alike either for the table or for exhibition purposes. It possesses a good constitution and rarely fails to do well. Noblesse, grown under similar conditions, has not done so well, and sometimes sets indifferently. Unless grown in a very favourable position, it colours badly, but the quality is generally first rate. Royal George is much given to mildew, but in spite of this is still grown by many in the earliest house. The largest tree we have is of this variety, and by keeping the roots near the surface and dusting freely with sulphur mildew is checked and heavy crops of valuable fruit are invariably the result. Dymond is a very handsome kind, and one which will eventually become popular for exhibition purposes. Of

LATE VARIETIES I give the preference to Walburton Admirable, this being a grand sort for either successional or late houses. It is a free grower, though when well established not much given to branching. Blooms set abundantly. The fruits are large, round, and handsome, especially if exposed to the sun when commencing to colour, and the quality is unsurpassed. Barrington is invaluable for late work, and is a fine handsome Peach when well grown. If neglected in any way the tree refuses to perfect half a crop. Late Admirable is perhaps the latest of all, and for this reason may well be included. It will be seen I have, with one exception, viz., Barrington, excluded from my list any with the flesh red about the stone. Chancellor was the first to displease me, and was the first to be destroyed; then followed the large-fruited Lord Palmerston, and now we have destroyed a large tree of Princess of Wales. The latter might perhaps have improved in quality if transplanted to a warmer position, but we have no room for any of these "turnipy" scions of Pavie de Pomponne. Crawford's Early and Exquisite, both yellow skinned and rather attractive American sorts, are slightly red at the stone, and those I have tasted were not of first-class quality.

NECTARINES.—Lord Napier is now generally known to be much the best early variety in cultivation, and I shall merely add that it deserves the many high commendations universally accorded it. To succeed this I would strongly recommend Humboldt, this being superior in quality to any of the older more highly coloured varieties. It is a good grower and bears very freely. Elruge is a handsome and easily grown variety, but, in my opinion, it ought to be replaced by the newer kinds. Hunt's Tawny and Downton are also easily grown and very prolific, but lack quality and may with advantage be expunged from the catalogues. Pine-apple is a decided improvement on Pitmasston Orange, and with me has replaced the latter. It is a good grower and crops heavily; the fruits, too, colour beautifully and are of delicious flavour. Victoria with me is not a vigorous grower; the green-skinned fruits colour but little, crack slightly, and are different in flavour from all but the Stanwick, which it much resembles, with the exception

that it is earlier. It is improved by a little fire-heat.

SELECTIONS OF PEACHES AND NECTARINES.—For an early house choose Early Alexander, Hale's Early, Early Grosse Mignonne, and, if a fourth is wanted, either A Bec or Royal George Peaches. For Nectarines take Lord Napier, Humboldt, and for a third Pine-apple. For a successional house or houses I would rely on one tree either of Alexander or Hale's Early, Grosse Mignonne, Bellegarde, and Walburton Admirable Peaches with the above selected Nectarines and, if space permitting, Victoria. For a late house or houses I prefer Bellegarde, Dymond, Royal George, Barrington, Walburton Admirable Peaches, and Lord Napier, Humboldt, Pine-apple, and Victoria Nectarines. Thus arranged, every house would include a good succession, and a glut, therefore, would be out of the question. W. I. M.

PLANTING STRAWBERRIES.

THE advice given by Mr. Wildsmith in THE GARDEN (p. 324), to plant for a crop of fruit in the middle of October, is not, I think, likely to be generally followed. Your correspondent, writing on October 13, states that he planted his own "six weeks ago," a very different affair, as the plants have time to become thoroughly established before beginning to form their crowns. Experience has taught me that October is about the worst month to plant for a crop of fruit, and that if plants are disturbed at that time, unless great pains are taken in the transplanting not to lose any of the roots, watering and sprinkling once or twice daily should the weather prove dry, the chances are that a meagre crop is obtained from them. Either plant by the beginning of September or leave the plants alone till the beginning of November, would be my advice; and I came to this conclusion from what I have observed of the very indifferent results which have been obtained in the case of October transplanting as compared with those obtained at other times. It is true that plants moved in the middle of October will have the chance of becoming better rooted than when transplanted a fortnight or three weeks later, but the advantage thus obtained is more than counterbalanced by the loss of bearing power which the check to the formation or growth of the fruit germ involves. Mid-October is one of the most critical periods in the growth of a Strawberry plant, for if not happy in a free growing state and in the enjoyment of plenty of nourishment, both of a liquid and substantial nature, there is much chance of many blind crowns, and the crop is sure to be scanty. Sooner than disturb plants at that time, I would wait till the middle or latter end of November.

J. C. B.

Autumn Strawberries.—These are now one of the dessert fruits looked for from all good gardens. After trying many sorts, I do not find any so prolific as Vicomtesse Héricart de Thury. This sort produces a quantity of crowns, and keeps on flowering and fruiting, irrespective of the season. The best way for getting a crop of Strawberries at this time of the year is to set early forced plants of the kind just named in a partially shaded position during the heat of summer, and keep them well attended to in the way of water; all blooms produced should be picked off as soon as observed until the end of July, when the plants should be cleaned, top-dressed with rich soil, and set in cold frames or pits, keeping them elevated on slates close to the glass, with a free circulation of air. Fruit from plants thus treated, and assisted at swelling time with liquid manure, will form a very acceptable addition to the dessert in autumn.—J. GROOM, Gosport.

Pears damaged by birds.—This seems to be a general outcry this season. I remember reading somewhere that plaster of Paris made up thinly and dropped into the pecked hole would enable the damaged fruit to be ripened. It would be interesting to know if any of your readers have tried this, and with what result.—E. B.

Does the Peach tree bleed?—"W. I. M.," who fears bleeding and permanent injury from cutting off the central shoot of maiden Peaches in spring, may rest assured that he has nothing whatever to fear on that head. Bleeding in the Peach is one of those things which are taken for granted, but of which there is no evidence. I never saw a Peach tree lose a drop by bleeding in my life, and I have pruned them one day and started them the next. In March, 1881, I cut the top off a maiden standard Peach 2 inches above the graft; not a drop of moisture ran out of it, but a strong shoot pushed from each side, and they were allowed to extend on the principle approved of by "W. I. M.," and now the head of the tree is about 16 feet in diameter one way, and a little less the other, having less room. It was only an experiment to see how soon a fruitful standard head could be developed from a maiden, and I find that it can be done the first year, and a large tree secured the second year. The way in which a maiden tree, consisting of one upright shoot, should be treated is to remove the whole of it in spring to too good buds, which will set off with a rush and produce as many bearing laterals as room can be found for before autumn, and will bear the following season, only do not pinch them and keep the "Peach pruner" in your pocket.—J. S. W.

Bananas for dessert.—Bananas grown and ripened in heated houses in this country are much superior in quality to any fruits imported. The latter are oftentimes insipid, being, in common with other tropical fruits, gathered and consigned in a comparatively green state, and bear no comparison with others ripened on the plant; hence the dislike many have of them. To a certain extent a taste for Bananas has to be acquired, but, given such fine pods as I have recently gathered, or such as are grown especially for dessert purposes by Mr. Moore, Cranmore, Shepton Mallet, and no great difficulty would be experienced in converting others to our way of thinking. Bananas are easily grown, and, as "Veronica" truthfully remarks in THE GARDEN (p. 333), are "strikingly beautiful." In my opinion there is no more noble fine-foliated plant in cultivation than *Musa Cavendishi*. Strong, well-established plants of it in an 18-inch pot seldom fail to fruit during the summer or autumn, and while the clusters are perfecting a strong sucker will be forming, which can either be separated and potted or made to replace the old stem when the cluster is removed. In our case, if we leave the sucker in the same pot when we cut away the old stem, much of the soil is also removed, and fresh, rough, and rich loamy soil is substituted, and abundance of water, varied with liquid manure, is given.—W. I.

GARDENERS' BENEVOLENT INSTITUTION.

THE weak spot connected with this Institution as I see it is this—a man must become a pauper ere he can benefit by his subscriptions. I may be wrong, but this is how, I presume, the case stands. If I were now to subscribe ten guineas, two contingencies at least bar my receiving any benefit. I must wait fifteen years, and I must be over sixty years of age, and, worst of all, I must be a pauper, *i.e.*, in want of assistance. Again, there are whispers abroad that it is quite possible at elections for the votes to be "cornered" in favour of some *bona fide* subscribers to the exclusion of others equally eligible. I hope this is neither true, nor possible to be true. Mr. Cutler complains that the "begging letter" phase of industry did not pay, and no wonder. Gardeners generally are quite ignorant as to the way in which the Institution is worked. Before the hat is again sent round let every gardener receive a copy of the rules and regulations of this charity. I am myself a subscriber, but no one ever took the trouble to send me a copy of the rules of the Institution. I get a receipt for my money quite punctually, also a demand note for the subscription, or a notice that it is due, but I never yet saw the rules and regulations. A letter in a contemporary a few days ago has drawn my attention to

this matter, and I now ask the secretary of the Institution to send myself and all other *bona fide* subscribers a copy of the rules and regulations. We must look out for our own interests in affairs of this kind, and if the existing society does not come up to existing requirements, then gardeners must organise one on a broader and better basis.

HORTUS.

GARDEN FLORA.

PLATE 411.

THE BLANDFORDIAS.*

(WITH A FIGURE OF *B. CUNNINGHAMII SPLENDENS*)

THIS beautiful genus of Liliaceous plants must take a foremost position amongst the many garden treasures we owe to Australia. It is by far the finest Australian representative of the order to which it belongs; in fact, with the exception of *Dianella* and *Arthropodium*, Australia is exceptionally poor in plants of an ornamental character belonging to the Lily family. If, in the midst of the discussion now going on in these pages and elsewhere on Latin v. English plant names, one might venture to suggest an appropriate name for the *Blandfordias*, it would be the Australian Lilies. Possibly such a name might have the effect of popularising the plants, for the genus has never yet won for itself that place in gardens which its beauty and adaptability for horticultural purposes deserve. And may not there be something in the name *Blandfordia* that has a damaging effect on the favour that might with another name be bestowed on the plants that bear it? Writing thirty years ago, Loudon said of these plants: "They were named in compliment to George, Marquis of Blandford, son of the second Duke of Marlborough, an enthusiastic lover of plants." I was told a short time ago that the chief, in fact the only, reason a certain Continental firm had for altering the name of a new genus of Palms was that the first name, which was in compliment to a great statesman, had a most damaging effect on the sale of the plant where otherwise the sale would have been large. Without going into the question of the practices of trade as affecting botany, might not one here ask if a name can be changed because it affects the pounds, shillings, and pence, may we not do so for the more laudable purpose of rendering a plant more popular? This by the way. By whatever name we call them, *Blandfordias* are pre-eminently first-class garden plants, as needs must be admitted after a glance at the accompanying figure, which is a faithful representation of the flowers.

THE CULTIVATION of *Blandfordias*, although slightly exceptional in some of the details, is not surrounded with any difficulty. It is simply a question of watching the plants—loving them, in fact, and then the treatment they require reveals itself without the assistance of anything but common sense. It will not do to put *Blandfordias* along with "the rest," and place them out of the way of everything but the watering-pot until the following season. They require a little extra attention, and in return for it will yield freely their spikes of brilliantly coloured flowers, which remain in good condition on the plants for several weeks. Being all natives of New South Wales, *Blandfordias* will thrive best in a cool greenhouse where they can be shaded from bright sunshine and during their growing season be liberally supplied with water both at the root

* Drawn in Mr. W. Bull's nursery, Chelsea, July 20, 1883.



PL. AIDEPTICA CUNNILLHAMII SPLENDENS.

and overhead. One of the principal causes of these plants thriving so indifferently in some places is the absence of the above conditions. *Blandfordias* will not grow in a dry atmosphere, nor will they remain a healthy green colour in bright sunshine. A house or frame with a north-western aspect would be suitable for them during the warmer months, after which a lighter and slightly heated position should be found for them. For soil a good heavy peat with plenty of coarse sand, or if the peat is light, then use one-third of fibry loam to give a little body to it, but good peat and sand are the best mixture one can use, the peat being used as coarse as convenient and pressed in firmly. Do not shake all the old soil away unless the roots are in bad condition, or the soil is very sour, in which case wash the roots carefully and cut out all decayed pieces. Pot carefully, shaking the soil well in among the roots, and water within twenty-four hours after the potting is completed. I do not hold with those who advise withholding water from newly-potted plants a day or two; that is, where in performing the operation the roots have been much disturbed. To withhold water in such cases is to run the risk of losing the plants altogether. The pots should be large enough to hold the roots without their being cramped for space, and to do away with any necessity for disturbing them again under at least two years. A good top-dressing every year should be sufficient for healthy large specimens. During the growing season, which commences early in the spring and continues until the plants are in bloom, water should be liberally supplied and a little liquid manure added about once a week. If the drainage is perfect and the soil the proper thing, water may be given at least once a day. *Blandfordias* are found naturally growing by the side of rivers and streams, in peaty bogs, on shady mountain sides, where moisture is ever falling upon or running by them during the warm weather, and if we would succeed with them here water must be liberally supplied. In the afternoon the house or frame in which the plants are growing during summer should be closed and the plants well syringed. As the flower-spikes develop themselves the supply of food in the shape of liquid manure should be slightly increased. When in bloom a cool conservatory will be found the best position for the preservation of the flowers on the plants. After flowering, ripen the plants by a little exposure, and in the autumn repot or top-dress as required.

THE PROPAGATION of *Blandfordias* is effected by division of the root stock and by seed. The former must be performed early in spring. Care should be taken not to cut the root-stock severely, or disaster will result. It is better to wait for a little while until there are some good offsets than to cut too hard. The divisions should be kept close until they have commenced to grow. Seeds germinate freely if sown on sandy peat and placed on a gentle bottom heat. The production of good seeds by plants in this country is of rare occurrence.

PLANTED out in a peat bed in a conservatory where they would not be too much shaded, *Blandfordias* are safer and thrive better than they ever do in pots, but where a suitable position of this kind is not procurable for them it is better to adopt the latter method. The species of *Blandfordia* at present known are limited to four, and the dozen or so names in gardens are referred to one or the other of these four.

There are one or two distinct varieties which are deserving of especial mention; the others are but names without any distinctions. The following is the latest revision of the species:—

B. GRANDIFLORA.—This is the plant figured this week, and which is generally known in gardens as *B. Cunninghami splendens*. Under *B. Cunninghami* it is figured in Paxton's and the *Botanical Magazine* and in the *Botanical Register*. This plant grows to a height of from 2 feet to 3 feet, with the bases of the leaves sheathing the stem, and arranged in a distichous manner. The leaves are about 1 foot long, a quarter of an inch broad, and tapering to a needle-like point; flower-stem 9 inches to a foot in length, surmounted by about half a dozen funnel-shaped flowers, which are about 2 inches long, drooping, narrowing suddenly from two-thirds of the length downwards. The blending of bright yellow and fiery red give the flowers the colour of flames.

B. FLAMMEA.—Stem from 2 feet to 3 feet high; leaves very long and narrow, resembling Grass; flowers $1\frac{1}{2}$ inches long, broad at the throat, from whence it gradually narrows to the base. The colour is a rich brown-red in the lower part, gradually shading into orange and yellow. A very pretty and free-flowering species, flowering in the autumn. There are several large-flowered forms of this in cultivation, the best of which is *var. splendens*. Mr. Baker, writing of this in 1876, says: "Botanically, it is not more than a variety of *flammea*, from which it differs by its larger flowers, with the tube of the perianth narrowed gradually from the throat to the base, and passing so gradually into the pedicel, that it is difficult to see without cutting it open where the one ends and the other begins, and by its included pistil. For horticultural purposes it is a much finer plant than the type, the bright crimson of the tube and pedicel forming a very effective contrast with the bright yellow of the segments, so that (size of flower and colouring both taken into account) it may safely be said to be for decorative purposes the finest of the known *Blandfordias*." *Var. elegans* is supposed to be a hybrid between *Cunninghami (grandiflora)* and *flammea*. It was raised by Messrs. Henderson. There appears to be little or no difference between this and some other forms of *B. flammea*. *Var. aurea* is a yellow-flowered form of this species.

B. NOBILIS.—A tallish growing, grassy-leaved species with a scape bearing four or five brownish red flowers, the upper part yellow. They are about $1\frac{1}{2}$ inches long, narrow at the base, widening abruptly from about the middle upwards, the lobes short, obtuse, and when young tipped with green. The throat of the flowers in this species is narrower than in those described, and in some cases is slightly contracted.

B. MARGINATA.—A stoutish-stemmed kind about 2 feet high, leaves about a foot long and half an inch wide, those on the upper portion of the stem being shorter and more erect. The margins of the leaves are rough or slightly toothed—hence the name; flower-spike erect, about a foot long, deep purple coloured, and bearing greenish bracts about 2 inches in length on the lower portion and at the base of the lower flowers, those above being shorter. The flowers are pendulous and arranged more racemous than in the other species, in which they are almost corymbose. They are $1\frac{1}{2}$ inches long, spreading at the throat, and tapering gradually to the base, as in the *Bomareas*. Colour, a rich dark red, becoming paler near the

apex and yellow on the inside. This species is a native of Tasmania. It is sometimes known as *B. intermedia* and *B. Backhousei*. B.

SEASONABLE WORK.

FLOWER GARDEN.

ROSE GARDEN.—If Roses be planted at this early season, they will next year flower just as freely as old-established plants. In our light soil we find it advantageous to lift all the plants every alternate year. They are heeled in for a couple of days or so till the beds are deeply trenched and manured with well-rotted stable manure. The soil is then well firmed by treading, and the plants at once put in, the roots having previously been examined as to the removal of useless portions, suckers, &c. They are at once staked, tied, and well mulched with Cocoa fibre for the winter. In strong, loamy soils (the best description for Roses) the treading must of course be dispensed with, except just as much as is needed when planting to keep each one in position and to ensure the soil being in close contact with the roots. We have observed that Roses moved thus early are not nearly so liable to injury from severe weather as are those not moved, the reason doubtless being that the check assists perfect maturity of the wood, the frost having the worst effect on plants full of sap. There is one drawback to this early transplanting, and that is the sacrificing of numbers of flowers which by reason of the protracted summer are this season more than usually abundant; still, it is better that this should be than to risk even the slightest failure at the proper Rose season.

SHRUBBERIES.—Till the leaves have all fallen not much can be done in the way of clearing out of shrubbery clumps and plantations, but meanwhile any replanting or thinning out should have attention, and this will lighten the labour when a general clear up and mulching of shrubs that have been lately transplanted has to be done, which should take place as soon as all danger of further litter from leaves, &c., has passed. As a rule shrubberies do not receive that amount of cultural attention which in all cases they well deserve, Couch, Nettles, Docks, Brambles, and the like too frequently holding sway amongst them; and it is only with a view to the extirpation and prevention of these weeds getting the upper hand that we would advise that the clumps be forked over annually. Push along with the preparation of ground that has to be planted this winter; plenty of drain-pipes and a free outlet in low-lying situations are the first essentials of success. In such positions it is also a good plan to raise the soil well above the general ground level, but if such raising be considered objectionable, it is not really necessary so long as the drainage at bottom is effectively done.

POLYANTHUSES AND AURICULAS.—As winter approaches it becomes needful to take a daily oversight of all valuable plants. Unless this be done the losses are sure to be heavy. A *Polyanthus* may appear to be all right as you pass it casually, whereas a closer inspection might show you that it was almost gone. It damps off in cold, damp, dull weather; the crown comes away in your hand when you touch it, and the roots are dead. In this way numbers of the most valuable *Polyanthuses* are lost. It is pretty much the same with *Auriculas*, only they give you a little more warning if they are going wrong. If an *Auricula* looks in the least sickly it should be turned out of the pot and the soil carefully removed, in order to ascertain what is amiss. It will frequently be found at this season that some insect has deposited its egg near the plant some time ago, and that a little white grub is now gnawing its way into the heart of the stem, and if let alone the plant will surely be lost. If the roots are not found at the sides of the pot, be sure the soil is wrong, and this must be altered; or, perhaps, if your plants have come from a distance, you may find the mealy bug at the roots, and this will re-

quire careful attention. All faded leaves must be removed, and the least traces of decay cleansed away, because it spreads to the stalk of the plant if allowed to proceed too far. Green fly infests Auriculas, and should be removed by the blowing tube. A quick puff will clear out the deepest corner, and this is a much better and more effective plan than the sable brush or by fumigating.

GENERAL WORK.—There is now, and will be for some time to come, plenty of sweeping and raking up of leaves and rolling to remove worm casts—heartless work, certainly, but in the interest of neatness and satisfaction to all concerned it should be done regularly. Walks that need re-gravelling or fresh surfacing can also now be done, and all should be freed of weeds and well rolled down now that there has been abundance of rain to admit of the roller having full effect on them. Uneven parts of the lawn should now be levelled, and any that need returfing be done at the first convenience; in fact, alterations of every kind should, whilst the weather continues so open, be proceeded with as expeditiously as possible.

FLORAL DECORATIONS.

HAVING been favoured with such mild weather for the time of year and an unusual absence of white frosts, we have been able up to the present time to get a good supply of bloom from single Dahlias, *Anemone japonica*, late Hybrid Perpetual Roses, East Lothian, scarlet, purple, and white Stocks, White Lady Heliotrope, and *Begonia ascotensis*, all of which are still in flower in open borders. Sprays of the Lemon-scented Verbena (*Aloysia citriodora*) have also been useful, being ever welcome for the sake of their perfume. We recently took the opportunity of a bright sunny day to secure all the perfect flowers and even the undeveloped ones of the *Helichrysums*, catching them for once when they were just at their best. These will all come into use for various purposes, along with dried Grasses previously secured. *Jasminum nudiflorum* is thus early opening some of its flowers, and expanded trusses may be found on the *Laurustinus*, so that even yet for a few weeks out-door flowers can be had by those who do not rely on an indoor supply. Violets are also flowering freely in places, though with us they have scarcely yet opened a flower. Of indoor flowers we are now deriving an abundant supply from a pitful of *Bouvardias* grown in the open soil; these are flowering splendidly, and prove valuable for button-hole bouquets and specimen glasses. Our most useful sorts are *B. Hogarthi*, *Vreelandi*, and *umbellata carnea*. Sweet-scented kinds, as *B. Humboldti corymbiflora*, are not approved of here; therefore scarcely any of them are grown. For other specimen glasses we have had a good supply of *Dipladenias* and *Eucharis* up to the present time, and occasional trusses of *Ixora* have been useful for the same purpose. So likewise have the yellow and white Paris Daisies, the former in particular. Sprays of the winter-flowering *Epacris* in various shades of colour are also very serviceable; from the beginning of this month on throughout the winter we shall have them in abundance, and very valuable they are for almost all kinds of arrangements. With us *Chrysanthemums* of all sections are backward, but, considering the season, this is fortunate. Later on we shall, no doubt, be glad of them. *Davallia bullata* still proves to be one of the very best Ferns in a cut state, excepting the Maiden-hair (*Adiantum cuneatum*). We now use the former rather freely, as the whole of the fronds will soon die off, and the plants go to rest for the winter. Leaves of several kinds of Grape Vines are excellent now for the desert; the brilliant tints in many of the late kinds especially cause these to be valuable between now and Christmas. In dishing up some fruit lately we used sprays of the Virginia Creeper in the case of some tall dishes of nearly white china, entwined around the stems of which they were very effective. Coloured foliage, in fact, is now plentiful everywhere, and may be advantageously used in many ways.

PROPAGATION.

THIS will now be confined principally to hardy plants. As regards cuttings of stove and greenhouse plants, all that will be necessary will be to keep them well watered; give them air when moisture condenses too freely, and above all remove any decaying matter. Care must also be taken not to shade too heavily, although of course cuttings of most plants recently put it will require a certain amount, but as a rule it need not be put on before ten o'clock, and should be removed soon after three, even on bright days. Where it is desired to propagate in quantity *Primulas* of the *amœna* section, the present is a suitable time for so doing, as they are in most cases dormant and succeed better than when divided later. For this purpose break up the mass of roots and select the strong crowns to be repotted, several in a pot for flowering purposes, which they will do in the spring without showing any ill effects from removal, and where there are great numbers of strong roots attached to them, a few may be taken off without weakening the plant. All the small crowns should then be sorted out and dibbled into a frame in which is a prepared bed, consisting of loam, lightened by a liberal admixture of leaf-mould. Any piece of root taken off during the process, even if without perceptible eyes, should not be thrown away, but cut into lengths of about 1 inch, and dibbled thickly into pots or pans of sandy soil. These, if kept in a cold frame, will push forth buds in spring from the upper part, and root action will also commence, when they may be potted off or dibbled into a frame as recommended above. The Himalayan *Primula denticulata* may also be propagated to any extent in this way. Cuttings of deciduous trees and shrubs will strike better put in now than two months later, although the latter practice is most frequently followed, especially where cuttings of all kinds are put in on an extensive scale, as in that case they can be prepared during bad or severe weather, whereas now many other things demand attention. For such cuttings choose to some extent a sheltered spot, both from the drying winds of March and the hot sunshine of the summer, and where the soil is not too tenacious, but rather of a light, open character. Take firm well-rooted shoots, leave them from 12 inches to 15 inches long, and insert about three parts of their length in the ground. The latter having been dug, stretch a line in the direction which the rows of cuttings are intended to take. Make a trench, one side of which should be quite firm, and against this place the cuttings in an upright position, with the base of each resting on the bottom of the trench; this done, fill up with soil and tread firmly. Special attention must be given to this last operation, or failure will be the result. About 1 foot is a good distance between the rows, as it allows of a hoe to be used during the following summer, but the cuttings may stand about 3 inches asunder in the rows. Where propagated in large quantities, as has just been stated, they are generally left till later in the season, in which case the cuttings are made, sorted, and tied up in bundles ready for insertion, and laid in till the weather is suitable for that purpose. In either case they will want little or no attention, except to keep them clear of weeds, and if the summer be very dry watering them occasionally; by autumn they will in most cases be rooted and ready for transplanting. Evergreens should be all in before this time.

INDOOR PLANTS.

PARIS DAISIES, *Richardia æthiopica*, and *Veronicas*.—Any of these that have been planted out with a view to lifting and potting, and that have not yet been taken up, should, even in the south of the kingdom, be at once potted, for although it is better to let a portion of the stock of such plants remain out as late as they can be trusted, as when the weather has got cool they do not feel removal so much, yet if out until sharp frost occurs, they are liable to have their flowering capabilities injured.

CAMPANULA PYRAMIDALIS.—Plants of this most useful subject that are intended for blooming in pots should now be potted, taking them up with as little breakage of their roots as possible. All the above plants should be well supplied with water as soon as potted, to prevent flagging, otherwise the foliage will suffer, for they will bear without injury the soil being well soaked immediately they are potted in a way that would be death to tender-rooted things.

DOUBLE PRIMULAS.—These ought now to have a little warmth if their flowers are required soon, and under any circumstances they must not be kept too cool, or they are all but certain to suffer by damp. If not potted sufficiently deep in the soil, a little should be added, so that it comes right up to and slightly covers the base of the lower leaves. At first sight this practice would seem to endanger their damping at the collar, but it has a directly opposite effect.

HARDY PLANTS for forcing should now be taken up and potted. These include *Roses*, *Deutzias*, *Azalea mollis* and the Ghent varieties, *Rhododendrons*, double *Prunus*, *Andromedas*, *Lilacs*, *Laurustinus*, &c., for, though the leaves of some of the deciduous things may not yet be off, still the buds are now fully matured; and it is much better to get work of this description done at once and to have the plants in hand, so that the pots may be plunged where they can be protected in a way that will prevent the soil getting saturated with wet. A sufficient quantity of *Dielytras* and *Spiræas* should be treated in like manner, so as to have them in readiness for putting in warmth later on.

CAMELLIAS.—Any of the stock of these that are at all under-potted and deficient in the green colour of their leaves will be benefited by an occasional application of soot water, the effects of which will soon be apparent, not alone in the improved condition of the foliage, but it will also assist the buds to swell and reduce the number that fall prematurely, such as generally happens with plants that have insufficient sustenance. Should that portion of the stock required in flower early, say before the close of the year, be at all backward, the blooming may be slightly accelerated by keeping the plants a little warmer than the temperature an ordinary greenhouse affords; but there must be no attempt at forcing in this stage of bud growth, or many will drop. Where means permit, such as afforded by the existence of a lean-to house with a north aspect, it will be well to select the latest blooming kinds, and those that have set their buds late in the season, and keep them through the winter as cool as possible without their being frozen. Plants so treated will flower quite six weeks later than if wintered with an ordinary stock.

CHRYSANTHEMUMS.—If fine flowers are wanted the buds must be thinned, for all varieties form very many more than they can perfect. The extent, however, to which the thinning process should be carried with individual kinds can only be arrived at by observation. Nevertheless, as some guide in the matter, it may be accepted as a rule that the larger the flowers the variety produces, the fewer it will be able to fully develop; and, with few exceptions, the incurved kinds cannot support near so many as those with reflexed petals, of which latter the old yellow variety, *Annie Salter*, may be taken as an example. The latest flowering sorts are much the most useful; consequently I have always found it advisable to thin these the most, for the fewer flowers a plant is allowed to bear the longer the individual blooms will last after they are expanded. The plants are better out of doors, so long as they are not in danger of being subjected to more than 2° or 3° of frost, for if housed too soon, unless stood thinly in a very light, airy structure, they get drawn and suffer from the attacks of mildew. On the first appearance of this, sulphur should be dusted on the affected leaves, otherwise the fungus spreads most rapidly, disfiguring the plants as well as affecting their ability to mature their bloom. A little more soot, say about a quarter of an inch, laid on the surface of the pots will much assist the develop-

ment of the buds, and will also banish worms from the soil.

CONSERVATORY.—There is considerable difference in what can be done in structures that come under this denomination on account of the difference in the temperature kept up. Where the principal occupants are such as only require, or will bear, a temperature similar to that of an ordinary greenhouse, anything that needs more heat cannot at this season be accommodated. The early-flowering *Chrysanthemums*, of which there are several that bloom well through October; early-blooming *Salvias*, of which *S. Bethelli* is one of the most distinct and freest flowerers; early varieties of *Epacris*, *Veronicas*, *Witsenia corymbosa*, *Primulas*, *Lasiandras*, *Heliotropes*, *Croweas*, and *Cyclamens* will be the principal things to be depended upon, along with a selection of light and dark-coloured zonal *Pelargoniums*, which, if well managed, are much more useful at this season than in the spring and summer, when their presence in large numbers often gives insufficient room for enough variety. In the way of roof climbers there is not much in bloom at this season; but where there is a good plant of *Habrothamnus elegans*, and the beautiful *Mandevilla suaveolens* with red and white *Lapagerias*, these four will give a cheerful appearance to the structure. Such roof climbers as are not in flower, and have at all extended so as to shade the general occupants of the house, should be well cut in, using judgment in the work, for if the shoots of all are indiscriminately shortened, the result is that a good many never bloom satisfactorily. In place of this it is much better with all plants that flower from the ripened previous season's growth to thin out and cut away completely such a number of the shoots as will bring the plants within reasonable compass.

LILIES.—No further time should be lost in going over the latest flowered *Lilies* grown in pots, dividing them where too many bulbs are together, and removing the small stem-formed little bulbs, which such kinds as the speciosum section produce freely on the stems above the principal bulbs. These, if not annually removed, directly crowd and impoverish the soil so much that the whole becomes enfeebled; they may either be put a few together in pots proportionate to their size, or if the natural soil of the locality is suitable for the growth of *Lilies*, they can be planted out in the open ground. This, as a matter of course, applies to sorts that are plentiful. With scarce varieties it will be much better to keep them in pots, as under such conditions, if properly treated, they are more likely to go on satisfactorily and increase. Plants of *auratum* and others that bloomed early in the summer, and were some time since potted, should have attention from time to time to see that the soil does not get too dry, as the young roots they have will not progress without enough moisture is present. There is no *Lily* so useful for general conservatory and greenhouse decoration as *L. eximium*, where the true variety is at hand, for the reason that it forces freely; if not already potted, no time should be lost in getting the plants in. As soon as the potting is completed all the kinds should be placed out of the reach of frost.

FRUIT.

PEACHES.—Where the lights have been taken off the roof of the early house they may be replaced towards the end of the month. In many places in years gone by it was the practice to close for forcing in November; but, thanks to the late Mr. Rivers, early *Peaches* and *Nectarines* of his raising or introduction, started a month late, still give us ripe fruit for the Queen's birthday. If all the old fruit-bearing shoots have been carefully removed, as previously advised, but little pruning will be needed. It will, however, be necessary for an experienced hand to go over the trees after they are let down from the trellis, when the usual cleansing may be performed, and tying in will give work for days unfavourable to outdoor operations. When all is finished remove loose

materials and inert soil from the surface of the borders, and replace with fresh compost consisting of strong calcareous turfy loam, old lime rubble, or charred refuse. Be guided by the state of the trees in the application of manure; if old and weakened by heavy cropping, a good dressing in the autumn will be a great help, while vigorous young trees will be best without it until the crop is set and swelling. See that the internal borders are thoroughly moistened before they are top-dressed, as dryness at the roots in winter is fatal to good *Peach* culture.

LATE HOUSES.—The trees in this department are now quite ripe, and promise a profusion of good blossom. If the wood has been properly thinned and the houses are not wanted for plants allow the leaves to fall naturally and give an abundance of air, but do not remove the lights from the roof unless they require painting. Let all root pruning, lifting, and border-making be brought to a close at once, as trees on open walls have set their flower-buds and may be removed with safety.

FRUIT ROOM.—By this time the latest *Pears* and *Apples* will have been gathered and stored away in the fruit room, which must be kept cool and well ventilated to admit of the escape of moisture. For some time after the fruit is stored it will be necessary to look over the shelves at least once a week for decaying specimens before they have time to taint the sound ones, which they will soon do if this precaution is neglected. Late kinds of *Apples* and *Pears* should be placed in a cool room where the temperature does not fluctuate, and when the time for ripening approaches dessert *Pears* will be greatly improved in flavour by removal to a higher temperature for a few days before they are wanted for use. To prolong the season of the finest kinds unblemished fruit from the latest gatherings should be stored away in clean earthen jars and covered with a few fronds of dry *Bracken*, an invaluable article in the fruit room, as it absorbs moisture and does not impart an unpleasant flavour to the fruit. Owners of model fruit rooms, capable of resisting 20° to 30° of frost without firing, do not require covering of any kind; but unfortunately they are the exception to the rule, as many gardeners have to make use of an upper storey, which is affected by every change from heat to cold, from drought to chilling dampness, with nothing better than a batten of straw (the worst thing they can use) for keeping out the frost. Where this is the case, good dry *Fern*, if obtainable, combined with extreme cleanliness, will be found the best covering material that can be used.

ORCHARD HOUSES.—With the exception of the *Salway*, a late variety not worth growing, all the *Peaches* will now be over, and trees that have not been potted may be top-dressed and placed out-of-doors at once. When it is not convenient to increase the size of the pots occupied by large trees they may be kept in a healthy bearing state for a number of years by means of annual top-dressings, which must be removed and replaced when the foliage is ripe. To the amateur the removing of the old top-dressing full of roots may seem barbarous; but not only must the surface be removed, a cavity worked round the insides of the pots to the depth of say 6 inches will also be necessary. Let the new compost be rich, dry, and adhesive, ram firmly, and see that the balls are thoroughly watered before it is applied. If any of the trees have been infested with insects, lay them on their sides and wash with a solution of *Gishurst* before they are top-dressed, otherwise the larvæ may escape and spring into life when forcing is commenced.

PLUMS AND CHERRIES.—The above treatment as to the removal of exhausted top-dressing applies to these also; and it is surprising how quickly fresh roots find their way into the new compost. In course of time these trees make very little wood, and become thickly set with blossom buds, which may require thinning out for the twofold purpose of preventing exhaustion and facilitating the cleansing process. When all the trees have been arranged in blocks or rows for the

winter or season of rest, throw a light, but rather small meshed, fishing net over them to keep off small birds, otherwise they will soon ruin the prospect of fruit when the buds begin to swell.

CHERRY HOUSE.—Nothing will be gained by leaving the trees exposed after the end of this month. If the lights and rafters were painted immediately after removal, the paint will now be firm and in the best possible condition for resisting the weather. The painting of forcing houses forms such a heavy item in the expenditure, that too much attention cannot be devoted to the extraction of moisture from the wood before it is painted and proper hardening before the lights are again wanted for use. If the usual occupants of cold houses are placed under the trees for protection from the elements, they should be capable of standing a very low temperature, that is to say, an approach to the freezing point, as *Cherries* under glass are easily excited after a long season of rest. Follow former directions with regard to cleansing, and spare no pains in getting rid of the larvæ of aphids, the most troublesome insect we have to contend with when the trees are in flower. *Gishurst* compound, eight ounces to the gallon, makes an excellent wash for the trees and trellis. When quite dry, tie in and ventilate to the full extent in mild weather until the time arrives for starting.

PINES.—By this time the first batch of *Queens* will have completed their growth, and, the pots being well filled with roots, the next two months may be devoted to a state of comparative rest to insure their throwing up fruit early in the new year. If the fruiting department is divided into sections, and a few of the most promising plants have been placed together, let the bottom-heat gradually subside to about 75°, and keep the pots well plunged to prevent the surface roots from becoming too cold. Let the temperature of the house range from 65° at night to 75° by day; ventilate at that point, and close before the heat falls below it. The second and main batch of plants, which will include *Smooth Cayennes* and *Rothschilds*, may be kept in a somewhat higher temperature, as they will make a growth before they start in the spring, and in order to prevent a decided check, an occasional watering will be necessary, but great care and judgment in this matter will be needed, as close structures, in which the fermenting material contains more or less moisture, rarely become too dry in winter. Plants which have recently thrown up fruit should have the benefit of a light part of the fruiting house, where they can have a good bottom-heat with a moderate supply of atmospheric moisture of a stimulating nature, as over-head syringing must now be reduced to a minimum, if not entirely discontinued. Where the best of all winter *Pines*, the true *Black Jamaica*, is still grown, a high and dry temperature will be needful to bring but its full quality and flavour. It requires a very small pot, and takes up less room than a *Queen*, but, having a tendency to run to crown, the fruit should be kept well up to the glass. If wanted to keep for any length of time, the plants should be moved bodily to a dry warm pit as soon as the fruit begins to change for ripening, and when quite ripe the *Pines* may be cut and suspended in a cool *Muscat* house or *Grape* room.

VINES.—The late excessive fall of rain having permeated every part of the external borders, some kind of covering should now be placed over the main roots of *Muscats*, *Lady Downes*, and other late kinds intended for winter use or bottling. By this time the former will have attained perfection, and the latter will be sufficiently advanced to admit of a general lowering of the temperature to about 55° at night and a few degrees higher by day, when gentle fire-heat is needed to keep the atmosphere of the houses dry and favourable to the ripening of the foliage. Houses in which the remains of the crop of late summer *Grapes* are still hanging may now be cleared with advantage, as the bunches will keep quite as well, if not better, in the *Grape* room. The *Vines* can then be divested of all lateral growths and subjected to a course of dry fire-heat to insure the perfect maturation of the wood.

Prune successional houses as soon as the leaves fall, and take advantage of wet days for cleansing the canes; also wash or paint the internal wood-work and ventilate freely if, as is too often the case, they are not wanted for plants. If the earliest house was pruned at the end of September, and shutting up in November is contemplated, a course of gradual watering will now be needful to bring the internal borders into a satisfactory state before the Vines are excited by the application of artificial heat. Pot Vines which were shortened back about the same time may also be watered, top-dressed, and placed in position, and as these do not always break so kindly as old Vines which have been forced for a number of years, it will be well to tie down the points before the terminal buds begin to swell. Remove planting canes to the shelter of a wall, place pieces of tile under the pots to keep out worms, and cover up with spent tan or Fern to protect the roots from frost.

KITCHEN GARDEN.

No time should now be lost in lifting and properly storing Potatoes. We question if any system is better than hilling them up in pits, laying them in rows about 5 feet wide, and putting from six to seven tons in each heap. Scotch Champions with us are a wonderfully fine crop, and the few diseased tubers amongst them are not worth mentioning; the quality is excellent in all ways, except that they are deep eyed. We are also busy lifting Turnips and Carrots, which we pit in the same manner as Potatoes. We are trenching and highly manuring one of our south borders for early Peas, which we always sow from the 5th to the 12th of November as follows: we draw the drills 4 feet apart, roll all the seeds in red lead to keep off mice, and directly the young plants break through the ground we cover with ashes to keep away slugs, and put across them strings of red worsted to frighten off the birds. It is a mistaken idea to suppose that frost kills young Peas; what kills them are the sharp surface winds that occur in February and March. Therefore stick them as soon as possible, putting Scotch or Silver Fir branches up each side. The usual look-out in the case of all young crops, such as Cabbage or Lettuce, should be given for grubs, and the soil between the rows should be stirred occasionally.

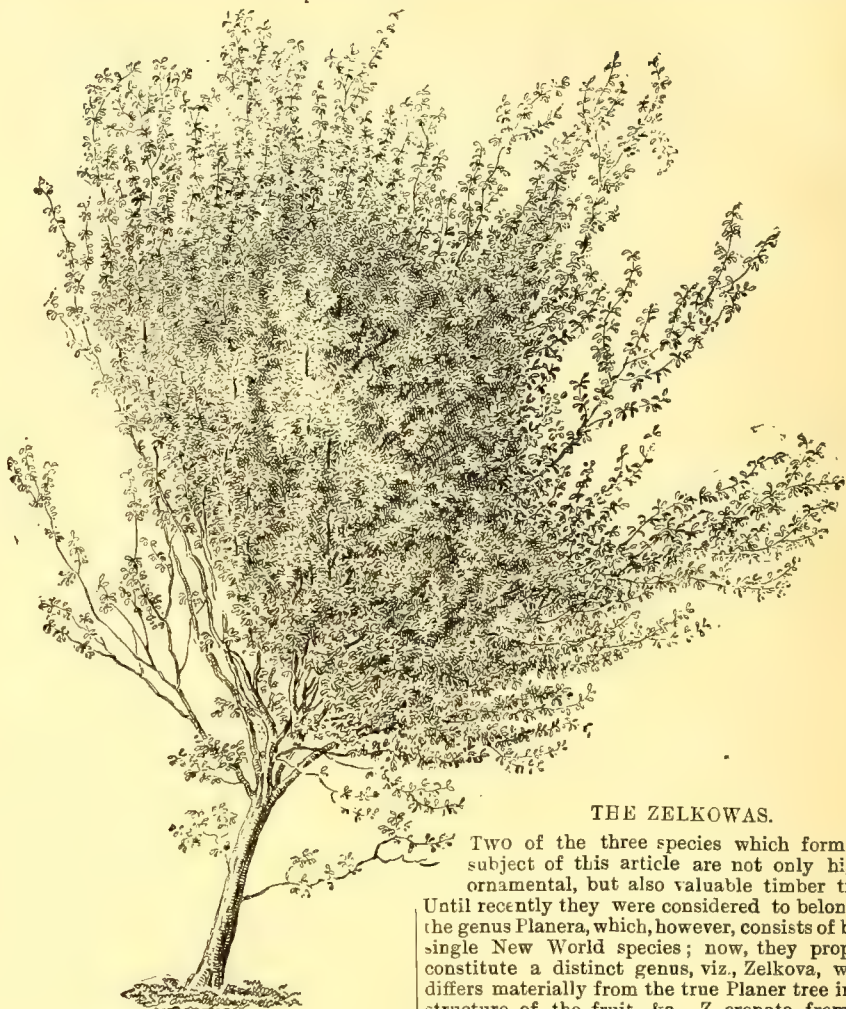
TREES AND SHRUBS.

THE PLANER TREE.

THE Planer tree—for such is the English name adopted by Professor Asa Gray in his "Manual of the Botany of the Northern United States," and by Professor C. S. Sargent in his "Catalogue of the Forest Trees of North America"—is a near ally of the Elms. It is the only species of the genus *Planera*, which was founded by Gmelin to commemorate the services to science of J. J. Planer, a German botanist. It is true that in London's "Arboretum et Fruticetum Britannicum" another tree is described under the above generic name, viz., *P. Richardi*, a native of the Caucasus, besides one from Crete, *P. abelicea*, which is doubtfully referred to *Planera*. Since that time a third, now certainly much better known than the subject of this article, has been introduced from Japan and distributed under the name of *P. acuminata*. All these three, however, belong to a distinct genus, viz., *Zelkova*, and, as before stated, *Planera aquatica* is the only known species.

IDENTIFICATION. — "*Planera aquatica*," Gmelin Syst. 2, p. 150; Willd. Sp. Plant., 4, p. 567; Spich in Ann. Sc. Natur. ser. 2, xv, 356; Gray, "Manual of the Botany of the Northern United States," p. 443. *P. Gmelini*, L. C. Richard, 2, p. 446; *P. ulmitolia*, Michx., l. Arb. Forest. de l'Amer., Sept. 3, 283; Nouv. Duham., vii, p. 65, t. 21; *Anonyas aquatica*, Walt. "Flora Caroliniana," p. 230.

The Planer tree is a native of the United States, where it occurs sparingly on wet banks and along streams from Cape Clear River, North Carolina and South Kentucky, south to Florida and Louisiana. It does not appear to be of any com-



Young Zelkova tree (21 feet high).

THE ZELKOWAS.

Two of the three species which form the subject of this article are not only highly ornamental, but also valuable timber trees. Until recently they were considered to belong to the genus *Planera*, which, however, consists of but a single New World species; now, they properly constitute a distinct genus, viz., *Zelkova*, which differs materially from the true *Planer* tree in the structure of the fruit, &c. *Z. crenata*, from the Caucasus, and *Z. acuminata*, from Japan, are quick-growing, handsome trees, with smooth bark not unlike that of the Beech or Hornbeam; it is only when the trees are old that the bark is cast off in rather large-sized plates, as is the case with the Planes. The habit of both is somewhat peculiar; in *Z. crenata* especially there is a decided ten-

mercial importance, nor does it attain a large size, from 30 feet to 50 feet being the limits of height as given by Professor Sargent in his catalogue. There is no doubt of its hardiness in this country, nor its suitability for planting near water or in any but very dry spots in parks and pleasure grounds. It is readily propagated by grafting, using the common Elm as a stock. Most tree nurserymen of any pretensions, particularly those on the Continent, give the name of this tree in their catalogues, but it is evidently far from being well known, as I have seen plants procured from various sources under the name of *Planera aquatica*, scarcely any of which were what they purported to be; amongst these were one or other of the Zelkows, a curious variety of the English Elm, *Ulmus campestris*, and one of the North American Birches.

The inconspicuous flowers, produced in small axillary clusters, appear in spring at the same time as the small Elm-like ovate-oblong, nearly glabrous leaves. The fruit is stalked in the calyx, and beset with irregular rough projections; it becomes somewhat leathery and nut-like, and is not winged as in the Elm.

GEORGE NICHOLSON.
Royal Gardens, Kew.



Foliage of a young Zelkova tree with flowers and fruit.

gency for all the main branches to be given off from one point; these, too, do not spread, as, for instance, do those of the Elm or Beech, but each forms an acute angle with the centre of the tree. The trunks are more columnar than those of almost all other hardy trees. Their distinct and graceful habit render them wonderfully well adapted for planting for effect, either singly or in groups. The flowers, like those of the Elm, are produced before the leaves are developed; in colour they are greenish brown, and smell like those of the Elder. It does not appear that fruits have yet been ripened in England. All the *Zelkows* are easily propagated by layers or by grafting on the common Elm.

ZELKOVA CRENATA.—The Caucasian *Zelkova* is a native of the country lying between the Black and the Caspian Seas between latitudes 35° and

account of the history, &c., of the *Zelkova*, from which Loudon largely quotes, was presented to the French Academy of Science by Michaux, the younger, who speaks highly of the value of the tree. In this he is fully corroborated by Mirbel and Desfontaine, on whom devolved the duty of reporting on this memoir. They say that it attains a size equal to that of the largest trees of French forests, and recommend its being largely planted. They particularly mention its suitability for roadside avenues, and affirm that its leaves are never devoured by caterpillars, and that the stems are not subject to the canker which frequently ruins the Elm. The name *Orme de Sibirie*, which is or was commonly applied to *Zelkova crenata* in French books and gardens is doubly wrong, for the tree is neither an Elm nor is it a native of Siberia. In 1782 Michaux, the father of

Ispahan, in order to explore the province of Ghilan, he found this tree in the forests which he traversed before arriving at Recht, a town situated on the Caspian Sea. In this town he had opportunities of remarking the use made of the wood and of judging how highly it was appreciated by the inhabitants." The first tree introduced into Europe appears to have been planted by M. Lemonnier, Professor of Botany in the Jardin des Plantes, &c., in his garden near Versailles. This garden was destroyed in 1820, and the dimensions



Flowering twig of *Planera Gmelini*.



Flowers and fruit of *Zelkova crenata* (*Planera Richardi*).



Foliage of a full-grown *Zelkova* tree.

Zelkova tree at Podenas, showing peculiar habit of branching. In old trees the effect is very remarkable in winter, as at Oxford Versailles (*Petit Trianon*), and Syon.

of the tree when it was cut down were as follows. Height 70 feet, trunk 7 feet in circumference at 5 feet from the ground. The bole of the trunk was 20 feet in length and of nearly uniform thickness; and the proportion of heart-wood to sap-wood was about three-quarters of its diameter. This tree was about 50 years old, but was still in a growing state and in vigorous health. The oldest tree existing in France at the time of the publication of Loudon's great work was one in the Jardin des Plantes, which in 1831 was about 60 feet high. It was planted in 1786 (when a sucker of four years old) about the same time as the Limes which form the grand avenue called the Allée de Buffon. "There is however, a much larger *Zelkova* on an estate of M. le Comte de Dijon, an enthusiastic planter of exotic trees, at Podenas, near Nerac, in the department of the Lot et Garonne. This fine tree was planted in 1789, and on the 20th January, 1831, it measured nearly 80 feet high, and the trunk was nearly 3 feet in diameter at 3 feet from the ground." A drawing of this tree made by the count in the autumn of that year was lent to Loudon by Michaux, and the engraving prepared from that sketch (on a scale of 1 inch to 12 feet) is herewith reproduced. At Kew the largest tree is one near the herbarium (a larger one had to be cut down when the herbarium was enlarged some years ago, and a section of the trunk is exhibited in Museum No 3). Its present dimensions are, height 62 feet; circumference of stem at 1 foot from the ground, 9 feet 8 inches; ditto at ground level, 10 feet; height of stem from ground to branches, 7 feet; diameter of head, 46 feet. The general habit of the tree is quite that as represented in the engraving of the specimen at Podenas. The measurements of the large tree at Syon House were, in 1834, according to Loudon, height, 54 feet; circumference of stem, 6 feet 9 inches; and diameter of head, 34 feet; the present dimensions, for which I am indebted to Mr. Woodbridge, are, height, 76 feet; girth of trunk at 2½ feet from ground, 10 feet; spread of branches, 36 feet.

IDENTIFICATION.—*Zelkova crenata*, Spach in Ann. des Sc. nat., 2nd ser. 15, p. 358. D. C. Prodr. xvii., 165. *Rhamnus ulmoides*, Gleditsch, It., p. 313. *R. carpinifolia*, Pall. Fl. Rossica, 2, p. 24, tab. 10. *Ulmus polygama*, L. C. Richard in Mem. Acad. des Sciences de Paris, ann. 1781. *Planera Richardi*, Michx. Fl. bor. Amer. 2, p. 248; C. A. Meyer, Enumer. Causas. Casp., n. 354; Dunal in Bulletin Soc. cent. d'Agricult. de l'Hérault, ann. 1841, 299, 303, et ann. 1843, 225, 236. Loudon, Arbor. et Frut. Brit., vol. 3, p. 1409. *Planera crenata*, Desf. Cat. Hort. Paris et hortul. fere omnium. Michaux fil. Mem. sur le *Zelkova*, 1831. *Planera carpinifolia*, Watson, Dend. Brit., t. 106. Koch, Dendrologie, zweit. theil, zweit. Abtheil, p. 425.

VAR. PENDULA (the Weeping *Zelkova*).—This is a form of which I do not know the origin or history. It is simply a weeping variety of the common *Zelkova*. I first saw it in the Isleworth Nurseries of Messrs. C. Lee & Son, and a specimen pre-

47° of the north of Persia and Georgia. According to Loudon, it was introduced to this country in 1760, and it appears to have been planted both at Kew and Syon about that date. A very full

the author of the paper above mentioned, undertook, under the auspices of Monsieur (afterwards Louis XVIII.), a journey into Persia, in order to make botanical researches. "Having left

sented by them to Kew for the arboretum is now growing freely. I suspect that the *Zelkova crenata* var. *repens* of M. Lavallée's "Arboretum Segrezianum" and the *Planera repens* of foreign catalogues generally are identical with the variety now mentioned under the name it bears in the establishment of Messrs. Lee & Son.

Z. ACUMINATA is one of the most useful and valuable of Japanese timber trees. It was found

to distinguish it satisfactorily from the *P. Richardi* of the north-west of Asia." There seems to be no doubt as to the perfect hardness of the Japanese *Zelkova* in Britain, and it is decidedly well worth growing as an ornamental tree apart from its probable value as a timber producer. A correspondent in the periodical just mentioned writes, in 1873, p. 1142, under the signature of "C. P.": "At Stewkley Grange it does fairly well; better than

named; in colour it is a dull green above and a brighter glossy green beneath. The timber is very valuable, being exceedingly hard and capable of a very fine polish. In Japan it is used in the construction of houses, ships, and in high-class cabinet work. In case 99, museum No. 1, at Kew, there is a selection of small, useful, and ornamental articles made in Japan of Keyaki wood. Those manufactured from ornamental Keyaki (which is simply gnarled stems or roots, or pieces cut tangentially), and coated with the transparent lacquer for which the Japanese are so famous, are particularly handsome. In the museum library is also a book, the Japanese title of which is given below—"Handbook of Useful Woods," by E. Kinch, Professor at the Imperial College of Agriculture at Tokio, Japan. This work contains transverse and longitudinal sections of one hundred Japanese woods, and numbers 45 and 46 represent *Z. acuminata*. It would be worth the while of those who are interested in the introduction and cultivation of timber trees in temperate climates to procure Kinch's handbook.

IDENTIFICATION.—*Zelkova acuminata*, D. C. Prodr., xvii., 166; *Z. Keaki*, Maxim. Mel. biol. vol. ix., p. 21. *Planera acuminata*, Lindl. in Gard. Chron. 1862, 423; Regel, "Gartenflora" 1863, p. 56. *P. japonica*, Miq. ann. Mus. Lugd. Bat., iii., 66; Kinch, Yuyo Mokuzai Shoran, 45, 46. *P. Keaki*, Koch Dendrol. zweit. theil, zweit. Abtheil, 427. *P. dentata japonica*, Hort. P. Kaki, Hort.

Z. CRETICA is a pretty small foliaged tree from 15 feet to 20 feet in height. The ovate crenate leaves, which measure from an inch, or even less, to one inch and a half in length by about half the length in breadth, are leathery, dark green above, greyish above. They are hairy on both surfaces, the underside being most densely clothed, and the twigs, too, are thickly covered with short greyish hairs. This species, which is a native of Crete, is not at present in the Kew collection; its name, however, if given in M. Lavallée's catalogue, "Enumeration des Arbres et Arbris Cultivés à Segrez" (Seine-et-Oise).

IDENTIFICATION.—*Zelkova cretica*, Spach in Suit. à Buff. ii., p. 121. *Ulmus Abelicea*, Sibth. & Sm. Prod. Fl. Græcia, i., p. 172. *Planera Abelicea*, Roem. & Schlitz. Syst., vi., p. 304; Planch. in Ann. des Sc. Nat. 1843, p. 282. *Abelicea cretica*, Smith in Trans. Linn. Soc., ix., 126.

I have seen no specimens of the *Zelkova stipulacea* of Franchet and Savatier's "Enumeratio Plantarum Japonicarum," vol. ii., p. 489, and as that seems to have been described from somewhat insufficient material, and, moreover, does not appear to be in cultivation, I passed it over as a doubtful plant. GEORGE NICHOLSON.

Royal Gardens, Kew.

* * Our tree-loving readers would greatly oblige us by stating what they may have observed concerning these trees in a living state, the measurements of the finest specimens, the colour of the foliage in spring and autumn, and their effect in the park or garden landscape.—ED.

PROPAGATING RHODODENDRONS.

5065.—I would recommend "T. W." not to attempt the propagation of Rhododendrons by means of cuttings; trade growers do not increase them in that way, as they do not make roots at all freely, are a long time about, and many of the finest kinds would not thrive so well on their own roots as on the common ponticum. There is nothing difficult about grafting Rhododendrons. I know of no plant more amenable to this method of increase, the great point being to secure freely grown, healthy young seedlings of the common ponticum as stocks. As the subject may prove of interest to others, I will give a few simple directions which, if followed, will enable anyone to propagate any of the choice hybrids with ease and certainty. The quickest way is to purchase the stocks, as they may be obtained at a cheap rate by the hundred, of some trade growers who raise them largely for game coverts and such like purposes, but if a large plant of ponticum is growing on the place, it is easy to raise young plants for grafting. Gather the seed when ripe, store it in a cool dry place, and sow in March in sandy peat, pressing the surface firm, watering before sowing, and covering very thinly with fine



Old specimen of *Zelkova* tree in summer-foliage concealing form of branching.

near Yeddo by the late Mr. John Gould Veitch, and was sent out by the firm of Messrs. J. Veitch & Sons. Maximowicz also found the tree in Japan, and introduced it to the Imperial Botanic Gardens of St. Petersburg, from whence both seeds and plants were liberally distributed. In the *Gardeners' Chronicle* for 1862 Dr. Lindley writes as follows: "A noble deciduous tree, discovered near Yeddo by Mr. J. G. Veitch, 90 feet to 100 feet in height, with a remarkably straight stem. In aspect it resembles an Elm. We understand that a plank in the Exotic Nursery, where it has been raised, measures 3 feet 3 inches across. Mr. Veitch informs us that it is one of the most useful timber trees in Japan. Its long, taper-pointed leaves, with coarse, very sharp serratures, appear to dis-

tinguish it satisfactorily from the *P. Richardi* of the north-west of Asia." There seems to be no doubt as to the perfect hardness of the Japanese *Zelkova* in Britain, and it is decidedly well worth growing as an ornamental tree apart from its probable value as a timber producer. A correspondent in the periodical just mentioned writes, in 1873, p. 1142, under the signature of "C. P.": "At Stewkley Grange it does fairly well; better than most other trees. In a very exposed situation it grew 3 feet 5 inches last year, and was 14 feet 5 inches high when I measured it in November; girth at ground, 8½ inches; at 3 feet, 5 inches." The leaves vary in size a good deal on the short twiggy branches, being from 3 inches to 3½ inches in length, and 1½ inches 1½ inches in width, whilst those on vigorous shoots attain a length of 5 inches, with a width of about half the length. They are slightly hairy on both surfaces. The long acuminate points, the sharper serratures, the more numerous nerves (nine to fourteen in number), and the more papery texture distinguish *Z. acuminata* easily from its Caucasian relative, *Z. crenata*. The foliage, too, seems to be retained on the trees in autumn longer than that of the species just

soil. Place it in a cold frame, and when the young plants are large enough to handle prick them out into a bed of prepared soil either in a frame or in the open. The following year they will need more space, and should then be planted out in rows about 6 inches apart, where they may remain until they are large enough for grafting, which will be in from two to three years' time. In November put them into 2½-inch pots, storing them away in a frame or in a cool house, and about the first week in February bring them into warmth; for although the beginning of March is early enough to graft, it is advisable to subject the stocks to a higher temperature for a month or so before working them, so that the sap may be flowing freely when the scions are placed on them. There are three ways by which Rhododendrons may be grafted—whip grafting, side grafting, and saddle grafting. By the former method the stocks are headed down, cut in a slanting manner, and tongued; the scion being prepared in the same way, the two are fitted together and clayed over. This, however, seems to me a cumbrous method, involving a lot of unnecessary labour, and has, moreover, the serious disadvantage of rendering any stocks on which the grafts may fail to take useless for another year; they must be planted out again and make another growth before they can be once more employed, whereas in side or saddle grafting they may be used again the following year. In

SIDE GRAFTING a piece is taken out of the side of the stock about 2 inches from the soil; the cut is made towards the centre of the stem, leaving a notch or ledge on which the butt end of the scion rests when in its place. No clay is required in this manner of grafting, and it is quickly and easily done, but it is open to the objection that the graft is apt to break off later on in windy weather. The best method is decidedly saddle grafting, as when well done the graft unites so intimately with the stock as to render the union one of the strongest. In whip and side grafting the graft is put on the old wood, but in saddle grafting it is the wood made previous to the current season's growth which is used. This has sufficient solidity whilst retaining enough freshness to allow of its uniting quickly and well with the young wood of the scion, which is of course a terminal shoot of the past season's growth,

SADDLE GRAFTING is performed as follows: The stock is cut off clean and level midway between the two tiers of leaves, which represent the termination of the second and third years' growth. Two slanting cuts form this into a wedge, the next operation being to cut the scion so that it exactly overlaps it. When nicely done the bark of stock and scion merge almost imperceptibly into each other, so that in a few weeks the one appears but as a continuation of the other. The chief art in this method will be seen to consist in taking just as much out of the scion as has been cut away from the stock. Tie round firmly, but not too tightly, with cotton wool, and put the plants in a close case, laying them down if there is not room to stand upright, for they, being in moist, confined quarters, will not often need water, and when they do it is easy to raise them up. In about six weeks, in a temperature of about 55°, not much higher and not dropping below 50°, they will have taken, and may then be gradually inured to the general atmosphere of the house. A most important point in connection with this grafting in warmth is the daily admission of air to the plants. After the first few days the frames may be thrown open every morning for about two hours, say from seven till nine. This is really an important item, and I cannot too strongly urge the observance of it on those who may have grafting to do under glass.

PROLONGED CONFINEMENT has the effect of either preventing a complete union, or probably, by reason of the enfeeblement of the plants, causes the grafts to fail after they are taken away into cooler quarters. Be careful, too, not to be in too great a hurry in taking them out of warmth, as this will have a similar effect. Grafting may also be performed in the open air at about the same time of year, but the

grafts must be clayed over. Those who have plants of the choice named kinds may, if so minded, raise seedlings from them; they will not, as I have before remarked, grow so vigorously as grafted plants, but where there is a large extent of pleasure grounds, and where these merge into the wild garden, or are environed by or connected with other portions of a woody undressed description, there will, if the natural soil is suitable, be plenty of places where these seedling plants may find a happy home and will add much to the attractions of the place. The seed may be sown as recommended for ponticum, but the young plants should not be exposed the first winter in the full open; it is better to prick them out in a frame where they can be protected in very severe weather or in lengthened periods of heavy rainfall. By sowing early in heat the growing season will be extended.—J. C. B.

—In answer to "T. W." (p. 305), allow me to say that Rhododendrons do not grow readily from cuttings, especially the hardy kinds to which I presume he alludes. They can certainly be struck in that way, but it is very slow and untrustworthy compared with grafting, which is the method generally employed for increasing them. As regards root production, the tender Himalayan kinds resemble the hardy ones, but the tube-flowered sorts of the Princess Royal section strike more readily; indeed, they are often propagated by means of cuttings. In striking cuttings of the hardy kinds take the cuttings early in summer when the young growth commences to become woody, and let the cutting consist entirely of the current year's growth. If the shoot be taken off at its base there will be a sufficient naked portion there for insertion without removing any leaves. Weak rather than strong shoots are best; indeed, the whole cutting should not be more than 5 inches or 6 inches in length. In preparing the pots see that they are quite clean; then well drain them with broken crocks, and fill them firmly with fine sandy peat. In putting in the cuttings take care that they are made very secure, and, above all, that there is no cavity around their base. After a good watering they must be kept perfectly close and shaded when required till rooted, which will take some time. If they are not struck by the end of the summer a little heat then will be of advantage. Those of the Princess Royal section strike readily during summer in the temperature of an intermediate house, provided the cutting is taken in the same condition as that above recommended. In this way I have also been fairly successful in striking the Himalayan kinds. Powdered crocks and charcoal mixed with the soil are great helps towards inducing the formation of roots. As already stated, the principal mode of increasing choice kinds is by grafting, and in the case of common ones by seed. In

GRAFTING hardy kinds, seedlings of Rhododendron ponticum are the stocks generally employed and the most suitable size is when they are about the thickness of a lead pencil. The stocks may either be established in pots or grown in the open ground and lifted carefully when required. In the latter case some pot them when grafted, and others place them thickly in beds of soil in airtight cases. The method of grafting generally employed is that known as saddle grafting; the scion is split and the stock cut in the shape of a wedge, contrary to the principle carried out in the case of most plants where the scion is formed after the manner of a wedge and the stock split. They can be also, and frequently are, side grafted with perfectly satisfactory results. Spring is the season at which this operation is generally carried out, but it may be done at any time during summer provided both stock and scion are in a suitable condition.

THE SEEDLING stocks should be grown on freely, so that when large enough the bark may be still green and fresh; if it has the brown, dried-up appearance common to stunted plants, success cannot be ensured. On the same principle the scion must be fresh and vigorous; if grafted in spring a shoot of the preceding year is chosen.

Such is the course generally adopted for increasing the hardy garden hybrids and varieties of Rhododendron, but as a considerable amount of skill and various appliances are needed to carry it out satisfactorily, it is best left to those who make a speciality of such work. In some of the large nursery establishments thousands are propagated every season, and, with the experience of many years brought to bear upon the operation, success is almost certain. Moreover, as good sized plants can be bought so cheaply compared with the time and trouble necessary to grow them, home propagation is seldom resorted to.—T.

—Rhododendrons, I have often observed, grow nicely from cuttings. I have seen them in Germany propagated in that way in December in a cool house in sand on 55° bottom heat. In Russia we propagate them in a mixture of peat and sand (half and half) in August; we keep them well shaded and very often syringed. They are generally nicely rooted and ready for potting or planting out in March. We only propagate from cuttings the two varieties *coelestinum* and *Cunninghami*. Cuttings of all dark flowered kinds generally root well.—A. BARDET.

INSTRUCTION IN FORESTRY.*

In no country was forestry so little thought of as in England, because, in the first place, we had a superabundance of rain; in the second, this rainfall, and the prevalent vegetation which it caused, preserved from destruction the rich humus with which our land is covered; and, lastly, because the Gulf stream moderated our climate. Scotland was richer in forests than England, having about 1,000,000 acres, or one-twentieth of its total acreage, under forestry. Nevertheless, despite the efforts of Scotch arboriculturists and public-spirited men generally, that million of acres was being slowly reduced. When he was at the meeting of the Scotch Arboricultural Society at Edinburgh two years ago it was stated that only about three-quarters of a million acres of forests remained. Sir R. Temple gave the results of his observation during recent travels, as far as it bore upon forestry. In the

SOUTH OF NORWAY and throughout Sweden the forests were preserved in the most patriotic manner for the augmentation of the national wealth. In Germany and Western France, also, forests formed a profitable part of the national material possessions. In Southern France, Italy, and Spain, however, tourists could not fail to note the reckless destruction of forests which had taken place. If a forest was destroyed twenty other things disappeared with it; but the most disastrous effect was that destruction of forests entailed long periods of drought, followed by those excessive inundations which had of late been so common in certain parts of Europe. In Russia, too, reckless and unscientific felling of forest trees was very frequent. Russia was naturally a country of Pine forests, but these latter had been largely replaced by Birch. The meaning of that was that when Pine forests were felled without proper provision being made for the reproduction of the Pines, Birch trees grow up in their stead. The beautiful countries on both shores of the Bosphorus, once the home of the greatest nations and the scenes of the greatest events of history, were now but the shadow of their former selves, solely on account of the reckless destruction of their forests. The once famous harbour of Ephesus had silted up because of the destruction of the forests near the source of the rivers which flowed into the sea at that point. The sylvan glories of Cyprus, too, the latest region which had passed under British sway, had entirely departed.

INDIAN FORESTS.—After alluding to the aridity and sterility which had been brought about in Palestine and Persia by the destruction of their ancient forests, Sir R. Temple passed on to British India, where, he said, the English nation possessed a forest department greater than that of any

* "Instruction in Forestry." By Sir R. Temple. Abstract of a Paper read at the Social Science Congress.

other people in the world. Although the forest department was far short of what it should be, it was among the administrative glories of England. There were 75,000 square miles of forests there, of which 25,000 were under scientific care, and the remaining 50,000 were under tolerable care and preservation. Sir Richard Temple showed that otherwise forestry was not cultivated, other countries having already lost their timber, and others having been blessed with such a store that it still remained in great quantities, but was slowly, but surely diminishing. In North America and Canada the forests were being greatly diminished; but the most melancholy case was that of the West Indies, for there the destruction of forests meant not only the loss of a source of material wealth, but also permanent injury to the climate and the fertility of the soil.

AUSTRALIAN FORESTS.—This destructive process had not hitherto been visible in Australia, because the forests there were so far inland that destructive agencies could not reach them. But if ever a reckless destruction of Australian forests should commence, it would be fraught with the gravest danger to the community. The great problem of the future for Australia was the water supply in the centre of the island, and that problem could only be met by carefully preserving the forests near the sources of the scanty Australian rivers. For the practice of forestry there were three chief reasons, first, the extension of the national wealth; second, the retention of moisture in the soil; and, third, the moderation of the climate. Sir Richard looked upon the judicious use of forests as analogous to the employment of interest and capital, the same principles applying to both; and he also observed that if forests which had disappeared could not be replaced by properly conducted arboriculture, many new trees could be naturalised or acclimatised. Adequate provision for

THE INSTRUCTION OF FORESTRY was wanted, for the great reason that forestry was nearly connected with national progress, and such instruction was divisible as follows: Method of preparing the land for forests, the art of planting, the art of thinning and pruning, the utilisation of limbs and branches, felling, barking, leaving standards for reproduction (in which was comprised the most important of all the operations), gathering pollards, sawing and manufacturing, and rearing and propagating in nurseries.

SHRUBS FOR WINDOW BOXES.

IN addition to the plants mentioned in THE GARDEN (p. 316) as suitable for window boxes, allow me to give the names of two or three others that I have found useful for the purpose. *Ilex crenata* is a pretty dense-growing bush seldom met with above a couple of feet high; it takes, indeed, a long time to attain that size, its rate of progress being slow, especially after it has reached a height of about a foot; its leaves are only about an inch long and lanceolate in shape, that is in the typical form, but there is a variety (*Fortunei*) in which they are nearly round, and, except the dark green colour, decidedly more Box-like than Holly-like. This little Holly bears shifting well, its roots being well matted together, and it seems to be very hardy. There is a variety (*variegata*) in which the leaves are marbled with a bright golden colour alike effective at all seasons. *Ligustrum coriaceum* is another plant that will not soon outgrow its allotted space, even though it be but small. It is of rather upright growth, the leaves being from 1½ inches to 2 inches long, roundish, of a solid, wax-like texture, and in colour a very dark olive-green. Both the green and variegated varieties of *Osmanthus japonicus* so much resemble Hollies, that the same remarks hold good for both, except that, as the *Osmanthus* can be easily struck from cuttings, and the different Hollies cannot, small plants of the *Osmanthus* are sooner propagated than Hollies. As to hardness, as far as my experience goes, they are about equal. The clustered Ivy (*Hedera conglomerata*) is a dense-growing, much-branched

kind, which forms a spreading bush not more than a foot high, but extending much farther in a horizontal direction. The leaves are small, but of a dark green colour, and of greater substance than those of most of the Ivies. This Ivy should be struck from cuttings, for, being of slow growth, it is often grafted on the Irish Ivy, and in that case suckers from the stock are frequently troublesome. In a sheltered position, or in the case of a mild winter, little bushes of the *Laurustinus* are very handsome when in flower, but in exposed spots they are frequently injured. A shrub that will doubtless be largely employed for window boxes is *Pernettya mucronata*, the berries of which remain on throughout the winter, besides which the foliage is bright and cheerful. It is a plant that forms a mass of fibrous roots, and therefore it can be readily moved without injury. The varieties with different coloured berries are as yet scarce, but the ordinary crimson-berried form is readily obtainable. ALPHA.

Rhododendron Brayanum.—Of the many *Rhododendrons* in cultivation few will be found to equal this one as regards effectiveness. The bright scarlet hue of the flowers renders a large specimen a very striking feature, and, the foliage being broad and abundant and the habit somewhat drooping, it makes an excellent standard. A good specimen on a stem some 4 feet high, carrying when in bloom some fifty trusses, forms a most attractive object.—J. C. B.

5068.—Seaside trees and shrubs.—The following trees and shrubs succeed well along our Welsh coast, and will, I have no doubt, do equally well under similar conditions in almost any part of the kingdom.—Shrubs: *Escallonia macrantha* and *rubra*, *Tamarix*, *Laurustinus*, *Myrtle*, *Aucuba japonica*, *Arbutus Unedo*, *Garrya elliptica*, *Hydrangea hortensis*, *Fuchsia Riccartoni*, and *Hippophae rhamnoides*. Trees: *Pinus Laricio*, *P. austriaca*, *P. insignis*, and *Pinaster*, *Norway Maple*, *Sycamore*, *Alder*, *Turkey Oak*, *Evergreen Oak*, and *Poplar*.—A. D. WEBSTER.

Rhus venenata.—This, the Poison or Swamp Sumach of the United States, is a pinnate-leaved species, but very different from those mostly met with in gardens, such as *glabra*, *typhina*, and *viridiflora*. As an ornamental subject it is much surpassed by the others, except in autumn, when its intensely bright colour renders it very conspicuous, even when associated with the many bright-hued natives of the American forests. In common with the rambling *Rhus Toxicodendron*, it is said to be very poisonous. Another species, *R. succedanea*, a native of Japan and an upright-growing kind, has pinnate foliage, which in autumn changes to a glowing crimson—a colour which, unless sharp frosts set in, it retains for some time. It appears to be a small-growing species, as far as can be judged by young specimens of it, and rather tender, but if cut by the frost it quickly recovers. —ALPHA.

Choisya ternata.—In many places this Mexican shrub has produced quite a crop of flowers during the autumn, especially where somewhat sheltered, though its general season of flowering is during the spring months. It thrives both as a wall plant and as a bush in the open ground, or it may be grown in pots and treated as a greenhouse plant. Its foliage, which is bright and glossy, emit a pleasant aromatic odour when bruised, and the flowers, which are freely borne in clusters at the ends of the shoots, are pure white, and are sometimes used in a cut state as a substitute for Orange blossom. As an outdoor shrub it does well in almost any soil, the only thing to guard against being that in very hot and dry places it is somewhat liable to be attacked by red spider, which is, however, easily got rid of by means of the syringe. There seems to be a general idea that this *Choisya* is tender, but during the last few years it has proved to be at least as hardy as the common Laurel. When grown in pots it can be had in flower by the end of February, but if limited to a greenhouse temperature, its flowering will be somewhat later. After blossoming, young shoots are

produced in great numbers, and if taken off when moderately firm and put in as cuttings they strike readily. On no account must they be allowed to flag, as if that happens rooting is very much retarded—more so than in the case of most subjects. If potted off as soon as rooted they make sturdy little plants the first season, and by next year they will have formed good flowering bushes. We turn them out of doors by the end of May, where, plunged in coal ashes, they remain till frost sets in; they are then removed to the greenhouse. —ALPHA.

5075.—Araucaria imbricata.—In all probability the roots have found their way into the cold, damp subsoil, hence the decay of the foliage and formation of Moss on the stems. The only way to renovate them is to induce the formation of surface roots, and to effect this I would remove as much of the top soil as possible without injuring any of the roots; but it will probably be found that the great portion of these are deeply buried. Then replace this old earth with some good loam and a little well rotted manure, and in the course of a year or two many roots will find their way into it. At the same time it would materially aid the renovation of the trees if a trench some 3 feet wide were taken out round them, say about as far from the trunk as they are high, filling up with good soil. The roots will soon find this store of good food, and the result will be a renewal of vigour.—J. C. B.

KITCHEN GARDEN.

WINTER SALADS.

THE season has arrived when special provision must be made for maintaining a regular and unfailing supply of material for salads. Much may be done by means of temporary shelter to prolong out-door supplies, but it needs a good space under glass and a heated structure to furnish an abundance of crisp salading, not only during winter, but in spring. The following are indispensable materials for first-class salads, viz.—

CUCUMBERS.—For these, efficiently heated pits or houses must be provided, as a temperature of 60° to 70° must be maintained if a supply of Cucumbers in winter is to be relied on; a low span-roofed house with shallow side beds under which pipes for bottom heat are placed is perhaps the best form of structure in which to grow them, and a wire trellis about 1 foot from the glass must be provided for training them on. It is not necessary to have any great depth of soil for their roots, especially in winter, as a little fresh soil frequently applied as a top-dressing to keep the surface roots active is one of the most effectual means for promoting healthy, vigorous growth, and without fresh growth the supply of Cucumbers soon ceases. Plants put out in August will now be ready for fruit bearing, but as long as the supply can be kept up from old plants in summer beds, it is best to divest the winter plants of their fruits directly the latter are visible, so as to husband the strength of the plants for the still shorter and darker days now rapidly approaching. Do not apply more fire heat than is absolutely necessary, and keep the foliage clean by means of copious syringings. Stop the young growths and tie them firmly to the trellis, and pick off the male blossoms as they appear, as the blooms only need fertilising if seed is to be produced. If in good soil no stimulant will be needed until the plants have each borne several fruits, but before signs of exhaustion are visible, apply a top-dressing of loam and thoroughly decayed stable manure, and water with tepid liquid manure—treatment under which deep green foliage and straight, well-formed fruit will be the result.

CELERY will now be in full growth, and early crops ready for use. Keep on earthing up in succession, and as soon as frost sets in have thatched hurdles ready for laying over the rows. Some dry Bracken makes a good covering; it not only excludes frost, but allows air to penetrate it freely, and in that way obviates decay.

LETTUCES form an important ingredient in winter salads; therefore a good supply of Brown Cos and the Cabbage varieties should now be fit for lifting and placing in cold houses or pits, in readiness for severe weather should it occur; but if some dry Fern fronds are placed over beds of the hardier varieties, such as Bath or Brown Cos and the small Cabbage kinds, they will be quite safe out of doors for some time longer yet. Successional crops must be encouraged to make growth as fast as possible; surface stir on dry days, and dust with lime and soot to keep slugs at bay.

ENDIVE is greatly liked in winter salads. Where a good supply of it has been provided by successional plantings, those most forward will now be fit for use. Various ways of blanching are adopted. For the early part of the season the plants may be tied up like Cos Lettuce, and if frost is anticipated, some dry Fern fronds may be sprinkled over the plants after they are tied up, but before severe weather sets in it is advisable to lift a quantity of full-grown plants and set them close together in pits or frames. A few may be introduced to the Mushroom house to blanch every week. The Green Curled, Moss Curled, and Batavian are the best varieties.

BETROOT.—Of this there must be a good supply for winter salading. The roots should now be fit for storing, and great care should be exercised in lifting them in order not to injure the rootlets, for if they bleed it will materially reduce the high colour for which Beet is so highly prized. Of varieties those that produce moderate-sized roots are the best. Dell's, so largely grown as a decorative plant, is an excellent variety for salading.

ONIONS in a young green state are useful in salads. Where they are in much request it is advisable to make three or four small sowings in July and August of the mild-flavoured kinds, so as to have the young plants at just the right stage for use, as the autumn sowing for producing bulbs will be hardly large enough for salads early in the winter.

RADISHES are at all times appreciated, and in winter they remain a long time fit for use after they are large enough without getting hot and stringy, as they do in hot, dry weather in summer. Sown in September, they form nice-sized roots, and may be protected in the ground either by external coverings or by frames set over them. These may be utilised until young crops raised in frames are fit for use. The Rose China Radish and the Black Spanish are sorts mostly grown for winter out-of-doors, but if first-rate quality is desired and frames are available, the early Scarlet Forcing grown on slight hotbeds is best; sow rather thinly, as, if crowded, they only produce leaves.

CHICORY is not nearly so much grown as it ought to be. If sown in April in drills 1 foot apart and thinned out to 6 inches asunder fine roots will now be ready for lifting. Take them up carefully and plant them in large pots or boxes only half filled with soil; fill the top with hay or cover with anything that will exclude light; set them in a warm place. If a Mushroom house is available they may be planted on the floor, and will yield two or three crops of leaves before they are exhausted; a few roots put in fresh about once a fortnight will ensure a regular supply.

MUSTARD AND CRESS are so easily grown and so indispensable for good salads, that they ought to be grown wherever salads are required. They require but little time to become fit for use, and under glass prove tender and crisp and mild in flavour—in fact, altogether preferable to outdoor supplies. Shallow wooden boxes are the best in which to raise them, and very little depth of soil is requisite. Boxes 1 foot 6 inches long by 1 foot 3 inches broad and 2 inches or 3 inches deep answer perfectly. Fill them full of light soil and press it down quite level; water with a fine rosed can, then sprinkle the seed regularly on the surface; set them in a warm house, and cover with a board to exclude light until the seeds have germinated; then remove them, and in a day or two more they will be fit to take to a cold house until required for use. Cress takes a little longer

than Mustard to reach the best stage for salading.

TARRAGON, although used mostly as an herb for culinary purposes, is very much appreciated in small quantities in mixed salads. Good roots ought to be lifted at once, and planted in boxes of light soil, putting them in strong heat as required for use. If brought on gently they produce green shoots for a long period.

CHERVIL is easily raised from seed, which for a winter supply should be sown in July and August. A sheltered position, such as the foot of a wall, suits it best, as with some good thatched hurdles for protection in case of snow, a supply may be ensured at any time, or roots may be grown in boxes and placed under glass in case of a protracted visitation of severe weather.

CORN SALAD is another very useful plant, and, like the preceding, easily raised from seed; that for winter use should be sown in August, and either thinned out or transplanted. It is quite hardy and may be grown in any ordinary soil in drills about 9 inches apart; it may be either defoliated like Spinach, or the tops may be cut off.

DANDELION is by many cultivated for winter salads; when blanched it is very mild in flavour. The same treatment as that accorded to Chicory will produce good Dandelion roots, and if the tops are blanched in the same manner, they will be generally esteemed.

RAMPION is not so generally grown as it deserves to be, as it makes an agreeable addition to winter salads. Sow in April and May in very shallow drills, as the seed is very minute; keep it moist until the plants are fit for transplanting. A shaded border suits them best, and they must be frequently watered in dry weather; the roots are either eaten like Radishes, or in mixed salads.

WATER CRESS may be successfully grown in cool shaded borders as a kitchen garden crop, but when procurable from clear running streams it is best. As many, however, have not streams in which to grow it, I may mention that if seed is sown in a cool shaded position and kept moist, good Cresses will be the result. If sown in spring the plants make rapid growth and run up to flower, but the tops should be cut off in August, so that a crop of soft, young growth may be produced by the time winter sets in. Under a north wall is the best place for this crop.

JAMES GROOM.
Gosport, Hants.

SEAKALE FROM SEED.

SEAKALE is not generally raised from seed, but from sets or pieces of the roots, and the demand for large crowns and roots fit for forcing is enormous. Both systems of culture are good, but I think it is well to raise new stock from seed occasionally. For permanent plantations I am of opinion that seedlings are preferable to plants raised from sets, as they push out great thong-like roots and make very vigorous, healthy crowns after the first year's growth. Being a maritime plant, Seakale flourishes well in the shingly soil of this locality. Last winter I procured a quantity of seed from plants growing wild in the neighbourhood of Southampton. Early in March it was sown in soil so stony that it was difficult to get enough mould to cover the seeds; the soil, too, was not manured; yet the young seedlings grew away so freely during summer, that they are now fine plants, quite equal to any I have ever seen in rich kitchen garden soils. I would therefore recommend anyone forming a permanent plantation of this useful esculent to utilise any stony portion of their garden for the purpose and plant seedling plants in preference to those raised from root cuttings. I may also remark that amongst the seedlings raised from wild plants there is considerable difference both in colour and habit, but when properly blanched all are excellent in quality. The old practice of forcing Seakale where it grows by means of fermenting stable manure and leaves has of late years fallen into disrepute; nevertheless, it is unquestionably the best mode for gardens of moderate extent, although not likely to suit the requirements of market growers. Now is

the time to form new plantations; trench the soil deeply, plant one-year-old plants in patches of three together, in rows a yard apart each way; the three plants must be sufficiently close together to allow ordinary Seakale pots to cover them, or seeds may be sown in patches at the same distance apart, and allowed to grow on without removal, i.e., if space is at disposal. When the old leaves die down naturally in November, put a covering of coal ashes over the crowns. This serves to keep slugs from eating the young growth when forcing is commenced. With the gently progressive heat, such as is maintained by a good body of forest tree leaves, put on just before Christmas, and well established crowns, finer growth is procured than by any other means, and the roots being all intact the produce is of the highest excellence. Considering the ease, too, with which Seakale is thus cultivated, it is surprising that it is not more generally grown than it is. It is always so dear as to be out of the reach of the million; therefore any mode of growing it by which it may be cheapened is well worth attention.

J. GROOM.
Gosport.

THE POTATO FUNGUS.

MR. S. WILSON, Kinmudy, read a paper the other evening on "The Theory of the Potato Disease" before the members of the North of Scotland Horticultural Association, Aberdeen, of which the following is an abridged report. Mr. J. Littlejohn, President of the Association, occupied the chair.

Mr. Wilson said it might be thought that every point in the natural history of the Potato disease should be already perfectly well known. This disease began to be prominently manifested in this country in the year 1845, and scarcely a year since that time has been free from its ravages; and yet, although it has thus been nearly forty years under the inspection of science, we are still very much in the dark regarding the real method by which it is developed in the tissues of the various parts of a Potato plant. One has only to read the scientific evidence given before the recent parliamentary committee on the Potato crop to see that the opinions of the best informed are still incoherent, and do not harmonise with each other. There are various diseases which affect various parts of the Potato plant; but the disease which is produced by the fungus called *Peronospora infestans* is more especially known as the Potato disease. After considering various existing theories of the disease, and noticing the way in which fungi behave in reference to other plants, I was led to examine perfectly fresh Potato tubers, perfectly fresh stalks, and perfectly fresh leaves in all stages of growth; and in all these parts, as well as in the plums or fruits, I have found certain small organisms which are distinctly not of the Potato tissues, but easily separable from them by dissection. I gave the name of sclerotia to these bodies, implying thereby that they are small sclerotia. A fungal sclerotium is in general a solid leathery or horny mass of excessively branching mycelium, all felted together by the fluid which exudes from it. The ergots on many of the Grasses are the most familiar examples of sclerotia; but there are many other sclerotia besides ergots. They are all the resting or hybernating states of certain fungi. They lie dormant through the winter, and germinate at various periods of the following summer and autumn, producing their appropriate fungi, the spores of which again produce the mycelia from which grow the sclerotia show specimens, and so the life circle is completed. Now, supposing that these sclerotia, which are in most cases so abundant in the tissues of the Potato plant, possess the functions of sclerotia, the circumstance will be in perfect harmony with that department of fungal life which has just been alluded to. The sclerotia, however, are parasitic; they exist in the tissues of the living plant. They are most perfectly developed in the leaves, and are situated about the middle of the leaf and over its whole extent. Seen by reflected light they are quite white; but they are most conspicuous by transmitted light, and then, as they are opaque, they appear nearly black. In the

leaves they are about the two-thousandth of an inch in diameter, and are of various rounded forms, like long Potatoes, or like round Potatoes. They consist of a mass of variously-shaped granules held together by some kind of gum. Sometimes a delicate bit of mycelium may be seen in them, but in general they consist merely of agglutinated granules. In the stalks of the Potato they are of much larger size, but are of a looser texture and less definite form. In the tubers again they are of many different sizes. Some of them are rounded and compact, some of them are irregular in shape and very loosely aggregated together, and in some cases little clusters of these opaque granules lie about among the starch cells, with little or no mutual cohesion. They are situated in the greatest numbers round the eyes and round the insertion of the stalk on which the tuber is attached, and from which it grows. Now, I make no demand upon your faith in regard to the presence of the sclerotia; they are startlingly visible in the preparations put before you, and have been admitted by all who have seen them. But I must ask you on this occasion to believe that the granular plasm from which these bodies are developed first enters the Potato by the young tubers from the mycelium of

RESTING SPORES IN THE SOIL,

just in the same way as the plasm of the club-root fungus enters the Turnip bulb. We have thus got tubers infested with fungal sclerotia and looser masses of the same granular particles. These are all visible in the tubers and must have entered in some way or other. We see them in perfectly fresh tubers, but in such tubers we see nothing of De Bary's hibernating mycelium; nevertheless, these granular bodies are exactly equivalent to such mycelium. But it does not at all follow because these bodies are present in the tubers that they should germinate at any time and produce disease; sclerotia germinate only at certain periods of the year, and so long as these bodies remain quiescent in the Potato tubers they do no harm any more than the crystals found in the tissues of many other plants. Well, the infested tuber is cut into sets and planted, and as the haulm and leaves which result from germination and growth are mere developments of the tissues of the tuber, the granular fungal matter in the seed tuber is carried up and distributed through the stems and leaves of the plant; and in these accordingly, at all periods of the season, it is found developed into the sclerotia. If those who follow De Bary contend that the hibernating mycelium is carried up with the growing shoots, they can have no difficulty in admitting the translocation of the sclerotic granules. We have only to wait now and see what will become of the little particles lying within the leaves and stalks. A leaf may sometimes be found containing few or no organisms, but in most leaves they exist in great numbers. And certainly it is not to be denied that if they germinate and give rise to the mycelium, which runs through the leaves and produces the conidiospores of the *Peronospora*, they are exactly in the position which they should occupy. The upper side of the leaf consists of closely perched palisade cells, while the lower side consists of loose round cells. The sclerotia become developed at the base of the palisade cells. The autumn is now approaching, and you go out some dewy morning and observe a few

BLACK SPOTS ON YOUR POTATO LEAVES.

You take one of these leaves for inspection. You discover very soon that nothing is to be made of the tissue, which is already black; everything is too opaque. But round the black spot you find that there is a peculiar green border, as if that part of the leaf had been squeezed. Tearing out a part of this border, you find that it is permeated in all directions with very irregular lines of mycelium, and that these lines are here and there sending extensions out at the stomata of the lower side of the leaf. You follow these extensions, and you find that they are the stalks which bear the conidia of *Peronospora infestans*. This part is easy and completely satisfactory. But you want to find

where the mycelium inside the leaf takes its rise. Has an oospore come flying through the air and entered the leaf, or has one or more of those little sclerotia, already inside, simply germinated? I do not wish to make you more certain than I am myself; this question is excessively difficult to answer. The leaf mycelium is of great transparency, and although it gradually attains a considerable diameter and is easily seen, yet at its origin it is of extreme fineness, and unless separated from the tissue of the leaf, cannot be seen at all; while the operation of separating it from the tissue breaks away the threads from their origin, whatever that may be. Nevertheless in the course of the last three years I have come upon what I regard as sufficient evidence that the mycelium in the leaf and other parts results from the germination of the sclerotia. The granules at the boundaries of these bodies become detached, and throw out lines, which at first are only to be seen with a high power in the most favourable light. Of course you see at once that by this theory every leaf in a field contains the materials producing its own disease. In every infested leaf there are hundreds of more sclerotia than would destroy it. No flying zoospores are here required. The enemy has been lodged inside all the season. And the philosophy of its germination is, that the parasite may be brought to its perfect fruit-bearing condition. In the early period of the disease only one or two spots may arise on a leaf, showing that only one or two centres have germinated; but later on the sclerotia germinate in all directions over a leaf, and produce little black spots, which gradually run into each other. It is a mistake to say that the disease does not arise till the leaves are turning yellow; the

GROWTH OF THE FUNGUS

is most rapid in leaves perfectly green. By this theory you see that no journey of mycelium down the stalks or up the stalks is necessary for the destruction of the stalks. Anyone who has closely observed must have seen that a part of the stalk is often diseased while the parts above and below are perfectly fresh and green. This cannot be explained by itinerant mycelium. But it is easily explained on this theory: the sclerotia have germinated where the disease appears, and have not yet germinated above and below. If you make a thin slice of a stalk and place it during night in moist air, the sclerotic masses will germinate, and in the morning you will have a forest of *Peronospora*, the plants all standing with their fruits on the branches. In the same way with the tubers, a thin slice laid upon a slide will throw up a thicket of conidia-bearers, with the denser growths arising near where the sclerotia are situated. The Plums are also liable to be infested with these parasitic granules. They appear first, of course, in the ovary around the seeds and scattered through the walls. So that in autumn you have only to place a few Plums in moist air to get a crop of *Peronospora* bursting through the surface, or a thin slice may be placed on a slide and the fungus will in a few hours be in full fruit. Thus, then, you have a brief outline of the theory or course which the parasite pursues while it is within the tissues of the host plant. The germinal granules are absorbed by the underground stalks, and thus enter the tubers; and on the germination and expansion of the tissues of the tubers, they are carried out with the expanding haulms and foliage. In these they lie, possibly undergoing some secret process of preparation or gestation, till the proper time for germination, when they start into activity, and by the assistance of the juices of the host plant used as food, the purpose of their parasitic life is accomplished in the production of their conidial fruit and seed. But you will naturally ask, what becomes of the fruit and seed? Other theories find a use for the conidia in the spread of the current disease. Here the whole of the current disease has one source, namely, the germination of the granules within the tissues, so that the conidia are no more required for the current crop of *Peronospora* than are the seeds shaken out of a crop of wheat for the current

crop of wheat. It would take too much time to go into that part of the life of the fungus which is passed outside of the Potato; therefore I may say, shortly, that when the conidia fall to the ground they germinate in various ways and give rise to the resting spores or oospores. These grow at any time through the winter, and produce a strong, jointed, brown mycelium. And it is from the granular plasm carried through the soil by this mycelium that the elements of the fungus are again brought into contact with young tubers of the Potato. It is easy to prove that the conidia give rise to the resting spores. If you take half a dozen Potato leaves on which the disease has begun, and place them against the inside of a bowl, and then invert the bowl on a plate, and pour in a little water to keep the air moist, in the course of six weeks or two months all the conidia will have disappeared, while the leaves which showed no oospores at the beginning will be found swarming with them in great beauty. Thus the life-circle of the *Peronospora infestans* becomes completed. It could not become completed unless the fungus became a parasite. And I will venture to add that the theory thus imperfectly submitted to you affords a more satisfactory explanation of the phenomena of the Potato disease than any other which has been proposed.

It had been asked why the disease generally first appeared in the leaf. It seemed to be a characteristic of the fungus that it germinated sooner in the leaves owing to their constitution and the constitution of the fungus particles. The theory he had advanced regarding the spread of the disease explained why some of the new varieties of Potatoes resisted the disease better than the other theories he had referred to, the explanation being that year after year the Potatoes became more charged with sclerotia. When the tubers got a certain amount of this material into their tissues one year, it was carried on in the young tubers and an addition was made from the soil at the same time, so that by and by, in the course of years, all the Potatoes became charged with the germs of the fungus, and would not grow. It appeared that there was something in the constitution of the Champion variety of Potato which prevented the germination of the disease. Its roots penetrated deeper than some other varieties, and it was a late Potato, and did not come to maturity at the period at which the disease was most liable to appear. It did not ripen until the season had become colder and more unfavourable for the germination of these bodies. That seemed to be partly an explanation of the way in which the Champion had more or less resisted the disease.

Mr. Thomas Jamieson said since Mr. Wilson had shown clearly how the disease was propagated, one practical result of the paper should be to teach cultivators that haulm and diseased tubers should not be left on the ground.

Mr. Robson asked if Mr. Wilson suggested that by planting diseased tubers they would specially propagate the disease.

Mr. Wilson said the meaning of it was simply that nearly all the tubers at the present day contain matter from which the fungus is produced, so that they found it impossible to plant undiseased Potatoes, though the disease was not developed. He did not find that by raising Potatoes from seedlings they would escape the disease. Speaking of the Janson system, he did not believe it was a proof against disease. If they earthed up Potatoes and put them further from the light and air, it was perfectly evident that no seed would germinate—it could not germinate except under proper atmospheric conditions. The Janson system might be a method of diminishing the disease, although his theory might not be correct. The Potatoes were put into the soil under new conditions, and the question was, "Were these new conditions the cause which retarded the germination of the fungus or not." He thought that might be the real explanation.

Grubs in Celery leaves.—The grubs of the Celery fly seem to be very abundant in some places

this autumn. A correspondent of the *Times* a few days ago describes, under the heading of "A New Disease," the way in which the Celery near Sittingbourne is attacked, and, from the description, there can be no doubt that the leaves are infested by this well-known insect; so one might have been spared the shock which the idea of a new pest in our gardens gave one had the writer consulted some practical gardener before announcing his discovery in the leading journal. Anyone who has their Celery attacked by these grubs cannot do better than at once gather the infested leaves and burn them, or bury them so deep that the grubs will be killed, which, if allowed to come to maturity, will bury themselves in the ground and become chrysalides, from which the flies will emerge next spring.—G. S. S.

The Champion Potato.—In the Fen districts this popular Potato is losing caste, as it no longer produces the heavy crops which it once did. Already growers are calling out for another good, sound Potato to take its place; even those who have their seed from Scotland do not have the return they formerly had. I noticed many fields during the last summer where the tops seemed tinted with red as if scorched, checking the growth and spoiling the yield. The Magnum Bonums are fairly good this year.—E.

Transplanting late Broccoli.—It sometimes happens that in a closely cropped garden, from which much is expected, room cannot be found for all the late Broccoli in the position which it is intended they shall finally occupy. For several years past, to meet this case, I have planted them at the right season wherever room could be found, and shifted them with balls afterwards. In October I laid the plants with their heads to the north, and buried up the stems as much as possible without injury to the leaves.—E. H.

Exhibition Brussels Sprouts.—This appears to be an early variety, and one which grows to a medium height. Its stems are completely covered with fine large Sprouts from top to bottom. Growers of Sprouts for early crops and for exhibition should certainly give this variety a trial. A few days ago I saw a fine break of it at Potter's Park, Ottershaw, where it is considered to be the earliest and most prolific variety grown. Compared with some of the leading varieties, it is greatly in advance of them as regards earliness; the tops of the plants were perfectly level, not one seeming to grow higher than another. The Sprouts of this variety were ready to pick several weeks before the earliest of the other kinds sown at the same time.—W. C.

Spring Cabbages.—Owners of small gardens much overhung with fruit trees should not attempt to raise their own plants, but should buy them from some open, well-exposed piece of ground. They will thus be well hardened, and will withstand the winter frosts better than plants which have been drawn up in the shade. Some of the best varieties for a small garden are All Heart, one of the best and most compact-growing varieties, coming into use early in spring; Early Heartwell Marrow, one of the very earliest, the heads being compact and firm, and nearly all fit for use, as they produce but few outside leaves; Cocoa-nut, a fine second early variety; Enfield Market, one of the best for the main crop, coming into use later than the earlier varieties; and Carter's Early, the last a distinct sort and excellent in flavour.—WM. CHRISTISON.

Gas lime and Tomatoes.—We have been rather fortunate this season in escaping the Tomato disease, so prevalent in some places. Generally we lose more than half of our crop from the disease, and I attribute its absence this year to our having given the border a coating of gas lime. The latter laid on the ground some time before it was trenched. The Tomatoes were planted early in spring against the wall, not a drop of manure water, and very little clear water, being given them during the summer. The result is a very fine crop without a trace of disease. On the other

hand, a few plants were planted at the back of some Cucumber frames, beyond the influence of the gas lime, but where they always had plenty of moisture at the roots. These have all been very badly attacked by the disease. I admit that Tomatoes will grow faster and produce larger fruit when kept moist at the roots; but I find from experience that they are more liable to disease.—GEO. CARPENTER, *Rgdens, Walton-on-Thames.*

ORCHIDS.

Cymbidium Mastersi.—This chaste East Indian Orchid is beautiful at any season, but never more so than when it flowers in October and November, a condition in which it now is in Mr. Bull's nursery, where there are some fine specimens of it, each with two or more spikes of flowers. The ivory-white blossoms of this *Cymbidium* and its elegant grassy foliage render it an indispensable plant in every collection of Orchids.

Trichosma suavis is more remarkable for delicious fragrance than for the showiness of its blossoms, though these are attractive. They are dull white, heavily striped with deep red and blotched with lemon-yellow; they are produced in few-flowered racemes and their odour is very sweet. It is an Assamese Orchid with evergreen foliage, and habitually flowers in the dull winter months; hence its value. It is in flower in an intermediate house in Mr. W. Bull's nursery.

Odontoglossum Insleayi splendens.—Such is the name given to the most beautiful variety of this *Odontoglossum* we have ever seen, and which is now in full beauty in the Victoria Nurseries, Upper Holloway. The flowers are as large as *O. grande*; the sepals and petals are beautifully barred with chocolate brown on a pale ground, but the most remarkable part of the flower is the labellum, which measures over 1 inch across, and is of the richest and clearest chrome-yellow, set off by numerous heavy spots run together so as to form a continuous band of bright cinnamon-red. It is by far the finest *Odontoglossum* of its stamp with which we are acquainted. The spike is large, and carries several flowers, and the plant is a very fine specimen.

Odontoglossum baphicanthum.—An uncommonly fine spike, the best we have seen of this delicately beautiful Orchid, has been sent to us by Mr. E. Harvey, Riversdale Road, Aigburth. It is a branched spike some 18 inches long and carries no fewer than fifty blossoms. The flowers are similar to those of *O. crispum*; the petals and sepals are narrow, wavy edged, and in the specimen sent of a soft citron-yellow, a colour that shows beautifully by candlelight. The few irregular blotches of cinnamon-red upon the flowers add to their attractiveness. This is as yet one of the rarest of a numerous set of so-called natural hybrids, and well worth the high price which it fetches. Mr. Harvey likewise sends a flower of a richly coloured form of *Cattleya aurea*, or more correctly *C. Dowiana*. It is not larger than usual, neither are the sepals and petals out of the ordinary run, but the broad shallow lip is exquisitely pencilled and netted with gold upon a ground of the intensest amethyst, a colour which also forms a broad band round the margin. It is truly a gorgeous Orchid.

Odontoglossum vexillarium rubellum.—Now that this variety has been under observation for several seasons there cannot possibly be a question as to its distinctness, and certainly none as to its extreme beauty. In Mr. W. Bull's nursery, Chelsea, there is a houseful of plants of the typical *O. vexillarium*, not one of which among the hundreds there are in bloom, but this rubellum or autumn-blooming variety has just commenced to throw up its flower-spikes. This late-flowering character is also associated with a different habit of growth, as well as of size, colour, and shape of the flowers. It has rounder and less elongated pseudo-bulbs and broader foliage. The flowers are below the average size of those of the type; their colour is deeper and richer, being of a

deep, yet bright rose-pink; the labellum is, moreover, distinctly marked by three crimson lines on a lemon-yellow ground—a character quite absent or not so pronounced in the ordinary forms. It would be a peer among the numerous forms of *O. vexillarium* if it flowered contemporaneously, but since it never blooms till late in autumn and early winter its value is doubly enhanced, for there are comparatively few good Orchids that habitually flower at these seasons. The varietal name applied to this plant is somewhat inappropriate, seeing that some of the early-flowering varieties are quite as deep in colour. A more appropriate, and certainly more expressive, name would be *serotinum*, or *tardiflorum*, or *autumnale*.

Cattleya amanda.—We fortunately found this extremely rare Orchid in flower the other day at Mr. Bull's nursery, where it has been in that condition for some time past. It is different from all other cultivated *Cattleyas*, and indeed one of the loveliest of the race. Its growth is slender, resembling to some extent that of *C. intermedia*. The flowers measure some 4 inches across; the sepals and petals are of thick texture, and of a delicate pink; the labellum is proportionately large, of rounded contour with a pink ground, on which are beautiful net-like tracings of crimson, something like those on the lip of *C. maxima*. This *Cattleya* is, we believe, almost unique in cultivation. It is known also as *C. Rothschildiana*. Another rare and beautiful *Cattleya* in flower at Mr. Bull's is an unnamed species in the way of but quite distinct from *C. maxima*, the flower being of a deeper hue altogether, though the labellum exhibits the delicate reticulations peculiar to that species. The rare *Lælia elegans prasiata* is likewise in bloom in the same nursery.

Odontoglossum lepidum is the name recently applied by Professor Reichenbach to an extremely pretty Orchid that has flowered in Messrs. Shuttleworth & Carder's nursery, Park Road, Clapham. It is, doubtless, not a true species, but one of the numerous natural hybrids that have been imported of late years among *O. crispum*, *Pescatorei*, and others. The features of *O. lepidum* bear the impress of *O. Pescatorei* and *O. tripudians*, and probably these are the parent from which it sprang. The bulb is that of *O. Pescatorei*; it produces numerous branched spikes which, in the specimen under notice, were about a foot in height. The sepals and petals were of medium breadth, and the labellum was similar to that of *O. tripudians*, and was white, heavily blotched with purple. The colour of the flower when first expanded was of a beautiful primrose-yellow, blotched with cinnamon-red, but this colour paled by age to almost a pure white. The swarm of flowers and the peculiar manner in which they change their colour are the most remarkable features in this Orchid. Another interesting *Odontoglossum* in flower in this nursery was the new and rare *O. Sanderianum*, a pretty species in the way of *Lindleyanum*, but much more attractive, inasmuch as the labellum is pure white.

Oncidium varicosum Rogersi.—Of the multitude of *Oncidium*s there are none that possess such a combination of bright colouring and elegant growth as does the *Rogersi* variety of *Oncidium varicosum* which is now in its full flowering season. A finely developed spike of this Orchid can only be compared with a swarm of golden butterflies—so numerous are they, so elegant their form, and so bright their colour. The difference between the ordinary form of *Oncidium varicosum* and this lovely variety is indeed a wide one; the difference lies principally in the size of the flowers and the breadth of the spike. In the type the labellum of the flower measures under an inch across; whereas in the true *Rogersi* it is never under, and sometimes over, 2 inches across. The name *Rogersi* is often applied to fine forms of the species that do not really conform to the true characters of the original *Rogersi*, such as the illustration in Warner's "Select Orchids" represents. As an early winter flowering Orchid it is unsurpassed, but as the true form is comparatively scarce, and consequently high-priced, a good form of *O. varicosum* is its best substitute. The true

Rogersi may now be seen in flower in Mr. B. S. Williams' nursery, where one of the Orchid houses is lit up by a number of specimens of it as well as of the type whose light airy spikes hang gracefully on all sides. Among other Oncidiums in bloom in the same nursery is a very fine form of *O. macranthum* (one of the grandest of Orchids), and *O. tigrinum* or *Barkeri* with its showy primrose-scented flowers.

Phalænopsis Lowi.—This is one of the prettiest of all the Moth Orchids in cultivation, but one that is seldom met with, especially in bloom. It is of small growth, bearing flower-spikes a foot or so in length, and usually produces from eight to a dozen flowers on each. The flowers are about 2 inches across and of a beautiful soft rosy lilac tint. The peculiar form of the column of the flower so much resembles the beak of a bird that it is popularly called the Beaked Phalænopsis. It has the singular habit of losing its foliage during the resting season, which, in Moulmein, its native country, is during the hot and dry season; therefore, it is often cast aside as dead when in a leafless state. The roots, however, are sufficiently large and fleshy to store up sufficient vitality for the production of new leaves. It usually becomes denuded of leaves in this country during winter. The leaves are from 2 inches to 4 inches long and about 1 inch in width, and are of a dark green, speckled with purple. It succeeds best when grown on a suspended block in the East Indian house. Several flowering plants of this Orchid may now be seen in Mr. B. S. Williams' nursery, Upper Holloway.

NOTES OF THE WEEK.

Chrysanthemums.—The annual show of these at the Inner Temple Gardens was opened to the public on Thursday last, and will continue for a few weeks. As the present promises to be an exceptionally fine Chrysanthemum season, this and other shows of this fine autumnal flower may be expected to be more than usually attractive.

Gardeners' Royal Benevolent Institution.—We have been requested to announce that the simultaneous collections in aid of the Pension Augmentation Fund for this year will close on November 30. Our readers will be pleased to know that the amount collected to this date is £434 16s. 10d., as against £331 5s. 7d. this day last year.

New plant label.—We have received from Messrs. Wolff & Son, 55, Great Queen Street, W.C., samples of a new wooden label which they have recently invented. The invention consists of a chemically prepared pencil, which will write only on a chemically prepared deal label. The latter, after being slightly moistened with water on its prepared side, is written upon with the pencil, the result being an indelible impression caused by the union of the two chemicals in the wood and pencil. We have, of course, no experience of the value of labels thus treated, but shall have them practically tested.

The Herefordshire Pomona.—We have received the sixth part of this noble work. It contains coloured illustrations of forty-two culinary and dessert Apples, seven cider sorts, and thirty-nine sorts of Pears, sections and descriptions of the varieties accompanying the letterpress. The concluding part of the work—part vii.—will not be issued until the close of next year, 1884. The Pomological Society of France will hold their Congress and Exhibition of Apples and Pears, at Rouen, in the autumn of 1884, when it is intended that the so-called "Norman" Apples of Herefordshire shall be placed on the tables with the real fruits of Normandy. The publication of part vii. will be delayed to receive the report on that exhibition by the committee who will attend the Congress on behalf of the Woolhope Club.

HUMBOLDT has estimated 44,000 lbs. of Bananas can be produced on the soil that would be required for 1000 lbs. of Potatoes, and that the same area

that would be required to raise Wheat enough for one man would produce enough Bananas to feed twenty-five men.

RECREATION GROUNDS.

THE Metropolitan Public Garden and Playground Association, the object of which is the provision of "breathing and resting-places for the old and playgrounds for the young in the midst of densely-populated localities in London," has just completed the first year of its existence. The chairman of the Association in his report of the work which it has accomplished, or assisted others to do, mentions the planting of twenty Plane trees in the Mile End Road, at a cost of £40; the erection of a gymnasium in Wild Street, Drury Lane, Board School, at an expense of £300; successful opposition to the inclosure by the Lords of the Manor (Ecclesiastical Commissioners) of a common of over 22 acres in extent, called "Little Scrubbs," Hammersmith; and the successful opposition to the proposal of the London and North-Western Railway Company to acquire the disused St. James's burial ground, Hampstead Road, of which they were only conceded a small corner, the remainder being transferred to the St. Pancras Vestry, to be laid out by them as a public garden. Other achievements were the utilisation as a public garden of the disused burial ground of St. Andrew, Holborn, at a cost of £1200; the opening to the public of part of the private inclosure in Regent's Park; the placing of ornamental seats in St. Margaret's Churchyard, Westminster; and the erection of gymnastic apparatus in the playground attached to St. John's Church, Waterloo Road. The Association gave £100 to the Kyrle Society for laying out St. George's, Bloomsbury, burial ground. Among the objects in which the Association is now actively interested are, opening the disused burial-ground of St. Bartholomew's Church, Bethnal Green, as a public garden; obtaining land for a public garden in Paddington; throwing open to the public Golden Square, Soho; the opening of the ground surrounding St. Pancras Church, Euston Square, as a public garden; the opening of Benjamin Street disused burial ground, Farringdon Road; the opening as a public garden of the land surrounding St. Philip's Church, Stepney; the conversion of the disused burial ground adjacent to Whitefield Congregational Chapel, Tottenham Court Road, into a public garden; the utilisation of the disused burial grounds of St. Luke's, Chelsea, St. Paul's, Deptford, and St. Giles, Camberwell, in a similar way; the acquisition of a public park of 50 acres for South-east London at Pepys's Hill, New Cross; and the proposed formation of public parks at Paddington and Kilburn.

Bad Potatoes.—Mr. Wildsmith, I see, declines to publish a list of these. He is a cultivator and an exhibitor of Potatoes, and must know something about their relative table quality. Some little variety of tastes exists in regard to Potatoes. Dining a few days since with a friend, there was served up dishes of some three or four different varieties. One sort was grandly mealy and dry, another waxy and close; my friend ate the waxy ones with avidity, and declared he detested a mealy Potato, and he is by no means alone in this preference. And then as to opinions on the merits of Potatoes, the committee of the International Potato Show examined Snowdrop on two separate occasions; had it cooked on the occasion of the second visit to Chiswick, and declared it to be not distinguishable from Snowflake. This committee was represented by some of the most reliable authorities on Potatoes. The fruit committee of the Royal Horticultural Society met at Chiswick three or four days afterwards, had Snowdrop cooked, and declared it to be distinct from Snowflake, and awarded it a first-class certificate of merit. In the face of these facts who will venture to dogmatise about the merits of Potatoes? I still hope Mr. Wildsmith will publish his "index expurgatorius."—OBSERVER.

OBITUARY.

GEORGE BEECH.

WE have to record the death of Mr. Beech, many years gardener at Castle Ashby. One who knew him well writes to us as follows concerning him: "In him gardening has lost one of its staunchest supporters and most practical expounders of a particular branch, so long and persistently advocated in THE GARDEN. Those who visited the grounds at Castle Ashby may possibly have had their attention directed to the more formal style of flower work as shown in the elaborate Italian gardens near the mansion filled with bedding plants, or to the still stricter adherence to pattern pure and simple in the more recently made beds in front of the new conservatory filled, when I last saw them, with different coloured stones. All these were well cared for, and gave evidence of judicious arrangements of colour. But for these Mr. Beech cared but little; wild gardening was that in which he delighted, and his love of this led him away from the immediate neighbourhood of the Castle to outlying lawns, glades, and shady nooks where he could best illustrate its beauties. Many such spots bear witness to the care bestowed on them, and the different situations selected were, as a rule, so well adapted for the purpose as to yield, in a very short time after being planted, a satisfactory return for the time and care bestowed on them. He was quick to take up the idea of scattering here and there little clumps of bulbs that would in due season peep above the Grass and add to it, by their beauty, an additional charm. During the twenty-two years of his sojourn at Castle Ashby, the gardens underwent a complete transformation for the better. In memory, therefore, of one who made many a 'bare place blossom as the Rose,' these few lines are penned by one who learned some useful lessons under his tuition."

MR. J. G. BAKER, of the Kew Herbarium, the president of the Yorkshire Naturalists' Union, who has already written florae of North Yorkshire and of Northumberland and Durham, is intending to print this winter a flora of the English lake district, on which he has been long engaged, and will be glad of any contributions towards it.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received. In all cases where the numbers of the specimens sent are not mentioned, it must be inferred that the fruits to which they were attached are either local sorts, and therefore unknown at Chiswick, or that they are not in a fit condition for naming.

Names of fruits.—*H. L. G.*—1, Hollanbury; others next week. —*S. K.*—Next week. —*T. Hart.*—1, Cockle Pippin; 2, Warner's King (poor sample); 3, Cellini; 4, Dowton Pippin. —*S. B. (Devon).*—1, Doyenne Boussoch; 2, Louise Bonne; 3, Beurre Rance. —*Tion.*—1, Ribston Pippin; 2, Cox's Orange Pippin; 3, Sussex Duck's Bill. —*D. Halford.*—None of the fruits you send are in a fit condition for naming. —*A. B. C.*—1, nearest to Hawthornden; probably local; 2, Royal Russet; 3, Scarlet Nonpareil.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—*A. R. Hunt.*—1, *Rodriguezia se cunda*; 2 and 3 are apparently species of *Epidendrum*, but the species cannot be determined without fuller material. —*J. Smith.*—*A. Ilex Aquifolium serratifolium*; *B. Juniperus virginiana pendula*; *C. Thuja gigantea*; *D. Cupressus torulosa*; *E. Pinus Strobus*; *F. Hibiscus syriacus.* —*Mrs. Cullingford.*—*Artemisia tanacetifolia.* —*J. G. K.*—1, *Adiantum æthiopicum*; 3, *Impatiens glandulifera*; 4, *Chrysanthemum ægetum*. Please send better specimens of No. 2. —*J. J.*—1, *Ianthia bugillifolia*; 2, *Pityrosporum acerinum*; 3, species of *Paterium.* —*A. Elder.*—1, *Sedum oppositifolium*; 2, apparently *Geranium sanguineum*, but is evidently not in character; 3, *G. nodosum.* —*H. Davis.*—1, *Picea cephalonica*; 2, *Ligustrum chinense*; 3, *Cotoneaster Simonsi*; 4, *Eupatorium Fraseri.* —*C. Cundy.*—*Nephrodium molle cristatum.* —*J. H. W. T.*—*Helianthus decapetalus.* —*J. W. K.*—*Akebia quinata.* —*A. C.*—*Tritonia aurea* (another name for it is *Crococymia aurea*). —*W. F.*—1, *Miltonia candida*; 2, *Begonia argyrostigma*; 3, *Eranthemum pulchellum*; 4, *Tydeea pardina* (variety). —*A. P. Hants.*—*Ceanothus azureus*, *Gloire de Versailles.* —*N. W. Nelson.*—1, cannot name without flowers; 2, *Begonia metellica*; 3, *B. argyrostigma.* —*H. Tull.*—1 and 2, send fronds with spores; 3, *Doodia dives*; 4, *Asclepias curassavica.* —*G. Hodgson.*—1, *Platyloma rotundifolium*; 2, *Pellaea hastata*; 3, *Polypodium Biliardieri*; 4, *Pteris quadriaurita*; 5, *Pteris longifolia.*

No. 624. SATURDAY, Nov. 3, 1893. Vol XXIV.

This is an Art

Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—Shakespeare.

OCTOBER IN THE ALPINE GARDEN.

A RIGHT good gardener who came to see us one day in the summer said, "What a pleasure it is to see alpine plants grown like this in good breadths!" and so indeed it is. In this little garden we grow only a rigid selection of dwarf plants and shrubs of true alpine character. It is a clearing in heathy land, nearly level, and has a few large stones cropping up here and there; the soil is the natural peaty sand with a little road scrapings added; no other manure. The plants are arranged in variously shaped straggling patches and masses, many of the closer-growing serving as carpets to choice dwarf bulbs. Now, after having been planted for nearly two years, some of the patches have been re-worked, altered, or renewed; experience has been gained and fresh combinations made, the past year having shown how beautiful and enjoyable these little plants are when grown in this way. Even in the dearest time of winter, when there are hardly any flowers, they are interesting and beautiful from their winter colouring, for, whereas everything as yet is still green, later there will be hardly any green, but every kind of rich bronze colour, inclining to gold, crimson, olive, and purple.

But though we are in the very last days of October, the flower season is by no means past. The white *Menziesia* still makes a goodly show of its lovely bells. I wonder why the white variety flowers so much more freely than the type or other purple kinds. *Potentilla dubia* is well furnished with its clear yellow blooms. *Anthemis Aizoon* has a fair sprinkling. A bit of perfect blue may be seen here and there on a large patch of *Gentianella*, and *Gentiana verna* is not without a flower or two. A group of *Crocus serotinus* and one of *C. longiflorus* carpeted with *Hypericum reptans* seems like the linking together of summer and winter flowers. The seed-heads of *Dryas octopetala*, like little balls of pale grey eider-down, make a distinct effect in the garden. Mossy *Saxifrages* are now in their best green dress. I find it well to make a very careful selection; some of the best are *S. densa* and *S. muscoides atropurpurea*. They never seem to go into ragged patches of black untidiness in the middle, as so many do. *S. muscoides* in this soil is an offender in this way, but the red-flowered variety is not. Of the *Houseleeks* *S. Lagereri* is beautiful in a mass, and perhaps the most useful of the *Cobwebs*, and the little *S. tomentosum* makes a very pretty patch. *Arenaria balearica* is now in perfect greenery; I think with pleasure how towards the end of February the wonderful blue of *Scilla taurica* will burst up through it. Some square yards of *Myosotis rupicola* promise well for spring. *Campanula pulla*, also in a wide stretch of some yards, after a little easing of its over-fulness and top-dressing, is making its new growth in little rosettes of brilliant green. The new growth of *Andromeda tetragona* is of brightest golden green, contrasting finely with the dark foliage of *Iberis* and *Arctostaphylos Uva-ursi*. A patch of that neat little *Spurge*, *Euphorbia capi-*

tata, not much over an inch high, is pretty with its compact bluish foliage. G. J.

Surrey.

NIAGARA AND ITS WILD FLOWERS.

A LOVELY afternoon in the Indian summer! We are sitting near the top of the hill close above the great Horse-shoe Fall at Niagara, and the wealth and loveliness of the wild flowers, forming one of Nature's most exquisite wild gardens, lying stretched out at our feet, makes us think how many of our gardening friends—yourself more than most—would find a deep enjoyment could they be here, and see what we are now seeing, and what I will try to describe, faint and feeble though any description must necessarily be in comparison with the glorious reality.

The great Cataract itself is in unusual magnificence; the early autumn rains have brought a large body of water into the lake, and the torrent of liquid emerald pouring over the jagged rocks is deep and massive, and its thunder has an unwonted tone of grandeur and solemnity. Far away in the distance lie the quiet waters of the great lake, placid and unstirred as yet, and the white sail of a far-off boat is seen as it gets an occasional gleam of sun while passing from one shore of the lake to the other. Nearer at hand, for the space of a mile or so before reaching their doom, the waters, placid no longer, foam and swirl, hurrying madly along. Every dancing wave crest is turned into molten silver in the rays of the westering sun; every rock lying in the channel seizes a passing wave and whirls it upward in masses of glittering spray, till at last, when on the brink of the great chasm, there comes to the rushing waters a sudden gathering up of irresistible strength, and they, whose only object hitherto seems to have been to dash themselves past all obstacles with reckless and ever-increasing speed, become all at once possessed with a sense of their awful power as they suddenly, swiftly, silently, drop over the perpendicular rock into the fearsome turmoil below, great green jewels, wide and deep, in a setting of frosted silver.

And this solemn magnificence and grandeur has the exquisite contrast of so lovely and peaceful a foreground! The hillside down which we are looking, and which stretches to the edge of the water, is aglow with vivid colour—huge golden masses of *Solidago* of many kinds, great clumps many yards wide of big, deep purple, primrose-eyed *Asters* alternate with those of a pale shimmering lilac, and with others small flowered but profuse in bloom, while throughout the undergrowth is a bright blue gleam, as though some spangles had fallen from the sky—the gift of a flower of which the name is unknown to me. Then from out the grass shine everywhere small bright flowers of many colours, among them a delicate *Gentian*-like bloom bravely lifting its head up on slender stalk. And there are so many lovely flowers besides—a bush covered with apricot-coloured blossoms in shape like a *Mimulus*, a glowing mass of red *Lythrum*, and a delicately lovely *Aster*, in which the lilac is replaced by a sheeny grey-pink. The feathery blooms of *Spiræa* and some white *Daisies* shine here and there among their more richly-coloured sisters. It is indeed a garden unapproachable in its own beauty, and with its tender loveliness made more impressive by its wonderful surroundings.

Just where we are sitting we have taken advantage of masses of tall shrubs and the stems of

forest trees, to shut out from view all buildings and roads, and have left ourselves with the Falls and the Nature-planted garden as they might have been seen long, long ago. There is hardly a breath of wind; the great misty columns of spray rise high into the sky from the base of the falling water, and it is only at rare intervals that a wandering spirit of air takes one of the lighter spray clouds and bends it over towards us, when its soft and dew-like mist is shed over the thirsty flowers, making their vivid colours glow with intenser beauty in the rays of the setting sun. As the gentle breeze passes by they bow their heads in gratitude for the welcome moisture, and a rustling murmur runs from top to bottom of the hill as they raise themselves up again in thankful praise.

And ever the voices of the waters are circling around us, now seeming to raise a threatening warning of their irresistible power, now chanting a solemn death song as they are hurled over the precipice to be broken to the very last drop into foam, and spray, and mist on the rocks below, and ever through the voices, now loud, now low, with unceasing iteration, seems to vibrate a note of praise to the great Creator of all for the use He has made of them in the formation of one of the wonderful sights He has given on earth for our enjoyment.

And now, with sudden dip, the sun is lost behind the hill; the air strikes chill, and the flowers begin folding themselves away to sleep, but the beauty of the scene entrances us yet. In front of the now dark and sunless foreground sweeps the broad horse-shoe of foaming and struggling water; the great emerald is now changed into a myriad-tinted opal; the wavelets that leap into the air all along the whirling rapids are dyed with a flush of pink; while from far down in the gloom and depths of the Great Fall a rainbow rises into the misty mass of spray. Above, around, and through the spray gleam the floating clouds in the evening sky—now blushing o'er with rosy flame, now slowly changing to a lustrous gold, till all colour slowly fading gleam by gleam away, the grey hush of the coming night falls over the wondrous scene.

As we rise to begin our way down the hill, our first step seems to bring us back from a world of dreams, and we know afterwards that the same thought was in both our minds and the same words were ringing in both our ears—those words in which God gives us a foreshadowing of His eternal mysteries: "Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him." H. STUART WORTLEY (Colonel).

LIFE UNDERGROUND.

DURING the latter days of September is the proper time to examine and overhaul our bulb treasures, which lie buried beneath the earth, with a simple label to indicate the resting places of the lovely sleepers; and such an overhaul is full of interest to the genuine lover of flowers who not merely cares for bright and beautiful results, but takes an intelligent interest in the processes of Nature. In the course of time bulbs get overcrowded, and exhaust the ground on which they have fed; it is well, therefore, every two or three years to take them up, sort, divide, and re-plant them in fresh soil, and sometimes in new positions. Will those who are interested in this process follow me round the garden and share my discoveries? We will begin at the lower rockery where hundreds of *Squills*, *Crocuses*, *Daffodils*, *Irises*, and *Anemones* come forth year by year, arrayed in that beauty which

surpasses even the array "of Solomon in all his glory," to greet the early spring. Close by the wall of this stone we will drive the fork down quite perpendicularly that we stab no living heart which faintly beats below for a full foot, and then upheave a good cubic foot of earth. Look what a tangle of white thread-like rootlets interlaces every nodule of soil! Gently break the lump and what a crowded tenement it discloses! Never was there such a "rookery," and yet (note how far flowers are better in their behaviour than human beings) there are no signs of depravity; only perhaps a tendency to lose bulk, as must needs be when all are huddled so close together that shoulder presses tightly against shoulder. This is

A COLONY OF SIBERIAN SQUILL, that lovely tassel of cobalt-blue blossoms that stars the bare hills just as the northern snows begin to melt in drear Siberia. It is pleasant to think of them in their pure heaven-hued beauty. But we must work and observe now, and indulge in no day dreams. Here they are in hundreds, all ages and sizes, and in all stages of growth; here is the stout old matron in her plum-coloured robe, and clustered about her neck and shoulders are her youngest and tenderest children, last year's seedlings, which have just become bulbils, and are even now striking out tiny rootlets into their very mother's robe. They look happy, warm, and cosy. But cosy as you are you must be dislodged, my little friends; if you stay where you are any longer you will injure your young constitutions, so we must pop you into our basket for a while. Here again are the yearlings, the seedlings of the previous year, comely little bulbs now, but white as yet, and lacking the purple raiment of maturity; and here are elder brothers, who are fit to enter upon the duties of life, and only need elbow room to make their way in the world, and fulfil their tender mission of beauty and cheerfulness. We must divide and sort them according to ages, remove the exhausted soil, re-plant the adults, and carry the younger progeny to the nursery. It is interesting to notice how intent on perpetuating their kind are these Squills. Here, in the sheltered and sunny banks, where the rude March winds cannot intrude to rend and mar their blossoms, and where the early bees are busy carrying the fertilising pollen, they seed freely, and in due time the seed pods burst open and empty their contents on the ground, and so the family life is perpetuated; but in another rockery, where the wild winds rage and fret the blooms, they refuse to seed, and the parent bulbs thus bereft take consolation for their bereavement by splitting themselves, and throwing off quantities of little off-shoots, convex on the outside and on that nearest their mother-bulb concave, for closer nestling. These, too, we must dig up, separate, and re-plant if we would make the family happy. Of other Squills we have the lovely *Scilla amœna*, *Scilla bifolia*, in two varieties—blue and white, to whose stalk the blossoms adhere more closely and regularly, and the Bluebell Squill (*Scilla campanulata*), some a pale blue and some pink, more beautiful far than the Bluebell of the woods. And now let us see how the

NETTED IRISES (*Iris reticulata*) have prospered. These are costly treasures; we gave ten shillings for a dozen bulbs a few years ago. Let us lift them carefully then, and see what a harvest we have. Why, there are more than 150 plump, firm bulbs, all clean, and traced everywhere with the network which gives them their name. Perhaps some of us have never noticed these lovely flowers in March and April; and yet no Orchid is more delicately beautiful. Each bulb sends up a flower-stalk, from which springs forth a three-branched blossom—three purple throats, with fauces of richest gold, and breathing forth an exquisitely delicate odour of Violets. Tender and fragile as they look, they will defy the frosts of spring, and shun only those cruel blasts which, as the great poet sings, are only "more kind than man's ingratitude." They are worth a little extra attention, and before we replant them we must make up a soft bed of peat and sand and leaf-mould, and wait until spring for our reward. Here, again, are

THE DAFFODILS, so dear to Shakespeare, Herrick, Wordsworth, Keats (who enumerates them among those "things of beauty" which are a "joy for ever"), and many a poet besides. Nestling here, behind the shelter of this stone, is the lesser Daffodil (*Narcissus minor*). It is scarcely taller than the Snowdrop, and, like that sweet, modest beauty, always looking downwards. And here is the Tenby Daffodil (*Narcissus obvallaris*), itself, too, lowly of stature and modest of look; and away yonder in a bolder position, Horsfield's Daffodil (*Narcissus Horsfieldi*), that triumph of the selector's patience and skill: pure as the Lent Lily, but statelier far, with its primrose coronal of a fuller and richer primrose, and its golden trumpet of gold twice gilt and deeper depth. But "Oh, the Daffodils, the Daffodils!" who shall ever make an end when one has begun to tell of them? Here is the Jonquil (*Narcissus odoratus*), the Poet's or Pheasant's-eye (*Narcissus Poeticus*), in its single and double forms; and here again, in rougher places, is dear "Old Butter and Eggs" (*Narcissus incomparabilis aurantiacus fl.-pl.*), and other rich golden and primrose doubles.

I must pause now, in dread of the editorial scissors; but some day I hope to resume my tale, and speak of the Anemones, and many another buried treasure, which now unseen awaits in patient expectation the "annual resurrection."

H. M.

NOTES.

Antigonon leptopus.—Among all other experiences of a plant collector none are more disappointing than the different aspects of plants under culture in hothouses compared with those in their native jungles. Few plants are more lovely than this climbing or trailing Knot-weed as seen scrambling over a fence in a tropical garden, and yet with us absolute failure has been hitherto nearly the general rule. Mr. Byrom's experience seems to have been a pleasant exception, and his course of treatment will be looked for with much interest. Abroad, wherever it is grown, it affects the full sunshine. I once saw it trailing and dangling over a rude fence erected to prevent the little Indian children—like bronze cupids they were—from falling down an open-mouthed well. Along with it grew the lovely blue *Clitoria Ternatea*, and so profuse was the blossoming that at a little distance off the whole mass looked like some structure covered with a wonderful fabric of shot silk or tapestry of divers colours. No doubt it is a sun worshipper among plants, these ardent sun-loving species being, as I find, those most difficult to bloom at home in a really satisfactory manner.

Sunny gardens.—Someone said that the great end and best use of travel was to make us better satisfied with our own land. This may be and to some extent undoubtedly is true. But on a dreary day of fog and drizzle it is not so easy to feel quite satisfied. It is just on such chilly days that we are tantalised with the most delicious memories of tropical verdure in lands where "foggy November" is a phrase without a meaning; where frost and snow are neither seen in visions nor dreamt of in dreams. Our hothouses are after all mere bottles to hold a drink of sunny warmth; looking-glasses in which we must, however, be grateful for a mere reflection—"a peep at Nature when we can no more." They cannot give us the grace and rustle of Palm leaves under a clear blue sky and near to the glistening sea, with the Banana's golden fruitage and noble leafage beside every Palm-thatched dwelling, with golden blossomed Allamandas and blue Thunbergias scrambling over the lawn trees, and Russellias showering their scarlet blossoms around their graceful stems until they remind one of "fiery fountains," and of gardens where all our wealth of Orchid, Fern, Palm, and Bamboo makes itself at home in the open air. A grove of Cocoa-nut Palms as a fringe to the surf, as at Colombo; an orchard of Oranges and Mangoes with fire-flies glancing and perfume everywhere; rosy Lotus flowers and giant Water Lilies in open-air pools;

curious Orchids dangling over sheltered mountain streams, and rare Pitcher plants in every ditch, are pleasant to think of on a cold and dreary November day.

Bomarea conferta.—All who are interested in graceful-habited twining plants for growing around the pillars of warm conservatories or up the rafters of a warm greenhouse should make a note of *Bomarea conferta* and *B. Carderi*, both of which are very distinct and showy. A coarse compost of lumpy peat and fibrous loam suits them, and this should be placed on a well-drained bottom. Although they grow well in large pots, they succeed better if planted out in positions from which they may soon clamber up near to the light. *B. Carderi* has pale rose-coloured blossoms nearly as large and somewhat similar in shape to a *Lapageria* flower, these being borne in lax clusters at the apices of the long growths. *B. conferta* has much smaller flowers, each bell being nearly 2 inches in length and of a vivid orange-red colour. From ten to twenty flowers are usually borne in a rather dense umbel, and these, as seen in the mass, are most effective either as seen growing or when cut with sufficient length of stem, so that they can be arranged gracefully in vases indoors. A beautiful cluster of twenty flowers from Mr. Smith, of Newry, has been a week in water, and nothing could well have been more admired by our visitors.

Artificial evolution.—Every day brings before us some fresh evidence—some new development—of hybridism in the garden. Species-making is going on in our gardens as well as in Nature, and so abundantly are hybrids appearing, that "evolution made easy" would seem to be an appropriate motto for the hybridists of our own time. Hybridism as a means of evolving new phases of plant beauty, new fruits, new food plants, will remain to us or to posterity when every square mile of the world shall have been ransacked and when new natural species shall have become old or no more. Hybridism will then be the kaleidoscope through which all new and varied plant beauty will appear. And not beauty alone, for by its magic agency, as taught us in Nature's own hornbook, old plants will be made more fit for new uses, old favourites of to day become the new ones of to-morrow, and so will they serve the varied purposes and the unthought-of fashions of all time to come. Apart from present uses and practical appliances, hybridism and grafting in the garden will enable the biologist to verify or prove many, if not all, of his observations. In a word, apart from the present gain to our gardens, hybridism and cross-breeding will rank far higher in the botany of the future than they have already done in that of the past.

Solanum jasminoides.—For the back wall, pillar, or rafters of a cool greenhouse or conservatory there are few plants better worth growing than this graceful free-flowering *Solanum*. In mild and sheltered localities, both in England and in Ireland, it may be grown on a wall in the open air, but in the shelter of a cool house the plant flowers all through the winter months, and but few blossoms can well be prettier for decorative uses. The slender leafy shoots grow to a length of 10 feet or 15 feet and dangle most gracefully, while the flowers and buds are borne in axillary clusters, and in size, shape, and snowy whiteness resemble those of a white-flowered *Jasmine*; hence its specific name. Cuttings root quite freely, and the plant is a rapid grower, having the further merit of being singularly free from insect enemies. If planted near a damp wall the shoots root at the joints and attach themselves to the wall after the manner of Ivy and other semi-epiphytal shrubs. As a graceful, quick growing plant of free blooming habit it has but few equals; indeed, seeing how useful its blossoms are at this season, the wonder is it is so rarely cultivated in good gardens.

Cape Asparagus.—Wherever floral ornaments are worn the dainty green and fairy-like kinds of *Asparagus* are well-nigh invaluable, rivaling the most beautiful of Ferns in beauty and far surpassing nearly all Fern fronds in their

singular powers of endurance. There are many kinds in cultivation all more or less attractive; the best of all kinds, however, for bouquets or button-hole ornaments is *A. consanguineus*, a trailing kind, with feathery sprays of a brighter green tint than those of other sorts. *A. tenuissimus*, if not identically the same, is very closely allied to this variety. *A. plumosus* is also effective, but is in its turn surpassed by *A. plumosus nanus*, with its spreading mass of flattened sprays. *A. decumbens* is very pretty for a hanging basket, its growths, which dangle gracefully, being of a soft glaucous hue. *A. Dregianus* is of a bright green colour, and its growth is quite shrubby, the woody stems being rather formidably armed with spines. All are propagated most readily by division, and will grow in a warm greenhouse, although by no means so quickly as in a stove temperature. A good companion plant to this, just now throwing up its young growths, is the Boston Smilax (*Myrsiphyllum asparagoides*), one of the most popular of all the foliage plants grown by the florists of New York and Boston.

Winter blooming Orchids.—The best of Orchids are always beautiful, but it is during dull cold weather that the warmth and colour of the Orchid house becomes most agreeable. Of all winter flowering Orchids, *Odontoglossum Alexandræ* is one of the most popular; then come the rosy crimson *Calanthe Veitchi*, black-eyed *Dendrobies*, such as *D. nobile* and *D. Wardianum*, *Lycastes*, and that fairest of all white Orchids, *Cœlogyne cristata*. In fragrance, but few Orchids are more grateful than *Pilumna fragrans*; while the true old *Zygopetalum Mackayi* will perfume a whole house during the day time, leaving the *Angræcums* to continue the task after dusk. *Cypripedium* of the *Maulei* type are fast replacing the common old kinds of *C. insigne*, but *C. Harrisianum*, *C. Boxalli*, *C. villosum*, and *C. Sedeni* hold their own as desirable winter blooming kinds.

Souvenir de la Malmaison Rose.—Amongst the latest blooming of all the Roses, this and our old friend *Gloire de Dijon* deserve mention. *Souvenir* is especially a late blooming Rose; indeed "the last Rose of summer" with us. All through the hottest of the summer months we get a few fairly good blooms from this old favourite, but no sooner do we get the cool autumn rains than the most delicately tinted of buds appear as fresh and as perfect as are the majority of other Roses in June. Cut in the bud state and brought indoors, these buds give us the most fresh and perfect of blooms, and plenty of old China Roses bear them company. So far as my own observations go, *Souvenir* likes a partially shaded position and deep moist soil. Ours are old bushes on their own roots, and their last year's growths are pruned back freely about the last week in March. Occasional top-dressings of well rotted manure and leaf mould are given. So treated, we find this old variety one of the most floriferous and acceptable of all late blooming Roses.

Escallonia grandiflora.—This is a very distinct and pretty flowering shrub, not sufficiently well known. At first sight it reminds one of *Bupleurum fruticosum* in habit and leafage, but the leaves are narrower and of a deeper green tint, the growth being terminated by large panicles of pure white flowers, which at first glance give us a suggestion of May blossom in this month of October. The resemblance of the flowers of this plant to those of the Mexican Hawthorn (*Crategus mexicana*) is well-nigh perfect, the petals being spread open Hawthorn-like, and not seemingly united into a tubular flower, as are those of the well-known *E. macrantha*, one of the best of all evergreen flowering shrubs. All lovers of distinct flowering shrubs should make a note of *E. grandiflora* as a late blooming wall shrub of some worth. I suppose *E. Philliana*, another profuse white blossomed species, one, however, which blooms during the early summer months.

Boltonia glastifolia.—This plant just now yields an abundance of its soft lilac and white flowers for cutting. It is 5 feet in height, reminding one in habit of a Michaelmas Daisy, but, in reality, it is more nearly related to *Erigeron* or

Stenactis. There are two or three species from North America in cultivation, but this plant and *B. latisquama* are the best, and both grow quite freely in dry good soil. This plant, and some six or eight of the very best of all the herbaceous Asters, deserve a place in all gardens where cut flowers are in demand. *Boltonia glastifolia* has soft white lilac-tinted blossoms of daisy-like contour, which endure fresh and fair for a long time in vases indoors. The other day we made a large bouquet composed of its flowers, mixed with those of white *Marguerites* and of pale blue *Agathæa* flowers. These, with a fresh green garniture of Cape Asparagus and Maiden-hair Fern, completed a Daisy bouquet that was much admired.

VERONICA.

FRUIT GARDEN.

CONGRESS OF FRUIT GROWERS.

AT a congress of fruit growers, held at Woodford on the 20th ult., the following paper on dwarf fruit trees was read by Mr. F. C. Barker:—

Anyone who has observed the small and trimly kept vegetable gardens in the suburbs of French cities must have been struck by the absence of large standard fruit trees, while in their place one sees planted, in avenues on either side of the paths, small pyramidal or conically-shaped Apple and Pear trees ranging from 6 feet to 10 feet in height, which in the spring are so covered with blossom that they look like large sugar loaves. I shall endeavour, in as few words as possible, to give the reason why French gardeners, and nowadays many English amateurs, have given the preference to these pyramidal trees over the old-fashioned standards, and I shall then make a few remarks on the mode of culture required by the former. Most people know that standard Apples are grafted on the Crab stock and Pear trees on the Pear stock, and that during the first seven or eight years after planting one may expect hardly any fruit; and after that time they will, if planted, say 20 feet apart, so overshadow a garden that vegetables can with difficulty be made to grow between them. Now, few suburban gardens can afford more than a quarter or half an acre of ground for the cultivation of fruit and vegetables, and of the ordinary large standard fruit trees planted 20 feet apart, half an acre would, if planted all over, hold fifty, while of dwarf pyramidal trees, the same ground would easily accommodate 560. As, however, it is inconvenient to cover the kitchen garden with fruit trees, it is usual and preferable to plant only the margins of the main walk going round the garden, and in this way a garden of half an acre will hold only about twenty-four standards; whereas 160 dwarf pyramids could be easily planted in avenues on either side of the walk, and in such a way that no ground would be overshadowed by them, while they would yield good crops of fruit from the first year.

THE PYRAMIDAL PEAR AND APPLE trees to which I have been referring are not grafted on the Pear and Crab stocks, but upon Quince and Paradise Apple stocks. The effect of these stocks, which make short roots close to the surface, is to dwarf the graft and to encourage the formation of fruit buds at a very early age, instead of allowing the vigour of the first eight or ten years to be employed in making wood. From a tree in my garden planted two years ago, and measuring only 4 feet high and not more than 15 inches through at any point of its branches, I the other day picked sixteen *Beurré d'Arenberg* Pears, and from several Apple bushes, planted at the same time and not larger than Currant bushes, I have this year picked fifty or sixty Apples from a tree. I would suggest that whatever be the total number of trees in a garden, not less than three of each kind should be planted, so that a few respectable dishes of fruit may be picked of each sort from the first year. These dwarf trees offer many advantages to suburban gardeners over standard trees. They are within easy reach for picking, and the Apple trees are also easily cleaned if white aphid or American blight attack them. I find

frequent scrubbings with soft soap and water or Gishurst compound to be the best remedy. Such trees can be easily moved from one garden to another; indeed, they are greatly benefited by biennial removal, which is best done at the end of October; by digging a trench all round and thrusting a sharp spade underneath the tree, it can be left in the same spot, and the trench should be filled up with fresh rich soil, but no manure should at any time be placed at the roots of a fruit tree, although they are benefited by manure mulchings. These periodical disturbances greatly increase the fruit crops by strengthening the fruit buds and diminishing the wood growth. In February the trees must be pruned by cutting all the principal and strongest shoots back to three eyes and the weaker ones back to one eye. I am against summer pinching-in of the shoots, as it produces so many watery sprigs. Care should also be taken to give the tree a symmetrical shape, and it will in the spring and autumn be "a thing of beauty and a joy for ever." Dwarf fruit trees are also especially adapted for training against wooden fences, as they will be some years in reaching a height of 6 feet if periodically root-pruned, or in some cases espaliers may be used.

FOR ORCHARD PLANTING, where the trees, stand in Grass, of course the old-fashioned standards alone are suitable. The land must be drained between every row of trees, and every tree should be provided with good soil at least a yard deep and for 2 yards round it on all sides, and then, if the planter be a middle-aged man, he may hope at the end of his three-score and ten years to see his trees commencing to bear, and may die with the reflection that he has left a valuable orchard as a legacy to his grand-children, but has not had much enjoyment out of it himself during his life. If however, one acts on my advice, and plants trees on dwarf stocks, one will reap an early and abundant harvest on the principle of small profits and quick returns.

At the conclusion of Mr. Barker's paper, Mr. Johnston said that he knew little about fruit, but it had always seemed to him that the old adage, "He who plants Pears plants for his heirs," was simply a mistake, and Mr. Barker had borne him out in that opinion. He wished to call particular attention to a Pear called Thompson's, of which he exhibited some specimens. It was an invaluable Pear, and ought to be more largely cultivated than it was. As to summer pinching, to which Mr. Barker had referred, there were two sides to the question. It should be borne in mind that pinching stopped the growth of the roots, and produced wood in the following year. As to pruning, he could not leave this portion of the work to be done until February, as it would take him three months to get round his little lot of Pears, and he had only a very little time to devote to this work. He therefore began as soon in the season as the sap appeared to have stopped running. Mr. Barker had also called attention to root pruning and removing, and this, he thought, required a great deal of attention. People in England were too indolent to do the work, and that was the reason why they were so much behind Belgium, France, and other countries in the matter of Pear growing.

Mr. Earley stated that what Mr. Barker had said about dwarf trees could not be too well known, but he thought that this district of Epping Forest ought to do something more than grow trees for amateurs; it should grow something for the markets, and for that purpose dwarf trees were of little use. It was perfectly true that they could not get a crop from standards in less than nine years, generally speaking, but there were some sorts, such, for instance, as the "Williams," a very valuable Pear, which bore a little earlier, and this ought to be largely cultivated for the markets. As to pruning, they had got into an old rule-of-three system, and he was certain they pruned too much. Some trees he knew that were not pruned at all, and they bore fruit prolifically in three years, instead of seven or eight after grafting. The fruit seemed to prune the trees each year. Mr. Earley went on to speak of the white aphid, an insect which did more damage to Pear trees than

anything else, and observed that he found that by putting soot round the root of the tree in the latter part of March the injury was prevented.

Mr. Clapham said that generally speaking there was no out-door English fruit so well worth cultivating as the Pear, because no other fruit gave so little trouble, and they might have Pears on their tables eight months in the year—from July or August to March. The only other fruit which would at all compare with it was the Apple, and that was not nearly so nice and so luscious as the Pear. Regarding the sorts that would suit Epping Forest, he thought all kinds did fairly well. There was only one kind he had found difficult to grow, and that was Winter Nelis, which would only grow satisfactorily on a wall. Regarding the kind of trees, he certainly agreed with Mr. Earley that if they wanted quantity they must go in for standards, but if they only wanted them for amateur purposes dwarfs might do. As to pruning, summer pinching was of no use if they wanted to produce fruit. It might make a pretty tree, but wood was produced in consequence that would not grow fruit. His impression of pruning was that it should be postponed until August, when the shoots had become hard and ripe. If it were done earlier a summer shoot was started which was certainly not desirable.

The opinion of the meeting was then taken as to the bearing and ripening qualities of various kinds of Pears, as selected by Mr. Barker from Rivers' list, when the following sorts in the order mentioned were voted as the best for the neighbourhood of Epping Forest, viz.: Marie Louise, Williams' Bon Chrétien, Gansel's Bergamot, Jargonelle, Beurré Diel, Easter Beurré, Josephine de Malines, Winter Nelis (prefers a wall), Thompson's, Doyenné du Comice, Glou Morceau, Passe Colmar (on wall), Louise Bonne of Jersey, Beurré d'Arenberg, Beurré Capiaumont, Duchesse d'Angoulême (on wall), Fondante d'Automne, Gratioli, Beurré d'Amanlis, Vicar of Winkfield, Beurré Hardy, Beurré d'Esperen, Hacon's Incomparable, Monarch, and Seckle.

Intending planters in districts in the immediate east and north of London would do well to select from this list.

RENOVATING AND ROOT PRUNING.

FRUIT growers are frequently and rightly advised to root prune many of their trees, and, perhaps, in addition to reiterating this advice, a few remarks on the best methods of procedure may not be out of place. Trees absolutely requiring root pruning, or in some cases completely lifting and replanting, are such as are too deeply rooted, and consequently in altogether a bad, unprofitable state. When the principal roots are allowed to ramble unrestricted they have a tendency to strike downwards into the cold and not unfrequently imperfectly drained subsoil. This merely preserves the large woody roots, while the fibres, which are most conducive to healthy, fruitful growth if formed, cannot exist in such uncongenial surroundings. If we wish fruit trees, whether they be Peaches, Nectarines, Apricots, Plums, Cherries, Figs, Apples, or Pears, to be really profitable, their roots must be kept near the surface, and it is partly by occasional lifting or root pruning that this can be accomplished. Root pruning may be safely performed at any time, always supposing the weather is comparatively dry and without frosts, between the late autumn months and spring—say up to March. It is very

OLD PEAR TREES

about which I am at present most concerned. Go where one will, some of these are invariably to be seen cumbering the ground or valuable wall space. It is when they are apparently worn out or in an unhealthy state that they are comparatively worthless, the produce being fit only for stewing purposes. At the same time, to destroy any such trees, unless very bad indeed, would be a mistake, as no matter how well young trees planted to replace them may grow, years would elapse before they would overtake a

fine old renovated tree. If the old tree be of a variety known to be inferior, then in the spring cut back and re-graft all the lateral branches of horizontal trained and main branches of fan-shaped trees with some other approved sort. Some of our trees were years since re-grafted with four varieties on each, but there was no necessity for this, as we have more varieties than we care for. I should only recommend the practice where the trees are few in number and a succession is preferred to a glut of any one variety. It does not follow that this re-grafting is all that is necessary in order to renovate the tree, although this is sometimes implied by experienced writers. According to my experience, the growth from the grafts will only retain their vigour for a few years, and eventually become cankered or otherwise unhealthy. Neither is this to be wondered at, seeing that the primary cause of the first failure, viz., deep root action, had not been obviated. I maintain that old re-grafted trees ought to be nearly or quite re-planted, and without this the renovation is only temporary. Here the trees that I propose to re-graft have, during the summer previous, a deep, circular trench cut about 4 feet from the stem and about half round; all strong wide running roots were cleanly severed and the tree was undermined sufficiently to admit of any deep running roots being also cut through. Much of the old deep soil is re-placed by good compost from the frame ground, this consisting of loam from the Melon and Cucumber beds, leaf soil, and a considerable quantity of burnt garden refuse. Into this the preserved roots are laid, and they are not long before they emit a number of healthy fibres. In the autumn the other half of the tree is served similarly, and the roots the next season will be sufficient to maintain the growth of the grafts, the growth above and below ground thus making well balanced progress. It is true the grafts on trees not root pruned make more rapid progress the first season or two, but then sooner or later comes a check, and which is not the case where the roots have also been taken in hand. We adopt what is known as rind grafting and insert two or three scions in each crown, eventually selecting either the strongest growth or that most conveniently situated. In this manner we have the wall quickly refurnished with healthful fruitful growth. In the case of debilitated trees of sorts worth retaining, we early in the autumn cut a trench half round and otherwise treat similarly to those to be re-grafted, finishing the other half the following autumn. Turfy loam would be worked in with the burnt refuse if we could afford it, but as it is we employ the best loamy mixture available. All that is done to the top growth is to thin out one-half of the spurs, sawing these off nearly close to the main growths. These in most cases will break freely the following season and eventually form clusters of fruit buds, and the remainder of the old spurs may thus be similarly treated. The effect of this renovating process is really remarkable, one large tree of Beurré Diel first taken in hand in the autumn of 1880 having this season produced two hundred and seventy large clean fruit, and other trees have done nearly as well. As a further proof I may mention that some of the finest crops of Marie Louise, Easter Beurré, and Louise Bonne of Jersey I have seen this season were grown on large old trees that have been renovated by the gardener in charge.

PYRAMID AND STANDARD TREES

of Apples, Pears, or other fruits will repay for root-pruning or lifting, as the case may necessitate. Those that have been long planted must not be severely root-pruned or lifted in one season, as in that case they may be years before they recover from the check given. Ten years ago a number of bush-trained Apple trees were subjected to this rough treatment, and many of them have not yet properly recovered. If a good-sized tree requires renovating this autumn, a deep trench about 3 feet from the stem should be cut half round and the tree undermined, the roots being treated similarly to those of wall trees. Those to be trans-

planted should have the trench cut quite round, but not be undermined, the trench being filled with good light soil. Into this the shortened main roots will in due course readily emit numbers of fibres, and this will admit of the tree being undermined and transplanted the following autumn without the total loss of a crop. The effect of cutting a trench round Morellos and other Cherries, as well as Plums, Peaches, and Apricots, and refilling with good loamy soil, has been equally beneficial, and in addition they deserve to be often treated to liberal mulchings of manure as well as to autumn soakings with any good liquid manure procurable. As a rule the ground about well-established fruit trees is heavily cropped and but lightly manured; the roots consequently, instead of being encouraged to keep near the surface, are induced to strike downward in search of what they never find. It seems to me that we as a nation are great fruit eaters, but intelligent fruit growers we are not, or we should not be under the necessity of importing the quantities we do. Root-pruning in the case of trees growing too luxuriantly is not absolutely necessary in order to induce fruitfulness, but is advisable both to attain that end and also as a measure of precaution against too wide-spread or too deep root action. Supposing there is no necessity to restrict the top growth of the trees, if, instead of the whole of the young shoots being closely spurred in, they are thinned out and a number of the strongest preserved to their full length, these rarely fail to form bloom buds during the following season. The more we prune vigorous trees the more certain are they to form nothing but wood buds. Either restrict the flow of sap by root pruning or distribute it over a much greater length of growth, and in either case fruit buds will seldom fail to follow. We have frequently wholly lifted strong growing Apple and Pear trees that have been planted less than ten years, with the result of securing a fairly good crop the first season afterwards; the following year the fruit has been plentiful and equal to that grown under more favourable conditions. I may add that some of the best Pears exhibited at the west of England shows, as well as the Westminster Aquarium Fruit and Chrysanthemum exhibitions, were grown on recently lifted pyramids. This shows what lifting will do, and also proves that walls, though serviceable, are not altogether indispensable for the production of the best fruit. Those who planted

MINIATURE PYRAMIDS

thickly, and with the intention of cultivating them after the manner popularised by the late Mr. Rivers, must frequently lift and replant them, or otherwise they become less fruitful and too crowded. Every second year is quite often enough to lift them, and it is well to divide them into two sections, giving each its turn every alternate autumn. Being frequently lifted and the wide-spreading roots shortened induces the formation of a great mass of fibres and abundance of fruit buds, the results amply compensating for this by no means laborious or risky operation. Such trees suffer somewhat from drought during the prevalence of hot, dry weather, and ought always to be heavily mulched directly after lifting for the double purpose of husbanding heat in the autumn and moisture in the summer. Mulching is also necessary in the case of all newly lifted trees. In every instance where the tree has to be lifted, it is best to cut a deep and wide trench, thus facilitating the operation of undermining, and the act of getting the ball of soil and roots well balanced on the strong wide board, hand-barrow, mat, or whatever is employed for carrying it. It is best to plant slightly above the level, especially if the soil be rather heavy and cold. When in position all badly bruised roots should be cut clean out, and all broken ends cut cleanly over, this being done to assist healing. The roots should be laid out in layers and be covered with some of the lightest and best soil. Not much treading is required; but trees in the open require to be strongly staked, while those at the walls should only be loosely secured to admit

of the tree sinking with the soil. When first planted, unless very dry, the soil will require no water, saturation being injurious to the roots, but during the summer they ought never to become dry at the roots. W. I. M.

Victoria Nectarine.—"W. I. M." in his interesting remarks on Peaches (p. 365) says the Victoria Nectarine is not a vigorous grower, and that its fruits "colour but little." He cannot have the true sort, for it is one of the most vigorous growers in the whole list, and the fruit assumes a deep shade of reddish crimson whenever exposed to the light. The under-side is pale green when fit to gather, but a few days on the tray in a cool, airy house turns it clear yellow, and fruits so ripened have this season with us formed, I think, the handsomest dishes of Nectarines I ever set up. I know of no Nectarine to equal it for vigour, fertility, or size, although carrying a heavy crop at the same time.—J. S.

English-raised Grapes.—I cannot agree with "J. S. W." (p. 347) regarding Lady Downes Seedling, which he says is the worst Grape to spoil that is grown. If such is really the result of his experience, he must have been singularly unfortunate, for I think ninety-nine Grape growers out of every hundred will agree with me that it is the best keeping Grape in cultivation. I observe that "J. S. W." makes no mention of the sister Grape to Lady Downes, viz., Foster's Seedling, a variety as pre-eminently valuable as an early Grape as Lady Downes is for its long-keeping property. Neither of them is subject to the constitutional debility to which "J. S. W." assumes that English seedling Grapes are predisposed, and I venture to predict that not one of the seedling Grapes enumerated by "J. S. W." has had anything approaching the sale of either Lady Downes or Foster's Seedling.—RD. WESTCOTT, *Raby Castle, Darlington*.

Standard v. trained Peaches.—Had "P. G." (p. 365) qualified his original statements to the effect "that a portion at least" of the fruit of standard trees cannot be as well ripened as he could desire, I should not have noticed his remarks, as that is admitted in the case of any tree; but in his first note he spoke of "the produce of standard trees in an unheated structure being sadly deficient in colour, &c.," and at the end of his note he referred again to the crop generally, never to "a portion at least." As to the opinion of the head gardener at Whitehill, whose name I forget for the moment, I have no doubt "P. G." can have it for the asking. All I can say is, I took note of the trees by his permission, and on the spot. "P. G." says his conclusions were drawn from standards 12 feet high, and in his first note he says the house that held these trees was only 12 feet high to the apex. This I leave him to explain, as well as the consistency of his practice in growing for so many years Peach trees which he says produced fruit which was neither "so large nor so well coloured or flavoured" as those on standards. I submit that his house "90 feet long" exclusively devoted to the system he condemns was an excellent argument in its favour, notwithstanding his present statements.—J. S. W.

SHORT NOTES.—FRUIT.

Apple nomenclature (W. P. R.).—Dumelow's Seedling, Wellington, and Normanton Wonder are all names given to one and the same Apple.

Manks Codlin.—Here and hereabouts this is one of the best November kitchen Apples. It is almost as sure a fruiter and heavy a bearer as the Keswick Codlin, and it possesses all the good cooking qualities of that favourite variety.—J. MUIR, *Margam, South Wales*.

Vicomtesse Hericart de Thury Strawberry.—This is now very largely grown by market growers, as it is found to be one of the very best kinds for preserving the berries, and of a fine red throughout. Under glass it is of but little use for market purposes, not being large enough.—J. C. B.

King of the Pippins.—Some say this Apple is not one of the best, but I think it is. Here it is most valuable. It is a sure and free bearer, and its fruits are handsome in form and beautiful in colour. They are also excellent in flavour and in every way suited either for dessert or kitchen.—J. MUIR, *Margam*.

PLANTS IN FLOWER.

Androsace lanuginosa.—This pretty Himalayan species, to which allusion has been recently made in THE GARDEN, is still in flower. It does well here on this dry soil. I enclose you two or three heads of its bloom.—J. CROOK, *Farnborough Grange*.

*** Excellent clusters of this charming plant—one of the latest bloomers in the rock garden.—ED.

Laburnum in flower.—I enclose you some blooms of Laburnum, picked from a tree which I fancy has a peculiar habit. On the branch from which these blooms are taken there has been for the last three years a regular break of blossom at this season, while the rest of the tree blooms at the usual period.—E., *Aryllshire*.

The Globe Flowers (Trollius) seem to be flowering with unusual freedom this autumn, judging by the plants in Mr. Ware's nursery at Tottenham. Being distinct from other autumn flowers, they are welcome, though some would prefer them keeping to their proper flowering season in spring. They cannot, however, be always depended on to produce an autumn crop of bloom.

Primroses of various colours and Polyanthus Narcissi are not usual in November, but Mr. Baylor Hartland sends from his garden at Cork a charming gathering of them, as fine blooms as one could pick in May. He also sends, under the name of *Calendula hybrida*, a very rich orange-yellow Marigold, an excellent late autumn plant, and very gay in the open border.

Antigonon leptopus is now blooming freely on every shoot and every tendril in our stove. Plenty of sunshine, air, and heat is the secret of its culture; it evidently enjoys having its roots near the boiler. It is a very pretty sight to see the fairy wreaths along the tendrils, they are so brilliant in colour, and as the plant is climbing through a large *Allamanda nobilis* in full flower, the effect is, to say the least, gaudy.—E. H. W.

Cassia floribunda.—I send you sprays of this showy plant which we use for the centre of beds in the flower garden. It has been in profuse bloom for over three months, and will continue so till cut down by frost.—J. C., *Farnboro'*.

*** A very showy plant, particularly for late autumn bloom out of doors. The flowers, which are about an inch across, are bright yellow and are borne in dense terminal spikes.—ED.

Iris stylosa.—I send you a flower of this Iris, which I am inclined to think is the variety *angustifolia* of Boissier, or *Iris cretensis*. I enclose a couple of its leaves, which are very narrow. I received it direct from Algiers, where it was found growing wild.—F. BEDFORD, *Straffan House, Co. Kildare*.

*** The flower sent is undoubtedly that of *I. stylosa*, though it is somewhat larger than usual. The leaves seem to be narrower than ordinary; hence it may be Boissier's variety *angustifolia*.—ED.

Sweet Peas in November.—A beautiful bunch of scarlet Sweet Pea blooms has been sent to us by Mr. Crook, from the garden at Farnborough Grange, where there has been a continuous succession of Sweet Pea bloom for the past three months. Moreover, Mr. Crook states that the supply is likely to continue for some time yet, as the plants are still covered with unexpanded flower buds. We should like to have some details concerning the way in which these Sweet Peas have been treated.

Salvia Pitcheri.—By far the finest flower-spike we have ever seen of this lovely blue greenhouse *Salvia* comes to us from Mr. Bedford, the gardener at Straffan House. The entire length of this spike is 10 inches; it is much branched, and each branchlet is densely furnished with flowers of an intense blue. Surely this plant cannot be much known, or one would oftener meet with it in private gardens than one does. We should like to know how Mr. Bedford treats it.

Globba coccinea, a plant belonging to the Ginger family, introduced a few years ago by Messrs. Veitch from Borneo, seems to improve every season, and is likely to become a useful decorative plant. Its growth is dwarf and neat, yet elegant, and the stems, which are only about a foot or two in length, leaning gracefully on all

sides. The flowers, which are borne on the tips of each stem in dense clusters, are bright red and orange, a colour which renders them highly attractive. A noteworthy feature belonging to this plant is the length of time during which it continues to flower—a period extending over several months in succession.

Tuberous Nasturtium.—Some fine flowering sprays of the somewhat uncommon *Tropaeolum tuberosum* have been sent to us by Mrs. Brooks from her garden at Hessel House, Ewell. It is a pretty trailing plant and specially welcome at this time of the year, when open-air flowers are becoming scarcer every day. It is distinct from other *Nasturtiums*; the shoots are long and slender and trail along the ground or over low bushes. The flowers, which are bright orange-red, are numerous and showy.

Nerine excellens.—We alluded last week to the new *Nerine meadowbankensis*. This is another equally remarkable as regards colour, but quite different. Its flowers and trusses are similar to those of *N. Fothergilli* major; their colour is a beautiful clear rose-pink, an unusual tint among *Nerines*, and, moreover, one that everyone admires. The crystalline substance of the curled petals also adds much to their value. This new variety is now in flower in Mr. W. Bull's nursery, King's Road, Chelsea.

Æschynanthus Lobbianus is a plant that can always be relied on for producing a plentiful crop of brilliant flowers in October and November, just the season when they are most valuable. It is not only useful for cutting, but its trailing habit of growth specially adapts it for basket culture in the stove, and no other mode of growing it would show it off to better advantage. The dark vinous purple hue of the foliage, too, enhances the bright colour of the blossoms. It is now in flower at the Victoria Nursery, Upper Holloway.

Bessera elegans.—This pretty Mexican bulbous plant we saw in flower about three months ago, and it is still in bloom in Mr. Bull's nursery, Chelsea, and much finer than it was earlier in the season. The umbels are not only larger, but also the individual flowers, and two and three instead of only one are open at the same time. Its elegant growth, bright red flowers, and their pretty markings render this a desirable plant to cultivate. It is not new, but has recently been re-introduced in quantity in company with *Milla biflora*.

Geum miniatum.—This is a hybrid between the almost perpetual flowering *G. coccineum*, with scarlet flowers, and *G. montanum*, with golden yellow blossoms. The hybrid partakes strongly of both parents, particularly as regards colour, a kind of orange-red, singular, but withal pleasing, and quite uncommon among hardy flowers. Like *G. coccineum*, it is a most persistent bloomer; even now it is in full flower and as bright as in summer. Some excellent flowering specimens of it have been sent to us by Messrs. Paul & Son from their nursery at Broxbourne.

Clerodendron fallax is a bright and useful stove plant for flowering at this season, and valuable where there is a large demand for flowering plants for indoor decoration. It is a large, bold-leaved plant, and bears at the top of each branch a broad loose cluster of bright scarlet flowers, which remain in perfection a long time. We saw it grown well the other day in the garden at Gunnersbury House. Mr. Hudson thinks highly of it as an early winter blooming plant. His are about a foot in height—a useful size for decorative purposes.

Hardy flowers.—The following are among the choicest alpine and other hardy plants now in bloom in Messrs. Paul & Son's nursery, Broxbourne, viz., *Pulmonaria dahurica*, a small growing species, with tiny bell-like flowers of a bright violet-blue; *Linum alpinum* (the alpine Flax), a neat trailing alpine, with white flowers as large as those of the common perennial Flax; *Lithospermum petraeum*, a miniature alpine shrub, with

hoary foliage and intense blue flowers; *Dianthus atrorubens*, a species with very deep crimson blossoms; *Viola pedata bicolor*, the rare two-coloured variety of the Bird's-foot Violet; *Erpetium reniforme*, the New Zealand Violet, a little plant much resembling a Violet, but without the characteristic spur of the Viola; and *Haplocarpha Leichtlinii*, a handsome new Composite resembling *Gazania ringens*, but handsomer. These, together with the commoner kinds of hardy plants, make a very creditable list of flowering plants at the end of October.

***Polygonum vaccinifolium*.**—This is the brightest little gem among my rock plants now, when the dark, foggy days of November are upon us. It has been in bloom all through October, and its bright rosy spikes of flowers look as though they would defy all weather for two or three weeks to come. It is a most desirable plant, and though, perhaps, not what might be called a generally useful plant, yet it may be made to light up many a nook in the rockery at this dulllest time in the year. As regards outdoor flowers, I may add that the autumn foliage this year seems as though it could not possibly be grander.—J. S. T., *Malvern*.

Winter flowers.—One of the gayest green-houses which we have seen for a long time was one which we saw the other day at Gunnersbury Park. It was filled with a number of profusely flowered plants of *Begonia knowsleyensis*, the finest we have seen, intermixed with *Plumbago rosea*, also admirably grown and flowered; *Lasiandra macrantha*, *Impatiens Sultani*, and other brightly flowered plants, the whole rising from a groundwork of Maiden-hair Fern and other elegant foliage. The four plants named are invaluable as regards affording a bright display at this dull season before *Chrysanthemums* come in.

***Osmanthus ilicifolius*.**—Of this handsome Japanese evergreen shrub Mr. Noble has sent us some flowering twigs from his nursery at Sunningdale. It is a dwarf growing plant with leaves much resembling those of some forms of the common Holly. They are of leathery texture and of a bright green; the tiny white blossoms are produced in clusters from the axils of the leaves, and are very fragrant. It is a most desirable evergreen, particularly suitable for town gardens, as it seems to resist the injurious effects of smoke better than the Holly. It seems to be comparatively unknown, but it ought certainly to be popularised.

***Urceolina pendula*.**—Of this beautiful and elegant bulbous plant, an uncommonly fine flower-stem has been sent to us by Mr. Bedford from the gardens at Straffan House, Co. Kildare. The stem, about a foot high, carries an umbel of six large fully developed flowers. The latter are over 2 inches in length, urn-shaped, and contracted into a narrow tube at the base. The colour is a bright canary-yellow, which is in singular harmony with the pea-green tips of the sepals. The flowers dangle from the top of the stem on long slender stalks, and, taken as a whole, the plant has a pretty effect. It is particularly valuable for flowering during the last three months of the year in a stove.

November flowers.—The borders of hardy plants here still continue gay, as you may judge by the enclosed, and there are numbers of other plants still in full bloom, far too many to send you. Among them are Dahlias of all sorts; Phloxes, tall decussate varieties; P. Drummondii, Sweet Peas, East Lothian and other Stocks, Pansies, *Rudbeckia Newmanii*, *Salvia farinacea*, patens, and *cacaliaefolia*, yellow *Marguerites*, early blooming *Chrysanthemums* of sorts, *Limnathes Douglasii*, shrubby *Veronicas* of sorts, *Anemone japonica* (white and pink), *Hypericum oblongifolium*, *Snapdragons*, all combining to make a fine show long after the bedding plants are over.—J. CROOK, *Furnborough Grange*.

Balchin's double Mignonette seems to be rising rapidly in favour, many cultivators substituting it for other sorts. It is entirely distinct from other Mignonette in a two-fold sense, viz., the

flowers are white and proliferous, that is, a secondary flower is borne from the centre of the first, and consequently the flower-spike continues long in perfection. This Mignonette is without stamens, or rather the stamens are transformed into flattened filaments, which are so numerous as to form a dense tuft, and, being pure white, the flowers are more attractive than those of other Mignonette. The perfume, too, is quite as strong as that of other sorts. It is well adapted for pot culture, a purpose for which it is much used. Mr. Hudson, of Gunnersbury House, thinks highly of it, and grows it admirably in pots. He speaks highly, too, of the lasting qualities of the flower-spikes, which, after being cut a week and placed in water, are as good as when just cut from the plant.

***Celsia cretica*.**—We were not a little surprised to see this rather uncommon plant cultivated so extensively as it is both at Gunnersbury House and Gunnersbury Park. At the former we saw some half hundred plants in pots in a vinery, all developing spikes for furnishing winter bloom. The plants were of uniform size, about a foot in height, and each bore three or four slender spikes, which in a week or two hence will be wreathed with bright yellow blossoms. Here is an instance of a plant which till lately was rarely seen beyond botanical collections being taken in hand by two of our best plant growers and developed into quite a decorative plant. It is almost hardy, but needs greenhouse treatment in winter.

***Belladonna Lilies*.**—A long border filled with these and producing hundreds of flowering stems is as beautiful as it is uncommon in English gardens. Yet such a sight has for some weeks past been one of the chief attractions in the gardens at Gunnersbury Park. The border in question lies at the foot of a south wall belonging to one of the plant ranges, a capital position for a plant that requires plenty of sun and heat. The *Belladonna Lilies*, the various *Nerines*, *Alstroemerias*, and *Gladioli* seem to be favourite plants with Mr. Roberts, who knows how to cultivate them to perfection. Just now a late planting of *Gladiolus brenchleyensis* has flower-spikes in perfection—not a common occurrence at the end of October.

***Polygonum vaccinifolium*.**—This is one of the most persistent bloomers among rock garden plants. After the flowering of all others is past this is as bright as ever, and will continue so for some time to come. It is a pretty trailing plant, and its long slender shoots, bearing dense spikes of rosy pink blossoms, are extremely elegant, particularly when falling over the face of a rock, which is one of the fittest positions for a plant of this stamp. Though Himalayan, it is perfectly hardy and not at all fastidious as to soil; in fact, it will bear with impunity rough treatment. Some nice specimens of it come to us from Mr. Ware.

***Eranthemum Andersoni*.**—We had no idea of the beauty and elegance which this plant possesses until we saw a well-grown specimen of it the other day in the garden at Gunnersbury House, where Mr. Hudson has grown it for some years. It is an erect growing plant, producing tall stems, furnished sparsely with large oblong foliage, and terminated by long slender flower-spikes on which the blossoms are densely arranged. The latter are about an inch across, and in form bear a strong resemblance to those of an Orchid, particularly some *Epidendrums*. The corolla is pure white, with the lower lobe heavily blotched with a beautiful claret-purple. The flowers are so numerous that the spike measures 3 inches or 4 inches across and as much in depth. The buds open in quick succession, and before the topmost buds have expanded, other buds are produced from the lower part of the spike from which the decayed flowers had fallen, so that each spike continues to produce flowers for a long time. Seen in the stove surrounded by foliage, this plant has a beautiful appearance very different from the ordinary run of stove plants.

The Japanese Maples are even lovelier in death than while growing, and that is saying a good deal.—A. K.

GUNNERSBURY PARK.

THERE is so much to admire in this beautiful London garden that we have ventured to supplement the illustrations of the noble Lebanon Cedars (given in THE GARDEN some two years ago) by a view of the lawn as seen from the south front of the house. There is always a freshness and brightness about Gunnersbury which make one unmindful of its close proximity to the great city, the smoke of which, that relentless despoiler of gardens, being less felt there than one would suppose. This comparative immunity from London smoke and fogs is doubtless mainly attributable to its high-lying position. We are fond of lawns unmarred by set patterns of flower beds, and here we have one to our liking. It abounds in examples of good design, and the grounds, particularly about the house, show the work of a masterly hand as regards both surface arrangement and planting. One of the few blemishes about Gunnersbury we have always thought is the unnatural hard margin to both the higher and lower pieces of ornamental water. The edges of these lakes show too much of the mason's work, the kerb being as bare as possible, and the whole extent of this hard margin unbroken. A few well-chosen and properly placed groups of water plants around the margin, and otherwise broken here and there by a few artistic groups of rocks, would tend greatly to alter the present formalism. The naked margin to the lower lake, shown in the engraving, is all the more apparent since a picturesque group of Pulhamite rocks has been formed at the foot of the slope of the lawn at the point of the inlet of the water. This group of rocks, which has only recently been added, gives a greater beauty, on account of its contrast with the polished surface of the velvety lawn which stretches uninterruptedly from the terrace to the water's edge.

We never remember seeing Gunnersbury look so beautiful as it did a week ago. The gayness of the summer bloom was gone, it is true, but a greater and nobler beauty was afforded by the brilliant and varied hues of the decaying leafage of the magnificent deciduous trees everywhere about the place, and which, in contrast to the richness of the evergreen foliage of the Cedars, Yews, and others, produced a charming effect. By the margin of the upper lake a gigantic Tulip tree was enveloped in gold, and hard by the sombre foliage of the ponderous Lebanon Cedars, the glory of the tree growth of Gunnersbury, formed, as it were, an appropriate setting for such a glowing mass of colour. Not only were the Tulip trees so beautiful by their decaying foliage, but the Beeches, Elms, Maples, Thorns, and all other deciduous tree growth with which the place is enriched were wearing their accustomed autumn tints, ever varying, ever changing. Another beautiful feature in this garden was the noble tufts of Pampas Grass, the feathery plumes of which glistened in the rays of the bright October sunshine experienced last week. The Pampas Grass thrives uncommonly well here, and particularly by the moist margins of the lakes. One clump has produced a perfect thicket of plumes, most of which are 9 feet and even 10 feet high. The best effects are obtained here by this Grass by placing it in positions where it may be seen against a background of foliage; thus it often occupies nooks specially adapted for it. The groups of circular beds that lie a little to the right of the south front of the house have been as beautiful as ever this season, and each year Mr. Roberts endeavours to vary their contents as far as is practicable. The large circular isolated beds placed in recesses of the shrubberies have for some years been a beautiful feature of this garden, for they invariably contain combinations quite out of the ordinary run. Amongst a few of the most prominent plants used for these beds are *Hycinchthus candicans*, the old *Fuchsia corallina*, *Lobelia splendens*, *Gynura aurantiaca*, *Gaura Lindheimeri*, and *Salvia patens*. The intermixture of these in bold masses of simple outline produces a beautiful and at the same time an uncommon effect, and the position they occupy, generally embowered by foliage, heightens it.

TREES AND SHRUBS.

ORNAMENTAL PLANTING.*

It is gratifying to note a growing interest in ornamental trees and plants. The return of prosperous times enables many to purchase homes and to beautify their surroundings. By what means, let me ask, can we most effectually promote a taste for ornamental planting? In answer to this I will venture to make one suggestion. It is this: That every nurseryman should have, as his means may admit, a portion of his grounds tastefully laid out, and planted with the choicest trees and shrubs. These nursery grounds would become in a measure, schools in their respective localities, where the public taste would be cultivated and

case. There are many potent reasons for drainage, which, if properly considered, would induce planters to devote the necessary time and thought to the subject. I will refer to some of them briefly. Experience has taught those who have planted extensively and observed closely that all trees and plants thrive best in a dry, deep, porous soil. The roots of such trees strike deeper, the stems grow stronger, and the young wood ripens up perfectly before the cold season sets in. It is of the greatest importance that the young growth should ripen well, for if it does not a severe winter is certain to kill it back, as is the case generally, if not always, with trees and plants growing in undrained or wet land. Disappointed planters sometimes tell us that the trees and shrubs which they purchased, and which are represented to be per-

compared with the losses and disappointments which may result from undrained land. After draining the soil should be well stirred to the depth of 18 inches and properly enriched. If the drains work well we may look forward to good results.

ERRORS IN PLANTING.

The effects of judicious ornamental planting are greatly enhanced if the grounds are well laid out. Inasmuch as I intend my remarks to apply more particularly to small or medium-sized gardens, I will refer briefly to some errors in planting which are usually made, and which mar the beauty of grounds. I suppose that I cannot be much out of the way in stating that there are few who know how to lay out a garden. This is not strange, because it is no easy task, and it



Lawn view at Gunnersbury Park.

some knowledge of ornamental planting be acquired. Many instances of this kind, now existing, might be cited. They should be, and I trust will soon be, more general. It hardly comes within the scope of this paper to treat of the details of landscape gardening, but ornamental planting is so intimately associated with that subject that by way of preface I will refer to some of its leading principles and operations.

DRAINAGE.

One of the first and most important considerations connected with ornamental planting is thorough drainage. Few are aware of the importance of this operation, and many gardens and grounds which have been planted at considerable expense afford little or no satisfaction, in consequence of lack of attention to this important work. Planters should understand that trees and plants cannot thrive in undrained soil unless it is naturally dry, which is rarely the

fectly hardy, have been winter killed, and they ask us how we can account for it. An examination of the case nearly always shows that imperfect drainage is the cause. The hardiest trees and shrubs will not root well in wet soil, and though they may live for awhile, they die sooner or later. Conifers and half hardy trees particularly cannot endure such treatment, and a dry summer or a severe winter quickly puts an end to their existence. Deep drainage, while it carries off the superfluous moisture, so injurious in its results, has also the effect of rendering the soil warm, friable and porous, allowing it to be worked more thoroughly, and preventing injury from drought. Cultivators have learned that well-drained, deeply-worked land resists the drought remarkably by absorbing all moisture in the air. Great losses are thus averted. Many are deterred from draining on account of the expense. Good tile drains, sunk 3 feet to 4 feet in the ground, and about 20 feet apart, with a good fall and proper outlet, can be made at a moderate expense. Even though the outlay seems quite considerable at first, it is nothing

requires knowledge, experience, and skill. Many imagine that they are capable of laying out their own grounds, and only find out how little they know of the subject too late—after they have planned and planted with unsatisfactory results. The laying out and planting of grounds, whether large or small, should, if possible, be entrusted to competent artists. The expense will be small and the satisfaction great. In every city and village gardens are to be seen which have been planned and planted utterly regardless of all rules of landscape gardening. Those who have a knowledge of the art cannot refrain from noticing the blunders that are made, and it is particularly annoying to them to see fine grounds which might have been rendered exceedingly interesting, utterly ruined by injudicious planning and planting. The owners of such grounds, though they know nothing about gardening, feel that they have made grave errors, but that it is beyond their power to correct them. In city gardens, one of the mistakes most frequently committed is that of planting indiscriminately—

* From brief essays on ornamental planting. By W. C. Barry, Mount Hope Nurseries, Rochester, N. Y.

leaving no breadth of turf, and destroying the lawn without realising any effects from the plantings. If we look about us we shall see how often this occurs; yet it seems strange that men who have spent thousands upon a house would be willing to sacrifice beautiful grounds by careless planting. The same attention and care which are bestowed upon the house should be devoted to the garden, in order that the house and its surroundings may present one harmonious whole. Another common error is that of planting trees which attain large size in small places. A tall Elm or Norway Spruce, or other large tree, is very much out of place on a small lawn. There is no excuse for errors of this kind, for there are numbers of trees of secondary size which can be employed with advantage. I will hereafter name a selection of trees and plants suitable for the purpose.

WALKS, DRIVES, AND LAWN.

Walks are prominent and important features in ornamental grounds, and exercise a marked influence upon their appearance and the degree of enjoyment they may afford. They should therefore receive a due share of attention, both as to location and construction. Walks and drives should be so constructed that a few moments after the heaviest shower we can go over them without the slightest inconvenience. If garden walks are not properly made it will be necessary to deny ourselves the pleasure of many a ramble through the garden. Walks with graceful curves are on the whole most appropriate for small grounds. They lead a charm to the garden which straight walks do not. The walk from the street to the house must often, of necessity, be straight. This divides the lawn immediately in front into regular parts, requiring a certain style of formal planting in order to preserve harmony. If, instead of a straight walk, a curved one be started at one side of the garden, the lawn will be irregularly divided, enabling another and more pleasing style of planting to be employed. The curves of the walk must be long and easy. It will sometimes require a good deal of labour to make the curves easy and pleasing. The walks should first be marked out with small stakes, and the curves must be arranged and rearranged until they are satisfactory to the eye. A proof of easy curves is the facility with which they may be traversed, either on foot or in a carriage. If the curves are abrupt and difficult, the edges of the Grass will suffer by being trampled upon, either by horses or foot passengers. Walks with curves are often badly designed, the curves being very difficult, thus spoiling the effect of good lawn planting. Straight walks, planted on either side with large growing trees, present a majestic appearance; on large, level grounds they may be introduced with fine results; but curved walks are best adapted to ornamental planting, being more natural. Since the introduction of the lawn mower, the lawn has come to be regarded, and justly so, as the great feature of a garden. When it is well kept there is nothing more beautiful or pleasing than a broad, open space of turf, and in the planting and arranging of trees it should be our endeavour to keep the lawn as open as possible. This can be accomplished by arranging the trees and shrubs in borders or belts around the margin, with a fine specimen tree occasionally standing alone in a prominent position, where its beauties can be seen to the best advantage.

BORDERS OF SHRUBS.

Many gardens are too much exposed. It has recently become fashionable to remove fences, and grounds thus opened might as well be public property. There is no seclusion or privacy, and every movement about the garden can be observed. One of the charms of a garden is the air of seclusion which should prevail there. To secure that privacy which all who are fond of gardening desire, I would suggest the planting of a border inside the fence. This border can be varied in depth, according to the size of the garden. It should be a little higher than the lawn, and the outer line should consist of graceful curves. In this border can be

planted a variety of shrubs, dwarf Conifers, hardy plants, &c., but no trees. The shrubs and conifers should be planted irregularly, from 3 feet to 4 feet apart—the taller ones nearest the fence, and the dwarf subjects near the margin. For a border 6 feet in depth I would suggest two rows of shrubs, the first consisting of the larger growing ones, like Weigela, Deutzia, Forsythia, Japan Quince, Viburnum, variegated Cornus, Red Dogwood, Tartarian Honeysuckle, lance-leaved Spiraea, Syringa, Althaea, Calycanthus, Plum-leaved Spiraea, Barberry, dwarf Spruce, dwarf Pine, and Junipers. For the second row, Deutzia gracilis, Mezereum, dwarf and golden-leaved Syringa, tree Pæonies, dwarf double flowering Almond, Prunus triloba, dwarf Weigela, Fortune's dwarf white Spiraea, plumed Hydrangea, Spiraea Thunbergi, Juniperus squamata, and Tamarisk-leaved Juniper. The outer edge can be formed of Funkias, dwarf Phloxes, Japan Spiraea, evergreen Candytuft, perennial Flax, Forget-me-not, Lung-wort, Soapwort, Sea Pink, and Violets. Between the shrubs near the front may be planted Lilies, tall Phloxes, and occasionally a Hollyhock. All the shrubs and plants which I have named are perfectly hardy, and if properly pruned can be kept of moderate size and good form. This selection will furnish a constant succession of bloom from early spring till late in the autumn. The border should be lightly forked every autumn, and all the plants contained in it will be much benefited thereby. In small gardens this border may be omitted altogether, and those who desire their gardens more exposed can instead of a fence plant a few shrubs irregularly, allowing the Grass to grow quite closely around them. When fences have been removed along an entire street or avenue, the lines of each compartment may be marked by planting shrubs in this way, relieving the lawn of that nakedness which would otherwise prevail. Shrubs grown in a cultivated border thrive much better than they do grown in Grass, and the border is therefore preferable. Borders like the one just referred to may be formed at the sides of the garden, concealing division fences if there be any. In these borders a great many varieties of shrubs may be employed, which during the summer will afford an unlimited amount of pleasure. In the smallest gardens this mode of planting may be adopted, leaving the centre of the lawn open, without a single tree or shrub. Fine effects may be produced if neighbours would unite and form a double border instead of fences, planting the taller shrubs at the centre and the smaller ones at the outside, varying the sky line by the introduction of a tree at intervals. In these side borders it is always well to employ shrubs that will not become too large, though any shrub, by proper pruning, can be kept small. This is the great advantage we have in dealing with shrubs, and when we find that they become so large as to conceal too much, they can be easily cut back. While a certain amount of privacy is desirable, it is not pleasant to be too much confined, and in arranging these borders this point must be kept in view. In medium-sized places a few trees may be planted on the lawn. These should have a position at the side rather than in front, as the view from the windows of the house should never be interfered with. Often only a single tree can be admitted—perhaps a handsome cut-leaved Birch, Oak-leaved Mountain Ash, purple Beech, cut-leaved Beech, Young's Weeping Birch, or Weeping Cherry. All of these form beautiful specimens, and if a little care is bestowed upon them, each one when it attains age will be a picture in itself, always attractive and pleasing. Sometimes shade is required, in which case it is necessary to plant large growing trees within 20 feet of the house. I know of no tree which affords shade so quickly, and which is so handsome as the Elm. Groups of dwarf Conifers may be introduced on lawns, such as the dwarf Norway Spruce, the Juniper, the Arbor-vita, Tamarisk-leaved Juniper, dwarf Pine, and Golden Yew. All of these are hardy, and when planted three together irregularly, or in the shape of a triangle, from 3 feet to 5 feet apart, will in time look pretty. In small grounds it is difficult without seeing them to say where these

groups should be located. The situation must be studied, and Nature imitated as far as possible. Thus far I have not referred to flower beds on lawns. It is a common practice to make beds of Pelargoniums in the centre of a lawn. If the style of gardening which I have suggested be carried out, a flower bed of this kind would be out of place. Pelargoniums and other bedding plants may be employed with advantage close to the house, and can be cultivated either in beds or in borders. A fine border of mixed plants, consisting of Tea Roses, Heliotrope, double Feverfew with Coleus and Centaureas intermingled, presents a beautiful appearance, and is very useful for cut flowers. Being near the house they are easily accessible, and do not detract from the beauty of a lawn. The edges of groups and borders of shrubs are beautified by the use of such plants. One cannot admire great masses of Pelargoniums, but, employed as they should be, they enliven a garden, and may be considered indispensable.

GROUPS OF SHRUBS.

So far my remarks have referred more particularly to small or medium sized gardens, such as are usually seen in cities. It is my intention now to say a few words on the grouping and massing of shrubs and trees, a mode of planting suited to large gardens and grounds; and it will be my endeavour to mention only those trees and shrubs which are generally regarded as perfectly hardy. In the selection of trees and plants too much stress cannot be laid upon this important qualification. Half hardy or tender trees usually afford little satisfaction, and frequently produce great disappointment. Besides, the list of perfectly hardy trees and shrubs is so large, that there is no necessity of using tender trees or shrubs, or those which have not been fully tested. I know of nothing which will give more satisfaction than hardy deciduous ornamental trees and shrubs, and a few conifers. Our northern climate is so severe that many of the finest conifers, being tender, cannot be employed. With extra care and protection they may live for a time, but not long. Groups of shrubs are well adapted to place in the hollows of the curves of walks. Masses of shrubbery thus arranged impart a variety to the landscape, and are in imitation of Nature. In placing groups upon the lawn, care must be taken not to interfere with the view from the windows of the house, as it is from this point that the pictures in our garden will be most frequently inspected. It should therefore be our aim to form pleasing views from all of the principal windows, and if we keep this object before us from the outset many serious errors will be averted. To group shrubs so that they may appear natural and informal is somewhat difficult. Stiff groups have an artificial appearance, never please the eye, and the effect is always unsatisfactory. Their outlines should be irregular, with swells and projections, not rounded and regular, as such masses frequently are. It is customary to give masses a circular or oval shape, with the tallest plants in the centre and the dwarfer ones at the outside. Extreme regularity of outline is thus attained, a result quite the contrary of that which ought to be aimed at. We should attempt to copy Nature, making the groups resemble some natural ones which we have no doubt seen. While the taller shrubs should form the centre of the shrubbery, it will often be necessary to produce irregularity by planting them at intervals near the edges among the dwarfer subjects, thus producing an uneven sky line. The bolder projections and swells should have the larger shrubs, while the smaller and narrower parts should be planted with the lower growing shrubs, thus balancing nicely the various portions of a group. Single specimen trees will form a valuable adjunct to such a group when placed at its salient points. A number of desirable lawn trees can thus be employed without interfering with the open lawn and the views across it. There are some

PURPLE AND YELLOW-LEAVED SHRUBS

which are especially valuable in groups. The purple-leaved Barberry, with its handsome purple leaves,

yellow flowers and fine fruit, can be used effectively where a mass of one colour is desirable. The golden-leaved *Spiræa*, with its golden-tinted foliage, produces an effective contrast, but it must not be employed too frequently. The purple-leaved *Filbert* is remarkably showy and beautiful, and where it has a background of rich green foliage, it appears to great advantage. A recently introduced variety of *Syringa*, with pale yellow leaves, is a very useful plant. Either as a single specimen, or used occasionally in a group, it lends a charm to surrounding shrubs, and will be much prized by those who desire to form pleasing contrasts. The silver variegated-leaved *Cornelian Cherry* has remarkably handsome foliage, the leaves being broadly margined with silvery white. The variegation is permanent, and the plant as a whole has a peculiar richness and elegance, which justify the planter in giving it a choice position. When it is planted alone, and can enjoy abundance of room, it becomes very attractive and showy. In the border its bright foliage contrasts well with the green of other shrubs. The dwarf variegated *Weigela* is an elegant shrub of dwarf habit, and has very pretty leaves, which are broadly margined with a silvery hue. The flowers are of a delicate flesh colour, or nearly white, and contrast beautifully with the foliage. Its compact, regular form and bright foliage render it unusually attractive and pretty. For the edges of groups and borders it has peculiar value. The variegated *Althæa* is another very handsome and showy shrub, with its leaves marked with light yellow. Its flowers are double and of a purple colour. Among variegated-leaved shrubs this has long been a favourite, and its peculiar hardness adds to its value. *Koster's* variegated *Weigela* is distinct and quite ornamental, the margins of the leaves being bright yellow, while the flowers are rose coloured. It is of low habit, and will be very acceptable as a companion for the dwarf variety previously named. It has also the merit of being of recent introduction. I give special prominence to these purple and yellow foliaged shrubs, because they possess striking peculiarities, and are valuable material for effective work. But they must be employed judiciously and rather sparingly, for a profusion will create an exactly contrary effect from that which ought to be aimed at. Associated with shrubs having rich green foliage, a few of these purple and yellow-leaved shrubs produce fine effects. Whenever they are employed in groups, be careful to have an abundance of green about them, and if planted singly, use but few in a garden. Effective masses may be made of

FLOWERING SHRUBS;

for example, by planting ten or twelve plants of *Weigela Desboisi* together, using one of the dwarf varieties as an edging. The profusion of beautiful rose-coloured flowers with which every branch is thickly covered, and which wave gracefully in the air, will not fail to excite admiration, and the naturally straggling, irregular growth of the variety removes all appearance of stiffness or formality. The plumed *Hydrangea* can be used in a similar manner with good results. When in flower its immense panicles bend gracefully, rendering a mass showy and elegant. Hundreds of panicles thus assembled present an admirable effect; but this mode of planting can only be recommended for extensive grounds. The double-flowering Plum (*Prunus triloba*) and the dwarf double-flowering Almonds, white and rose, present a charming appearance when planted together. They flower at the same time, and their profuseness of bloom, delicacy, and beauty of flower satisfy the most fastidious, and excite admiration in the most indifferent observer. Amongst other flowering shrubs of special merit may be mentioned the following: Rose-coloured Dogwood.—The common red Dogwood is well known, and is desirable for its winter effects, its red branches being very showy when divested of their leaves. The variety under consideration has much brighter bark—of a bright rose colour, and the habit of the plant is more compact and bushy. Although not new, it is undoubtedly quite rare, and has much to commend it for the purposes for

which the red Dogwood is usually employed—winter effect. The various varieties of Japan Quince are too well known to require any notice; still the attributes which they possess are so important that I am prompted to say that we do not appreciate them as we ought to do. The double-flowering *Deutzias* are rapidly growing in favour, and they ought to find a place in every garden, large or small. The dwarf single-flowering is a charming plant, which, on account of its small size, free-flowering qualities and hardiness, cannot be too highly recommended for small gardens. It has ample bright green foliage; its flowers are snowy white, and are produced in great profusion early in June. I have already referred to one variety of *Weigela* which cannot be praised too highly. It is called *Desboisi*. The old and well-known *W. rosea* still holds its own against all new comers on account of its fine habit. A vigorous growing, pure white *Weigela* has been much sought after, and it is gratifying to state that this want will soon be supplied. Another year, and this new variety will be offered for sale. The *Forsythia*, with its golden bells early in spring, has few equals among shrubs, while the *Halesia*, with its pretty white bell-shaped flowers, always commands admiration. The *Althæas*, as autumnal bloomers have a special value, and are therefore indispensable. *Duc de Brabant*, which produces reddish lilac flowers, and *Leopoldi* (d.-pl.) yielding rose-coloured blooms, are two of the newer sorts, the qualities of which are commendable.

The large-flowering pink Honeysuckle is a charming shrub, and the old sweet-scented *Syringa* must not be overlooked. The *Spiræas* are numerous, and the various varieties flower in succession from April till September. While all are so desirable as to seem indispensable, some have characteristics which entitle them to more than ordinary consideration. The double-flowering plum-leaved *Spiræa*, though old and well known, is in my opinion one of the best shrubs in cultivation. Its habit is graceful and elegant, its foliage is glossy and fine, and its snowy white flowers are produced in the greatest profusion, and keep in perfection for a remarkably long period. A large plant of it is attractive, even from a great distance, and the remarkable purity of its flowers always impresses the observer. *Thunberg's* *Spiræa* will always be admired for its graceful habit and delicate foliage. It does not grow large, and it yields its blooms very early in spring. It is very appropriate for small gardens. *Fortune's* dwarf white *Spiræa*, as its name indicates, does not grow large; nevertheless it produces an abundance of flowers in August, when there is a great scarcity of bloom. It is much esteemed on that account, as well as for its naturally rounded regular form. It is appropriate for small lawns, and for the margins of borders and groups. The lance-leaved *Spiræa* is an admirable shrub for the lawn. Its flowers are white and freely produced and the foliage and habit of the plant are all that could be desired. I have already referred to the golden-leaved *Spiræa*, which preserves its handsome yellow foliage during the entire summer. Planted by itself on the lawn it forms a conspicuous and beautiful object. The *Lilacs*, with their immense panicles of fragrant flowers and rich foliage will always be admired and esteemed. Two varieties deserve particular notice. *Cerulea superba* bears large clusters of blue, fragrant flowers, and *rothomagensis* produces large panicles of red flowers. The *Viburnums* are a most valuable family, and the various members present an array of good qualities rarely met with. *Lantanoides* has fine foliage and white flowers, followed with crimson fruit. Throughout the season, in the various stages of growth, flowering and fruiting, it is always charming, and merits wide dissemination. The Japan Snowball is one of the best of the newer shrubs. Its plaited leaves are remarkable and beautiful, and its globular heads of white flowers very showy. It surpasses the common variety in many respects. Its habit is better, its foliage much handsomer, and the flowers are of a purer white and more delicate. Among climbing shrubs for the decoration of houses, *Hall's*

Japan Honeysuckle is superior to any other. It grows rapidly, its foliage is handsome and almost evergreen, as it remains in perfection till January, and its straw-coloured flowers have an exquisite fragrance, and are produced in the greatest abundance all summer. For the verandah it has no equal. The *Clematis* is deservedly very popular. For covering stonework, the Japan Ivy is most valuable. When introduced it was feared that it might not prove hardy, but it has withstood the severest winters. Its mode of growth is very interesting, and its foliage is glossy and luxuriant without any coarseness. It furnishes a much handsomer covering for walls than the American Ivy, and is worthy of the attention of all planters. I have spoken at some length of shrubs, because this class of plants is particularly adapted to small or medium sized gardens. All that I have named are perfectly hardy, of easy culture, and never fail to afford the greatest satisfaction.

PRUNING OF SHRUBS.

Many trim and shear shrubs into regular shapes, imagining that regular outline adds to their effect and beauty. While symmetry and regularity of form are to be admired in a shrub, this quality should never be gained at the expense of health and natural grace. Each shrub has peculiarities of habit and foliage, and we should aim to preserve them as far as possible. Judicious pruning to secure health and vigour is necessary; but trimming all kinds of shrubs into one form shows a lack of appreciation for natural beauty, to say the least. *Weigelas*, *Deutzias*, *Forsythias*, and *Mock Oranges* flower on the wood of the preceding year's growth, hence these shrubs should not be pruned in winter or spring, but in June, after they have finished flowering, when the old wood should be shortened or cut out, thus promoting the growth of the young wood, which is to flower the following season. *Spiræas*, *Lilacs*, *Althæas*, and *Honeysuckles* may be trimmed during the winter or early in spring, but the branches should only be reduced enough to keep them in good shape. The old growth should occasionally be thinned out and the suckers and root sprouts removed when they appear. The best time, however, for pruning all shrubs is when they have done flowering. The plumed *Hydrangea* should be severely cut back and thinned early in spring.

TREES WITH COLOURED FOLIAGE.

Some trees have remarkably distinct and showy foliage, and are therefore peculiarly valuable for planting singly or in groups. The purple Beech, with its rich purple leaves, is unequalled among trees of its colour. *Schwedler's* Maple, a new variety of the Norway, with purple foliage, is a charming tree, and promises to occupy a high place among purple-leaved trees. It is perfectly hardy, healthy, and vigorous. The blood-leaved Peach has beautiful crimson foliage, and when making its young growth is very striking. It grows rapidly, and becomes effective very quickly. It is not, however, a long-lived tree, and should only be used where immediate effects are desired, making provision for its loss, which is likely to occur in a few years. The tricolor-leaved Sycamore is one of the handsomest of ornamental trees, its leaves being mottled and marbled with yellow. The variegation is constant and effective. The purple-leaved Sycamore is also a very interesting tree. The golden Locust has handsome gold-tinted leaves, and may be employed in groups very effectively. *Memminger's* Horse Chestnut is one of the newer trees which is worthy of mention, on account of its peculiar foliage. Its leaves are, as it were, sprinkled and dotted with white, the effect of which is quite remarkable. As a single tree upon the lawn it is very attractive. The Silver-leaved Linden is a charming tree of fine habit, and with rich silvery foliage. It deserves to be better known. The variegated-leaved Bird Cherry has handsomely variegated foliage. Its branches droop, rendering it a very graceful tree. The Royal Willow, with its bright silvery leaves, is very conspicuous. In groups it is very effective. The golden Oak, as well as the purple-leaved Oak, are both distinguished for their remarkable

foliage. The hybrid Mountain Ash has very distinct greyish leaves and is a choice tree. The Aucuba-leaved Ash has handsome, variegated leaves, and is very showy. I have brought these trees with beautiful foliage together, so as to show what valuable material we possess for effective groups. If arranged judiciously and artistically, the most extraordinary results may be produced.

TREES WITH ATTRACTIVE FLOWERS.

Under this heading I propose to enumerate a few trees desirable on account of their flowers. In the selection of trees this characteristic is often overlooked, and some of the best flowering trees are but little esteemed. I name first the *Virgilia lutea*, which undoubtedly is the finest flowering tree we have. Its long white racemes of pure white flowers hang gracefully about the tree, and form a picture the admirable points of which it is difficult to describe. The Chinese *Magnolias* are so well known that it is not necessary to refer to them, except in a general way. The Judas tree may be associated with them in groups with fine results. The large double-flowering Cherry, white flowering Dogwood, double scarlet and double white Thorns, white Fringe, and the Lindens are all admirable trees, and merit prominent places in ornamental grounds. The double-flowering Horse Chestnut is justly admired for its elegant form and magnificent inflorescence. The absence of fruit, by which much litter is avoided, is an important argument in favour of its employment. The red flowering Horse Chestnut is surpassed by few ornamental trees. *Koelreuteria paniculata*, with its golden yellow flowers, and *Catalpa syriaca*, producing great clusters of white and purple flowers, cannot be too highly prized, as they blossom at a season when flowers are very scarce. The double-flowering Peaches, which flower immediately after the *Prunus triloba* and dwarf double-flowering Almond, are very desirable. One variety produces double rose flowers, another double white, and another double red. At the flowering season every branch of these trees is thickly studded with blooms, remarkable for size, beauty, and the length of time during which they remain fresh. The three are a trio of flowering trees which deserve to be extensively planted. The scarlet Maple yields a profusion of scarlet flowers early in spring before the leaves appear. It is very showy and ornamental.

TREES WITH CUT OR DISSECTED FOLIAGE.

Wier's cut-leaved Maple has distinct foliage, and the half-drooping habit of the tree renders it a handsome object upon the lawn. The dissected-leaved Norway Maple is much admired for its deeply cut leaves. The cut-leaved Japan Maples are exceedingly showy and beautiful, but their slow growth and difficult propagation will always render them rare and expensive. Their hardiness is still questioned, although in our grounds they came through the past winter in good condition unprotected. I do not lay much stress upon this class of trees, preferring to draw attention to thoroughly hardy, vigorous, rapid growing, easily propagated trees, which can be sold at moderate prices. When the hardiness of the Japan Maple is no longer in question, and its propagation has been rendered less difficult, it will be soon enough to suggest it to the public for general planting. The imperial cut-leaved Alder and cut-leaved Weeping Birch are two elegant trees which are much esteemed for lawn planting. The cut-leaved Beech is one of those extraordinary trees which claim special attention. A proper consideration of its qualities will lead us to the conclusion that it is one of the finest trees known to cultivators. Hardy, vigorous, luxuriant, of pleasing outline, and possessing delicately cut foliage, it has all the valuable characteristics that could be asked for. The Oak-leaved Mountain Ash merits the attention of planters, as it has few equals among handsome trees. Its regular and rich foliage makes it an object of much interest. The Cut-leaved Oak is an interesting and beautiful tree. Other noteworthy trees are the Maiden-hair Tree, Broad-leaved Beech, Oak-leaved Beech, Willow-leaved

Ash, Liquidambar, Scarlet Oak, Moss Locust, Laurel-leaved Willow, Rosemary-leaved Willow, Red Fern-leaved Linden, *Ulmus superba*, and *monumentalis*; and amongst desirable drooping trees may be named Young's Weeping Birch Japan Weeping Cherry, Dwarf Weeping Cherry, White-leaved Weeping Linden, Camperdown Weeping Elm, and Small-leaved Weeping Elm.

FORESTRY FOR NOVEMBER.

TRANSPLANTING.—All kinds of forest and ornamental trees and shrubs are now fit for transplanting, and no time should be lost in planting shrubberies, game coverts, and young plantations generally, all of which work should be pushed forward vigorously while the weather is open and favourable. This is also a proper time to remove Lime tree and other layers from stools, and to have them planted in nursery lines. Give the stools a good dressing of leaf-mould and rotten manure mixed with sand, and lay down the young shoots at once. If not already done, finish the sowing of Haws, Chestnuts, Oaks, and Hazels. Open drains in plantations and elsewhere will require attention, as they are apt to get choked up with leaves and rubbish. Close or shut drains in the park and pleasure grounds will also require attention in order to see that they are in proper working order, and that none of them have burst by being choked with tree roots, which sometimes occurs. In regard to such places it is a capital plan to have a map on which are indicated all drains belonging to them and the positions occupied by the principal trees marked by a small circle thus ○ Their names should also be added, and the distances between the trees and nearest drains, so that when anything goes wrong the failure may be discovered at once and without trouble or expense.

PLANT HEDGES of Thorn, Beech, Holly, Privet, Hornbeam, *Berberis Darwini*, Yew, Box, &c., and ridge up all vacant ground in the nursery as soon as the plants are removed; collect leaves and rubbish from walks, roads, pleasure-grounds, and shrubberies, and have them stored away for future use; take advantage of dry frosty weather should it occur to cart manure and all heavy materials, such as compost, gravel, stones (for repairing roads), timber, fencing, &c. Young plantations may now be thinned generally when hands can be spared for that purpose, and in doing so, cut out inferior, unshapely, or worthless trees, leaving the best for the principal crop, even although they may sometimes not happen to be growing on the right spot with regard to distance and regularity; as the work proceeds, see that no branches are left in a careless manner in the drains to intercept the flow of water.

FELL HEAVY TIMBER and have it carted to the sawmills in dry weather, and cut up to be seasoning for general estate purposes. Now is a proper time to plant standard ornamental trees and shrubs, including *Coniferae*. In doing so see that the roots are properly spread out, and as a rule keep the plants rather above than below the surface level. Stake, tie, and fence at once, to prevent wind-waving and the inroads of cattle. Examine and repair where necessary fences of every description in field, forest, and park.

J. B. WEBSTER.

A gardeners' benefit society, carried on somewhat after the fashion of such benefit societies as the *Shepherds' or Oddfellows'*, would, I feel sure, meet with support from gardeners. I am aware that many join such societies as those just mentioned, but I have no doubt that many more would prefer a society composed exclusively of gardeners. The suggestion made by Mr. Fairservice as to having a library of garden books attached to local branch lodges is a good one, books not only being expensive, but burdensome to move from place to place. I hope that some well-known and influential men will take the whole matter in hand. I feel sure, as I have already stated, they would be warmly supported

by gardeners, all of whom greatly feel the want of such an institution.—A YOUNG GARDENER.

* * A society of this kind is already in existence (see p. 290 of the current volume of *THE GARDEN*).—ED.

INDOOR GARDEN.

CLIMBING-PLANT HOUSES.

A TEMPERATE glass structure, wholly devoted to climbers, properly so called, and wall and pillar plants—a house without a flower-pot, tub or box, but wherein every plant would be planted out in beds of prepared soil—might, according to my way of thinking, be made a place full of interest. Beyond arcades or mere glass-covered ways connecting the mansion with the conservatory, are there, let me ask, any such structure in this country? There need be no monotony in a house of this kind, for there is among the yearly increasing numbers of plants of scandent habit which would thrive in a cool house so wide a range of selection, such a diversity of form and colour, of graceful growth, and flowers of marvellous beauty, that if it were but furnished with taste and judgment, considering well the fitness of each plant for the position given it, and aiming to secure as much variety as possible, with a continual succession of bloom, such a house could not fail to afford constantly changing, yet enduring, features of attraction. It might be built as an adjunct to a mansion; in some cases it might be advantageously substituted for the ordinary conservatory, or it might be used as a detached garden structure. Once furnished, it would not be nearly so costly to maintain as the usual type of conservatory; no supplementary feeding houses in which to grow successions of flowering plants would be needed, while the labour involved would be but little.

THE STYLE OF HOUSE best suited for this purpose would be a matter of opinion. I should think that any form of span, or ridge and furrow roofed house, if sufficiently high and spacious, and if it agreed with the character of the surroundings, would answer perfectly. A tolerably lofty circular house could easily be made fit for such a purpose. Training facilities would have to be provided by supporting the roof with light ornamental iron arches, resting on single or double rows of central pillars. These pillars with a back and end wall, fitted with wire trellising, would furnish places for sweet-scented and bright flowering plants, which are generally grown in pots, but without producing half the effect which they do when planted out. The interior floor space I would divide into one central bed, then a roomy pathway all round, and a border round the sides, both bed and border to be raised a little above the pathway, and edged with a narrow grey stone kerb, the hot-water pipes being taken round one side of the path underneath iron gratings.

THE PLANTING space would be partitioned off into bricked compartments, systematically drained and of different sizes, the larger holes being for the strong-growing roof and wall plants, and the lesser ones for things of slender growth—these to be trained on light wire arches, either crossed or single, stretching over the path from border to bed. Here and there along the middle bed might be fixed tall strong upright iron standards, with a series of rustic, irregular wire arms, as it were, extending on all sides, from which the growing shoots could hang down. Single wires also might be carried from point to point, and lightly covered and draped. Satisfactory effects from a house of this description could only be obtained by regular and systematic care as regards regulating the growth of the plants, restricting the rampant growers and encouraging the weaker, guiding and arranging all with taste. Instead of making the gracefully drooping shoots too tight to the wires, they should be allowed to depend all over the house in modified profusion, the whole forming a floral and foliage curtain of rare beauty.

THE SURFACE of the beds could be carpeted with *Selaginella*, and a few neat-growing trailers

could be dotted along the front to droop over the stone edging without materially impoverishing the soil. Various other appropriate aids suggest themselves, such as suspending baskets filled with beautiful green drooping Ferns, or there might be a few epiphytal plants, such as Orchids, disposed on blocks or in pockets of cork bark affixed to the walls in shady corners.

Such is my conception of an indoor climber, if I may be allowed to so call such an arrangement; it is an ideal matter only, but effects still richer and more beautiful would be obtained if climbers from tropical climes were used, and in the case of a large house, a small portion partitioned off and heated might be rendered exceedingly delightful if furnished in this way. Hot, moist houses, however, are not enjoyable, and, therefore, I recommend the use of one possessing a medium temperature. A. MOORE.

Cranmore.

PLANTS FOR WINTER DECORATION.

THE time of year has now arrived when those who have to keep conservatories gay, or provide a constant supply of cut flowers, must be thinking of the class of plants most suitable for that purpose, and be preparing many of them for forcing. Taking those that bloom naturally at and soon after this season, none are more showy and useful than

CHRYSANTHEMUMS, which should now be put under glass in a cool house where they can have plenty of air and light to prevent mildew—a malady they are very subject to if the atmosphere they are in is at all damp and confined. If that parasite should have made its appearance, it is a good plan to dust all the foliage of the plants with flowers of sulphur, which, with a proper distributor, may be put on so fine as scarcely to be seen, and yet quite thick enough to prevent the spread of the fungus. Chrysanthemums when fresh brought indoors dry quickly, and therefore require great attention in watering, which is often necessary twice daily, especially in cases where the plants are at all pinched at the roots; when they are in this condition they should have weak liquid manure supplied to them freely, which will assist them very materially in expanding and carrying their blooms. Next to Chrysanthemums,

SALVIAS are perhaps the most serviceable, but to flower freely they require a little more warmth, and more particularly is this so with that superb variety *S. splendens Bruanti*, which needs a temperature of 50° to keep it growing and unfolding its brilliant spikes that make such a show. *S. Bethelli* and *S. Pitcheri*, the next two best, will do in less heat, and the later flowering kinds, *S. Heeri* and *S. gesneriflora*, must be kept cool, as they draw and the heads of blossoms come weakly. They are impatient of artificial warmth, and are often spoiled through attempting to force them. I hope to have a mid-winter blooming sort, as I have several seedlings, the result of a cross between *S. splendens Bruanti* and *S. Heeri*, that are now just showing spikes at the ends of the shoots, and as both parents are fine, these ought to be good.

RICHARDIAS are grand winter subjects, but to have them in in December, they must be forced slightly, which may easily be done by placing the plants in any pit or house where they can have a temperature of 50° or so with light to prevent the leaf-stalks from lengthening and becoming too weak to bear up the foliage. As Richardias are half aquatic in their nature, they cannot well have too much water, but what is given should always be warm in order that the roots may not suffer from chills. Plants intended to succeed those forced will do well in any cold pit, frame, or house that is kept just warm enough to be secure from frost.

ZONAL PELARGONIUMS, when they have been previously prepared, are valuable plants for winter blooming, but to see them good they must have a dry heat of 55° or so, and be placed on shelves near the glass, or where they can have the full benefit of all the sun and light we get at this season. The best kinds for winter work are *P.*

Vesuvius and the sports and seedlings from it, but there are many others that flower more or less freely, according to the way in which they have been treated during the summer, when they should be kept rather pinched as regards pots, and set in full sun to ripen and harden the young shoots as they form.

PRIMULAS are indispensable for the season now coming, and as they are, or ought to be, fast throwing up their blooms, liquid manure should now be given, but this must not be strong. It is much better and safer to administer it weak and often than overdose the plants and perhaps injure the delicate roots, which some liquid manures are very apt to do unless well diluted with water. The best kind of liquid manure is that made from sheep or cow droppings, with some soot added. Liquid thus prepared is mild, and it should be used quite clear, or it will leave a deposit on the surface of the soil and seal it up from the air. The situation that suits Primulas at this season is shelves in a warm greenhouse. They do not open their blossoms freely in a temperature less than 50°, and the double kinds being rather more delicate and tender require a few degrees higher than that. To give the blooms their proper colour full light is indispensable, which not only prevents any fading, but improves the texture by rendering the petals stouter.

CINERARIAS, if sown early, may be had in by Christmas, and to have them fine and stocky at that season they should now be brought in from pits and frames where they have been grown, and placed in light positions in any cool house. To keep the air sufficiently damp, it may be necessary to sprinkle the floor with water occasionally, as Cinerarias do not like a dry atmosphere, in which they soon show signs of distress by flagging, although they may be quite wet enough at the roots. Plants that are pot-bound will take frequent supplies of liquid manure, and those to flower later on should be potted forthwith, as nothing is more detrimental to Cinerarias than being checked in any way while making their growth. The soil that suits them best is a light rich loam, containing an admixture of leaf mould and rotten cow manure, together with a sprinkling of sand to keep the whole open and porous.

LIBONIA FLORIBUNDA AND PENRHOSENSIS are capital winter blooming plants, but the first-named has a provoking habit of shedding its leaves, which defoliation may often be prevented by keeping the plants in a warmer atmosphere than an ordinary greenhouse and being more liberal in the use of the water-pot. Dryness at the root is much against their welfare, and soon causes them to look yellow and starved. Solanums of the berried kinds are also capital decorative subjects, but to get their fruit coloured early the plants require a little heat, with which they should have plenty of light and be kept well watered at the roots, otherwise their leaves are apt to fall and thus give them a naked, shabby appearance. Among

STOVE SUBJECTS the Poinsettia takes the lead, its bracts being of that showy nature, that a few plants dotted here and there make a house look all aglow and quite light up a stage. Although heat is essential for producing large heads, the plants subjected to it are not so serviceable for furnishing in low temperatures; any, therefore, required for this purpose should be kept as cool as safety permits, besides which, the retarding of a portion of the stock will do much towards keeping up a long continued succession. Sericographis Ghiesbreghtii is another good thing that comes in during the dull months of winter. Though generally considered a stove plant, it will stand and flower freely in a temperate house, in which it lasts a great length of time in perfection. To enable plants to do this they should be kept on the dry side at the roots, as should likewise Poinsettias, as neither will bear wet and cold, conditions under which the feeders die and the plants soon show real distress. For cutting from there is nothing equal to *Euphorbia splendens*, the long wreaths of blossoms of which are always greatly appreciated by ladies for wearing in the hair, a purpose for which they are specially adapted, as the arrange-

ment of the flowers and the natural curve of the branches are just what is required. To have the sprays of bloom stand well when cut the plants must be stood on shelves or be so elevated as to bring their tops close up under the glass, that the light may act fully on them, which will not only give texture and substance, but colour, which then comes brilliant and good. Besides these stove and greenhouse things, there are many

HARDY PLANTS that may be taken up and forced, the Lilly of the Valley being one of the most charming. To get this at Christmas roots must be started now, and the best way to do this is to cover the tops with damp Moss and stand the plants in moist heat away from the light, where they can come steadily on. Solomon's Seal is almost equally valuable, and forces readily in the same way, and when the shoots of this are long enough for cutting there is nothing so chaste and nice as they are for mixing with flowers and dressing vases, which they greatly adorn. *Dicentra spectabilis* is an exquisitely beautiful plant, its long pendent racemes of lovely pink blossoms being very ornamental when seen elevated by standing the pots on a bracket. The forcing of this *Dicentra* must be done slowly. It is a good plan to start it in cold frames, kept close, and to have the pots covered with Cocoa-nut fibre, as though the top growth may not be much, they will make root, and that is a great point gained towards getting fine heads of bloom. *Spiræas* should be treated in the same way, as by so doing the crowns are kept snug and warm by the material preventing any variation of temperature. Hardy Azaleas and other deciduous things of that class, such as Lilacs, Weigelas, Guelder Roses, &c., may be considerably forwarded by plunging the pots containing them in a heap of fermenting leaves or standing them in any close warm shed where they can be syringed occasionally so as to keep the buds moist, and thus assist them in swelling. Roses are best brought on in a pit or frame, or any cool house where they can have air and light, as they are impatient of confinement, and break weakly when subjected to a close atmosphere in which the shoots soon become isolated and drawn. *Rhododendrons*, *Kalmias*, and other evergreens for forcing should be potted at once, so as to give them time for rooting, which the plunging in leaves, as mentioned above, will hasten, and help the plants to plump up their buds, which a little regular heat by-and-by will soon open and bring the plants well into bloom. S. D.

CULTURE OF POSOQUERIAS.

THESE pretty evergreen shrubs bear handsome very long-tubed flowers individually not unlike those of the *Stephanotis*. The two species most deserving of cultivation, viz. *P. multiflora* and *P. longiflora*, are both natives of Guiana, and succeed best when grown in a moderately high temperature. They strike well in spring from cuttings made of the young shoots consisting of three or four joints. They should be placed in sand, in a temperature of 70°, kept close and shaded. Under such conditions they will be rooted sufficiently in two months to require shifting into 4-inch pots. They do best in peat, to which a moderate quantity of sand is added. Place them in a light position near the glass; this is necessary, otherwise their natural inclination to grow thin and straggling is increased. Pinch out the points of the shoots when they have made a few inches of growth. A temperature during summer of 70° at night will not be too much with proportionately more heat in the daytime; tie out the shoots as they grow, so as to lay the foundation of bushy specimens.

By the middle of August they should have made sufficient progress to require shifting into 6-inch or 7-inch pots, after which encourage them to make growth, so that their roots may get well hold of the soil before the short days necessitate a reduction of the temperature. During the growing season syringe overhead daily, but discontinue this, and also shading, by the middle of September; after that time gradually reduce the heat to 60° at night and keep them correspondingly cooler by

day; continue in this way throughout the winter, giving them less water at the roots, but yet not allowing the soil to get so dry as to cause the leaves to flag.

In spring raise the temperature, and move them into pots 3 or 4 inches larger than those they are in, treating them in other respects as in the previous summer. They may be expected to bloom about midsummer, and, in addition to their handsome appearance, will give an agreeable perfume to the house.

After they have done flowering, shorten the shoots and encourage them to make growth before autumn, to help which manure water should be given once a week until the middle of September. Treat through the winter as before, and in spring turn them out of their pots; remove a little of the old soil from the top of the balls, giving pots 2 or 3 inches larger. Apply more heat as the summer advances. This second season they will have grown large enough to produce a fine head of bloom; when they have done flowering, again shorten the shoots and treat them in other respects as hitherto recommended. The plants will last for several years if the soil is partially renewed each spring when they are potted, assisting them through the active season of growth with manure water.

Posoquerias are liable to be affected by most of the insects that attack stove plants. These must be kept in check by freely syringing with tepid water, which will be sufficient to remove all except mealy bug and scale; should these pests appear, dip in or syringe with some kind of insecticide.

T. BAINES.

NEW IVY-LEAVED PELARGONIUMS.

THE first double-flowered Ivy-leaved Pelargonium (König Albert, violet-mauve) was distributed in 1875, and for two or three years afterwards all the varieties sent out bore a marked resemblance to it in general characters, the colours varying somewhat, but not much. Since then, however, many raisers, especially M. Croussé and M. Lemoine, have directed attention to this class with the result that large, finely formed flowers of various hues, rivalling the zonals in form and colour, may now be found amongst them. There are several purposes for which these Ivy-leaved Pelargoniums are well adapted; the more vigorous, for example, look well trained so as to cover a certain space, such as the end of a greenhouse, a position in which with suitable treatment they flower profusely. For vases, too, draping balconies, and such places their trailing habit eminently fits them. The favourite mode in which to exhibit them is trained as a pyramid, but in the case of small plants (say in 5-inch or 6 inch pots) all that is required is the support of two or three sticks just to prevent breaking, when, if after that the plant is allowed to dispose itself naturally, the effect is far more pleasing than if tied up stiffly. It is probable now that we shall be inundated with new varieties varying but little from each other or from some of the older kinds, as when any class of plants becomes popular additional raisers are sure to be attracted towards them.

In dealing with the new varieties of this season I will first mention a group of seven sent out by M. Croussé, all handsome, and in the case of some decided acquisitions. They are all of stout, sturdy habit, suggesting a certain affinity to the zonals. The kinds worth notice are: Abel Carrière.—In colour this is the farthest removed of any from the older kinds. The trusses are large, the flowers very double, and of a most beautiful shade of bright cherry-rose. This variety received a first-class certificate on July 10 at South Kensington, and may be truly said to be one of the finest of all. Alphonse Faillie has large bright cerise flowers shaded with amaranth, but in the way of another of the same class, viz., Gloire de Nancy, which latter I consider disputes with Abel Carrière the honour of being the pick of the seven. Gloire de Nancy is a very strong-growing kind, but at the same time equally floriferous with the others. Its colour is rather deeper and brighter than that of

the preceding, and its flowers are very full and double. Madame Boncharlat.—With me this plant did not succeed sufficiently well to enable me to compare it with the others under equal conditions, but the few flowers that opened were of a pleasing shade of rosy cerise. Mdme. Cochin.—The flowers of this are pale mauve, but though of good quality they closely resemble those of some of the older kinds. Madame Thouvenin is deep rich carmine in the centre, shaded with rose towards the edges. The individual blooms are very large, and altogether it is a fine showy kind. Mdle. Gauthier is a very round, full flower and the trusses compact. The colour is a bright violet-rose in the centre, becoming considerably paler towards the edges. It is a pretty variety, owing to the pleasing shade of its blossoms. These constitute the seven new varieties received from M. Croussé, and if called upon to choose the finest and most distinct amongst them I should name Abel Carrière, Gloire de Nancy, and Mdle. Gauthier, though all are fine and well worth cultivation. From M. Lemoine two varieties were received, of which one named Jeanne d'Arc was considered good enough to be awarded a first-class certificate by the floral committee of the Royal Horticultural Society on August 14. It is a free growing kind, with large very double flowers, white in colour, but at times slightly tinged with mauve. La Rosière, the other, is among the most double of this class, and a very regularly formed flower, the colour of which is a soft satiny rose with light backs to the petals. With me occasionally some of the flowers have a rather deformed centre, which prevented them opening properly, but such cases have not been numerous. The above peculiarity was also manifested in Isidore Feral, sent out by M. Delaux; this in colour and general characters greatly resembles the preceding; so much so indeed, that but one would be needed in a collection. Though all the above-named new varieties are good, the most distinct are Abel Carrière, Gloire de Nancy, Mademoiselle Gauthier, Jeanne d'Arc, and La Rosière or Isidore Feral.

The older kinds must not be overlooked; of them I would especially name—Albert Croussé, light salmon; Eurydice, rosy mauve; Mademoiselle Jeanne Wouters, deep rose; Comte Horace de Choiseuil, salmon-rose; Comtesse Horace de Choiseuil, bright rose shaded magenta; Gloire d'Orleans, crimson-magenta; Madame Croussé, pale pink; Madame Jules Menoreau, bright rosy cerise; Madame Lemoine, much like the preceding, but shaded with magenta; M. Barral, blush; Madame E. Gallé, almost white; M. Dubus, bright carmine-pink; and Marguerite Jacquot, pale silvery rose.

H. P.

CONCRETING PONDS.

5078.—Take out the sides vertically to one even depth below the intended finished surface of bottom—if in loose ground, say 12 inches; and if solid or retentive soil, say 6 inches. Let the trench be taken out 15 inches wide at bottom, place boards (3-inch are best for a round pond) round at the 15 inches at bottom, and draw them into 8 inches at top; support them there with a few thin pieces projecting over the concrete and into the ground. Then take washed gravel stones, burnt ballast, or hard cinders free from dirt (a few barrowfuls at a time); over these spread a little dry cement, mix it while dry, add sufficient water just to make it adhere—not too sloppy—and then throw it hard with a shovel into the space between the boards and earth sides, so that every shovelful shall be part of its neighbour; consequently no hollow space can be left anywhere. After this is carried up, which ought to be to about 6 inches above the intended surface of the water, and has had a few days to dry, take down the boards and put on a 3-inch or 2-inch coating of neat cement made smooth. If the sides are wanted to be ornamental, push in a few burrs or rock stones into the cement just below and above the surface of the water. If a rockery from the water's edge is required, finish the concrete wall and cementing as before, only leaving the concrete wall at top flat

and rough, and then commence by using rather large pieces of burrs or rock bedded in cement on the concrete wall to any style desired. Should it be intended to plant aquatics, build with cement waterproof pockets, or brick boxes, on the bottom of various sizes and in positions as required. These should be carried up to within a few inches of the surface of the water. This is necessary for three reasons—first, to prevent strong-growing kinds from crowding the weakly ones; secondly, by bringing the crowns of the plants near the surface, they succeed better than if deeper; and thirdly, the pond can be drawn off any time, the mud and filth cleared out, and re-filled without disturbing the plants. The water would thus be at all times transparent to the bottom. This is the way in which I make ponds and they have always given satisfaction. I might add, should it be a newly formed pond dug out of solid ground, that it would be better to lay 2 inches or 3 inches of concrete all over the bottom, and on that half an inch of cement. A man can then go in and scrub the sides and bottom, and at the same time open the sluice, when out goes all the filth with the water. This is worth the extra expense. If the pond is to be made this autumn, put the water in as soon as possible; the cement if good will set under it, and the water will keep frost out.

T. BEVAN.

GARDEN FLORA.

PLATE 412.

EPIDENDRUM RHIZOPHORUM.*

THE family of Epidendrums, literally "tree dwellers," is by no means a favourite one with Orchid growers of the modern school, and yet the genus is interesting in many ways. For example, the well-known *E. cochleatum* is said to have been one of the first—if not actually the first—epiphytal Orchid cultivated in the Royal Gardens, Kew. To this genus belongs *E. frigidum*, which is found wild in Venezuela on damp rocks at a short distance only below the eternal snow line, or at a height of 13,000 feet. It has stiff, curved leaves and long, drooping spikes of pale rosy flowers. Linden especially remarked the fact that the whole plant, flowers included, is covered with a varnish-like exudation not unlike that commonly seen on the flower-spikes of *E. ciliare*. Jamieson found the plant in Peru on the volcano of Pasto, where it is epiphytal on trees at 13,000 feet. This plant and the little *Oncidium nubi-genum* are alike interesting, as being, perhaps, the most remarkable mountain climbers of all known Orchids. True, but few of the species ever attain to what we may call the "flower-show" standard of beauty, unless it be the old and well tried *E. vitellinum majus* which Mr. Ward used to grow and exhibit so well from the late Mr. F. G. Wilkins' collection at Leyton years ago. And yet, although not particularly showy, many of the species are deliciously fragrant, and some of the caulescent or long-stemmed kinds are of graceful habit, and not only bear showy blossoms, but the flowers also endure fresh and fair for a period of many weeks. Mr. B. S. Williams describes the plant we now figure as "A scandent Orchid, often reaching 10 feet in height," and further recommends that the tall stems be entwined around some sticks as the best method of ensuring its blooming. Our plate shows the beauty of the inflorescence, and it is not at all detrimental to this species to learn that Mr. S. Wooley, of Cheshunt, has had a plant of this *Epidendrum* in bloom the whole year round.

* Drawn from specimens sent by Mr. R. Gill, Tremough, Penryn, Cornwall, May 3, 1883.



EUPENDRUM RHIPHIOPHYLLUM

This species is by no means a novelty in our collections; it was apparently first alluded to by Pavon in his MS. as *E. radicans*, then by Mr. James Bateman in the *Botanical Register* in 1838, and a figure was afterwards published in the same work in 1840. It is wild in Guatemala on the authority of the late Mr. Ure Skinner, and Hartweg found it in Mexico during one of his journeys for the Horticultural Society of London. It would seem to be of terrestrial habit, since the collector last named met with it "in grass at Tomatze, near Comaltepeque." Other species of similar habit well worth culture are *E. cinnabarinum* and *E. elongatum*, the latter especially remarkable, inasmuch as one of its spikes will continue to produce flowers in succession for many months or even years. There are amongst *Epidendras* none finer in its way than *E. syringothrysus*, which bears great panicles of flowers not at all unlike great clusters of Lilac blossom; then among "botanical species," how rarely one now may see a plant of the rare *E. antenniferum* (Pax. "Flower Garden," vol. i., 184), which is not showy, but remarkable since its linear petals grow or lengthen after the flower bud expands in a manner analogous to those of some *Cypripediums* of the *C. caudatum* group. *E. paniculatum* (Bot. Mag., t. 5731) is another tall growing plant introduced from New Granada some years ago by Messrs. Veitch, each of its slender flowering stems supporting a great terminal panicle of rosy lilac flowers. Amongst the most showy of *Epidendras*, one must not forget *E. dichromum* and its variety *amabile*, introduced from Bahia by Messrs. Low, which bears panicles of rosy white or lilac blossoms of considerable size. *E. prismatocarpum*, *E. radiatum*, *E. fragrans*, *E. myrianthum*, *E. aurantiacum*, *E. Frederici-Guilielmi*, *E. bicornutum*, *E. Wallisi*, and the varieties of *E. macrochilum* are not uncommonly met with in gardens, and all deserve a place in good collections.

F. W. B.

* * The plant from which the material sent to us in May for our plate was cut was a huge specimen measuring 4 feet in diameter and as much in height. It was trained on a balloon-shaped trellis, and was quite a thicket of stems and foliage. This year this grand plant bore no fewer than ninety such clusters of brilliantly-coloured blossoms as those represented by our plate. This same plant may be seen in Mr. W. Bull's nursery at Chelsea.—ED.

Allamandas.—These rank among the most useful of stove or intermediate house plants for supplying flowers. They grow very freely in a temperature of from 65° to 70°, and the amount of blooms which they produce during a season is something wonderful. We have a plant in a 10-inch pot which began to open its flowers in June; since then we have gathered on an average five dozen blooms a week from it, and now it is bearing many strong healthy young growths; on the end of each are large clusters of buds. To all appearance it will flower to the new year or thereabouts, and it has certainly supplied us with more cut flowers than any other plant in the place. Those who get *Allamandas* up for exhibition generally plunge them in bottom heat in order to get a large quantity of bloom out at one time, but such treatment is not conducive to long-flowering, which is best accomplished by keeping them moving on slowly, and not drying them off too much at the root after they have done blooming. As pillar and roof plants *Allamandas* possess every quality requisite to recommend them, but it is astonishing how well they succeed in a 10-inch or 12-inch pot, trained round stakes or wires. A

Hendersoni, the variety we grow, is, I think, the best.—J. MUIR.

SEASONABLE WORK.

FLOWER GARDEN.

THE wind and rains which we have lately had have finished nearly all kinds of summer bedders, which have been, by reason of the absence of frost, more than usually prolonged this year, Violas, Calceolarias, Ageratums, Marguerites, single Dahlias, and tuberous Begonias being magnificently flowered up to the very last—a fact that we have noted for use next year, when these classes of flowers will be grown more largely, to the proportionate exclusion of Pelargoniums, which are among the very first to be affected by rain or frost. The beds should now be cleared of all plants that will not withstand frost. Dahlias, Begonias, and other tuberous-rooted plants should be placed in safe quarters—a cool shed—and the roots laid in dry vegetable soil, in sand, or Cocoa fibre, there to remain till February. The beds should then be replanted for the winter, either with bulbs and spring flowering plants and annuals, or else with evergreen shrubs. Violas and Pansies may remain, for with mild weather they will flower more or less the winter through, so that all that is needed to furnish these kinds of beds for the winter are a few small shrubs, such as Cupressus, Retinosporas, or Aucubas; they should be planted at regular intervals over the beds, the Violas serving as a groundwork, into which may advantageously be dibbled a few Tulips or Hyacinths for early spring flowering. Other beds may be treated in like manner, as, for instance, those that have been carpeted with hardy plants of the Sedum type. Do not remove this, but plant in it Stocks, Wallflowers, Forget-me-nots, &c., as well as suitable shrubs in the larger and more conspicuous positions. By this means the work of re-furnishing will not only be less, but the beds will look well at once. We need hardly add that the edgings of beds ought to be neatly trimmed, and bare spots of earth be mulched with fine vegetable mould or fibre. This done, an occasional sweep up and rolling of turf will be all the attention the parterre will need for months to come.

MIXED FLOWER BORDERS.—There is at present an inevitable look of untidiness about these, wind and wet having done their worst. Chrysanthemums need tying up, and some of the clumps may be worth protecting from frost, which is easily done by placing a few sticks round the plants and lightly wrapping round them pieces of tiffany or matting. Other plants such as Antirrhinums, Michaelmas Daisies, Anemones, that have done flowering should be relieved of useless spray and seed-pods, and annuals be encouraged to make sturdy growth by being well thinned out, and the entire surface of the border be freed of weeds and be lightly pointed over, but previous to which all vacant spots should be filled up with any spare biennials or bulbs there may be left from the general planting.

GENERAL WORK.—The due preservation of neatness must have first place under this heading, and next comes the pressing forward with alterations and improvements whilst the weather continues open, and therefore favourable to all transplanting operations, that generally form a large proportion, and by far the most important, of the work connected with extension and alterations; but under no circumstances should planting be done when the soil is in a puddled condition, but the work may at that time be advanced by carting the necessary soil and manure to the ground, and getting it ready by deep trenching and draining where needed. Bedding plants now need careful treatment to keep them in good health. All kinds should be watered but sparingly—Pelargoniums more particularly so, or the late-struck plants that have as yet made little root will quickly rot off. Verbenas, Petunias, Ageratums, and others of similar hardiness should be kept as cool as possible; cold pits that can be well covered in the event of frost are the best structures for these.

Prepare protection in the way of litter or Bracken for protecting plants that are being wintered in ordinary cold frames. Of course this need be applied only in exceptionally severe weather, as the coverings with ordinary mats will suffice at other times.

FLORAL DECORATIONS.

FOR using in many ways the autumn flowering varieties of *Salvia* will now prove valuable. *S. splendens* is still one of the best of its colour and very floriferous. *S. Bethelli* is also a fine variety of a purplish shade. These, with one or two more distinct colours, will at all times make an excellent arrangement for the dinner table, being careful to preserve at least some of their own foliage intact. Medium-sized epergnes, with either a trumpet-shaped glass or one more dish-shaped, will do excellently for these flowers, their colours contrasting well with that of the silver and other surroundings of a dinner table. Some Fern fronds of any approved kind will add to the effect, or in lieu thereof the elegant foliage of the cut-leaved Bramble and a few pieces of one of the ornamental Grasses can be turned to good account. Another valuable class of plants at this dull season of the year are the *Gosneras*; for tall trumpet vases the spikes of these, when well developed, are excellent. The old *G. zebrina* is especially telling when used in this way; its own foliage, which is always handsome when the plants can be kept in good health, will be quite sufficient to show off the flowers to good advantage. The handsome blossoms of the *Belladonna Lily* will also be valuable just now for arranging in many ways. The individual flowers can be used in association with those of the *Amazonian Lily* for a dinner-table arrangement, selecting a glass stand with a flat base resting on a table-cloth, and a trumpet-shaped glass arising out of its centre. Around the stem of this a few blossoms of the red and white *Lapagerias* and some small growths of the *climbers* might be entwined with good effect. In the glass itself two or three nice feathery pieces of the red and yellow varieties of *Celosia pyramidalis* and a few spikes of dried Grasses would make a pretty arrangement under artificial light. Some few healthy green tufts of either *Cyperus alternifolius* or *laxus* would look well with the Lilies, which should be resting on a carpet of green Moss or *Selaginella*, and there should be a fringing of Fern fronds of a somewhat bold character. Spikes of both of these Lilies cut to a good length and having several expanded flowers will also do well as a bold arrangement for either a sideboard or entrance hall. The foliage of the green variety of *Aspidistra* will associate well with them, and a leaf or two of *Amaryllis aulica* if to be spared. A small spike or more of the *Pampas Grass* towering above all would be effective. A dark blue or even a black-coloured china vase might be selected for such an arrangement as this. *Camellias* in many places will now be yielding a fair quantity of their blooms; these will come in handy for specimen glasses. It is well, however, to take a precautionary measure with these to prevent them from dropping any of their petals prematurely. A little gum worked in between the outside petals will generally prevent this annoyance. Choice bits of Orchids should be made the most of for small glass vases, taking care that these do not stand too close to any window that is opened on chilly or windy days. If this be overlooked the blossoms will quickly fade.

INDOOR PLANTS.

CAMELLIAS.—One of the most disagreeable circumstances connected with gardening is that it is necessary to keep up a war with insects that never comes to an end. Plants in the open air, with a few exceptions, are little affected with animal parasites that hold on to them beyond a limited time during the year; but with those grown under glass the conditions are wholly favourable to insects, which go on increasing more or less, according to the active or more dormant time of the year, and unless there is unremitting attention

given to their destruction, the plants never can thrive or appear as they ought to do. The course sometimes followed of allowing plants to get badly infested, and then to subject them to extra cleansing, is the worst possible method, for not only is the work thereby much increased, but the plants themselves, beyond the harm done to them by the insects, have their leaves more or less injured by whatever means are employed in the cleansing process. Gardeners who keep the best ahead in the destruction of insects not only reduce the amount of labour to a minimum, but invariably reap more satisfactory results by the cleaner and better condition of their plants. The best season to attack the enemy is during the autumn and winter, when insects increase much more slowly, and the press of other matters gives more leisure for the work. Camellias more than most plants suffer through the presence of white scale, the most difficult of all insects to get rid of, for the reason that many of the plants subject to it will not bear the application of any insecticide sufficiently strong to destroy the pest without seriously injuring the foliage. When the plants are much infested it congregates about the extremities of the shoots and on the flower-buds; where the growth is vigorous, and the buds are set in clusters, it is well to thin them out sufficiently, so as to be better able to get at the scale. This thinning out is also essential to obtain full-sized flowers, for although the reduction of the buds is not necessary to be carried so far now that the blooms of these plants are generally gathered without any of the wood in the way that was long looked upon as essential, and consequently through the non-mutilation of the shoots they are enabled to develop more flowers; still, it is bad practice to allow too many. Some of the best of the market growers, who naturally are anxious to let as many remain as the plants can fully support, thin out the buds to two or, at most, three to a shoot. We have found nothing better to clean these plants with than an ordinary tooth-brush for removing the scale, finishing by sponging with ordinary soap and water. The strong applications of soft soap not infrequently used in the cleaning of many plants often does more harm than good, and in the case of Camellias causes numbers of the buds to drop, although this often occurs so long after the dressing as not to be attributed to the effects of the soap. If the plants are badly affected it will be well to go over them twice. With the damp weather we have recently had, necessitating a considerable use of fire heat in most conservatories to expel the vapour, it will be requisite to see well that the plants are sufficiently moist at the roots. This not alone applies to those that are grown in tubs or boxes, but also where planted out, the soil often being too dry below when the surface looks moist enough.

ORANGES AND CITRONS.—These are troublesome plants to deal with in the matter of scale, and now when transferred to their winter quarters should be thoroughly overhauled, so as to remove the pest, which in their case often establishes itself where there is the least inequality in the bark, as well as on the leaves, the young wood, and about the stalks of the fruit. These plants should never be allowed to get badly affected with scale, as it seldom fails to give a yellow sickly hue to the leaves, and causes their premature falling off, and so imparting a half-clothed appearance, which much reduces their beauty. Where Oranges are grown in numbers with a view to their fruit being used, they should have much more warmth than when only required for ordinary decoration, otherwise the fruit can neither be plentiful nor high flavoured. Bottom-heat is sometimes advised where the crop is required for use in this way, but it is not absolutely necessary. A genial warmth of about 55° in the night through the winter, with an atmosphere neither too dry nor too moist, will answer for them. By some the flowers are as much esteemed for their scent as Violets, and where this is the case much may be done in lengthening the supply by introducing a plant or so at a time to a little more heat, as there is no particular season in which they cannot be had in bloom. Though smaller in the

flowers, the small Otaheite variety is useful for blooming. There is one advantage with this sort; the plants not being large, a succession may be brought on to flower without the over-abundance at a time that often occurs where the large kinds are forced.

WINTER-FORCED FLOWERS—LILY OF THE VALLEY.—Where this is wanted in bloom by Christmas there is no difficulty in having it, if strong, full-sized crowns are obtainable that have been cultivated under conditions such as to bring their growth to maturity early in the season. The German roots that are now sent to this country have been in this way especially prepared for forcing, so that when they arrive by the middle of October the crowns have already pushed a half inch or so. If these are at once potted, and allowed a week or two before putting them in strong bottom-heat, there is little doubt about their moving freely, and coming into flower during the latter part of December.

POINSETTIAS AND EUPHORBIA JACQUINIEFLORA.—Poinsettias intended to come in early should now be subjected to a brisk stove heat, keeping their heads if possible all but touching the roof, by which means additional brilliancy of colour and a hardier condition such as to enable their bearing a cooler temperature when fully expanded will be secured, very different to that which will result from their being brought into bloom with their heads several feet from the glass. Regarding the Euphorbia, the time it can be had in flower will depend upon how the plants have been treated. Cut-back examples, such as bloomed last season, that were started into growth sufficiently early in spring and pushed on in a warm house with the shoots not stopped more than once, will flower much earlier and produce double the quantity of bloom that such as are weaker and have made their growth later will. There is no plant that we have ever used for forcing that has the condition of its flowers so much dependent upon its being brought on to bloom with the tops of the shoots all but touching the glass as the Euphorbia. When so treated it will stand in a cut state for a week; whereas plants in a dark house or under less influence of light are of so little use for cutting, that both the leaves and flowers flag almost as soon as they are severed from the plants. Neither of the above plants will do well with the soil keeping so wet as many things; the comparatively few and delicate fibres which the Euphorbia especially makes cannot at any season bear the soil being wet unless in very small well-drained pots and under an exceptionally high temperature. Anyone possessing a large plant of the old Euphorbia splendens trained on a back wall, round a pillar, or in any situation where it will receive a moderately brisk heat through the winter, will have a continual succession of brilliant flowers. This plant likewise is impatient of much moisture in the soil unless the roots are confined within a restricted space. Even when allowed plenty of head-room in the way above indicated, it is better kept in a comparatively small pot than turned out in a border.

ORCHIDS.

EAST INDIA HOUSE.—It will now be a good time to thoroughly overhaul the plants, and wash them well with soft-soapy water. Those that are growing in pots should have these washed, and where the plants have been placed on inverted pots they also should be removed, and clean ones be put in their place. The best stages for an Orchid house are those made of slate with a neat cast-iron edging screwed on to them. Some gravel, spar, or broken sea-shells may be placed on the stages to stand the plants upon. Another matter which demands attention is cleaning the glass roof. The wood and glass work should be well washed with clean rain water; a very little soap should be used, as strong soapy water has a tendency to take the paint off the wood. The importance of a clear light at this season through clean glass is of much importance in any of the departments, but much more so in this one. We

should not advise any potting of the inmates of this house until after Christmas, when the plants will succeed better with the lengthening days. The earliest ripened Dendrobiums should be placed in the coolest end of this house, and they ought also to be placed quite close to the glass, so that the young growths may be strengthened by the light and also by the more buoyant atmosphere. The growth of some species and varieties may even have started; in the cool airy house where they have been at rest they will of course grow with more vigour when placed in the warm, moist atmosphere of this house. The *Vanda teres* and *V. Hookeri*, which have been grown in this house up till now, ought to be removed to the temperature of the Mexican house, and they should be placed where they will be fully exposed to the light. They must also be gradually dried off, so that from the middle of November until about the end of February they get no water whatever. Some of the *Cypripediums* that delight in a warm house should be carefully examined, as a section of them, notably *C. Veitchii*, are very liable to be attacked by thrips; and as the leaves cling so closely to the surface of the compost, it is not very easy to dip them. We usually go over them with a brush, dipping it into the soapy water, and then it is easy with the brush to get at the thrips in the centre of the plants. *Laelia autumnalis* and varieties of it in flower claim a high position; although usually grown in this house, we have grown *L. autumnalis* in the cool house, and find it succeeds well there. We have always given it and its near relative, *L. majalis*, the lightest corner in the house, and find the first named species succeeds well and flowers every year; whereas the latter scarcely grows and but seldom flowers. The *Laelias* are watered freely while making their growth, but during the resting season they do not receive nearly so much water. *Laelia alba* is one of the prettiest of the small-flowered species, and they are even more useful because they bloom now. We have always grown *L. alba* warmer than the others; it may not require more, but we find it succeeds well in a warmer house. *L. anceps* and varieties of it are highly valued in the winter, and are now showing.

COOL HOUSE.—The last night or two the temperature has fallen as low as 42°, and as it would not be safe to allow the temperature to fall lower than this, a little heat in the pipes will be necessary to keep up the temperature to 45°. It is worthy of remark that our cool Orchid house has not required any artificial heat from May until the end of October. Indeed, it is a question whether the New Grenadan *Odontoglossums* require more heat than the majority of New Zealand plants which are cultivated in a cool greenhouse. Probably, too, they would do with almost as much air as the New Zealand plants. At any rate most Orchid growers give their plants more air now than was deemed advisable less than ten years ago, and the cool section may be aired more freely than the others. We have heard of plants of *Odontoglossum crispum* being placed near the open ventilators of a greenhouse, where they succeeded well, making good flowering growths with the ventilators open night and day. We have removed a few of the plants of some Orchids that flower best in a temperature of not less than 50° at night, and in mild weather this ought to be 55°. If the cool house is kept at 50° as a minimum, a temperature at which most of the occupants of the house will do well, there is no need to remove the white winter flowering *Masdevallia tovarensis*, *M. Wagneri*, or the *Restrepias*; whereas if the temperature occasionally falls to 40° it is better to remove them to the cool end of the Cattleya house. *Odontoglossum vexillarium* should also be in a Cattleya house temperature now; it does not like a high temperature, nor are the plants safe in a low cool house one. If a winter temperature of 55° as a minimum can be afforded for them, it will suit better than any other. The handsome *Oncidium macranthum* succeeds well in the lowest temperature. In some cases the flower-spikes will be showing, and they are very attractive to slugs; these troublesome

pests may be found any time at night, and also at daybreak in the morning. A little caution is necessary in damping the house at this season, an over-moist atmosphere causing the flowers to spot almost as soon as they open.

PROPAGATING.

ABUTILONS.—These may be increased with equal facility either by seeds or by means of cuttings. The former are easily obtained, and to produce plants for winter blooming should be sown about April in pans of moderately light soil and placed in a warm greenhouse, in which they will soon germinate, but as many seedlings grow away very strongly before flowering for general purposes plants raised from cuttings are preferred. The cuttings may also be taken in April and inserted in pots of sandy soil without removing or shortening any of the leaves and placed in a close case in the propagating house or in a frame with a slight remaining bottom-heat. There, if kept close and shaded, they will be rooted in a fortnight, when they may then be hardened off.

ACACIAS.—The smaller growing kinds, such as Drummondii and armata, are readily propagated from cuttings in this way: When the flowering season is over shorten back any irregular branches at which they will break forth into fresh growth, and when the new growth is moderately firm take off the cuttings. The pots should be filled to within 1 inch of their rims with broken crocks, over which must be placed the soil, consisting of sandy peat with a small proportion of loam, the whole being pressed down firmly. A little sand should be put on the top. About 2 inches will be found the best length for the cuttings, the leaves being carefully removed from the lower half. When inserted, the base of the cuttings will rest on the crocks, which for the top should be broken small, and care must be taken that it is made firm or it will shrivel up. When the pot is filled with cuttings, place a bell-glass over them, and keep it in a greenhouse temperature well shaded for a few weeks until they callus, when they may be removed to more heat and will then quickly root. When rooted, which will be perceived by growth taking place, tilt the bell-glass and gradually harden them off.

ANTHURIUMS.—The Flamingo plant and its white variety are both readily increased by division in spring; all that is requisite is, if the roots have been very much disturbed, to keep them close until they recover from the check. Its ally, Anthurium Andreanum, is propagated by taking off the top of a plant when it has attained a sufficient length, and putting it in as a cutting in a small, well-drained pot. The soil best suited for this purpose is fibrous peat, Sphagnum, and sand. As soon as the side shoots produced after that operation are large enough, they may be taken off and treated in the same way. The cuttings must be kept in a close case in the stove till established in their pots.

BOUVARDIAS.—These beautiful winter-flowering plants are increased either by cuttings of the young growth taken in the spring, or, as preferred by some, root cuttings. For the former method, which is the one most generally followed, introduce the stock plants into a brisk heat about the middle of February, when they will grow rapidly, and as soon as the young and succulent growth has attained a length of 2 inches, take off the cuttings, not at a joint, but immediately above one, thus leaving a portion of bare stem below the bottom pair of leaves, which must on no account be removed. The cuttings must be inserted in light sandy soil, taking care that the bottom leaves are not buried, but rest as it were on the surface. Thus treated and placed in a close case in the stove, they will root in a fortnight, when they must be hardened off. For root propagation shake out the old plants early in spring, and cut up all the principal roots in pieces about 1 inch in length, inserting them perpendicularly as cuttings, so that the upper part is on a level with the soil; treat them in all respects the same as cuttings made of the shoots.

FRUIT.

CHERRIES.—Where these are wanted very early, the first set of trees may now be pruned and cleansed ready for tying in when opportunity serves. As these and Plums are often injured by a sudden outbreak of alphis when the trees are in flower, too much attention cannot be devoted to the washing and dressing of the stems and spurs, care being taken that the insecticide used is not strong enough to injure the buds. If, as is generally the case, these excitable trees have the benefit of a movable roof, the lights should be thoroughly washed, or, what is almost as cheap painted inside at least before they are put on for the winter. Vigorous young trees which have been partially lifted or root-pruned will not require mulching or stimulating until after the fruit is set, but the borders occupied by the roots of old ones may be covered with a good layer of rotten manure as soon as they are tied, and to prevent the buds from dropping, an occasional soaking with diluted liquid will be highly beneficial to these, as it is to all other kinds of stone fruit trees when grown under glass. When all is finished the house must be kept well ventilated and as cool as possible until the time arrives for forcing. If trees in pots are still standing out in their autumn quarters they may be placed closer together and well packed with Fern or litter to keep out frost. Where birds are numerous a piece of fishing-net should be thrown over them to protect the blossom buds when they begin to swell.

STRAWBERRIES IN POTS.—The heavy rainfall of the past month, combined with mild weather, has kept the plants growing rather more freely than is good for them, as it is now getting late for them to ripen up their crowns properly. Much, however, may be done to facilitate this process by moving the pots occasionally to let in light and air, and to prevent the roots from penetrating into the bed of ashes upon which they are placed. If forward batches of early kinds are wanted for starting, a more decided check may be given to vegetation by placing them on their sides, or setting the pots in cold pits where the lights can be pushed down and tilted in wet weather. As the general stock will continue growing for a considerable time yet, they may with advantage remain out of doors until severe weather approaches, when they must be placed in their winter quarters until wanted for forcing. When thoroughly at rest pot plants should not be allowed to become dry at the roots; neither should they be coddled by being kept in a close pit when the weather is mild. In our own management we prefer leaving all the plants out of doors until the middle of November, when they are removed to cold pits, and plunged up to or slightly over the rims in Oak leaves or tan, for the two-fold purpose of keeping the roots moist and the protection of the pots from the action of frost. The lights are thrown off in fine weather, and well tilted to shelter them from heavy rains. No attempt is made to keep out ordinary frost, as decided rest is highly important; but a thin layer of dry Fern is spread over the crowns when it is unusually severe. When Strawberry plants are wintered in houses they should be placed close together on a cool, damp floor in preference to elevating them on shelves.

CUCUMBERS.—If plants in manure pits and frames are still giving a supply equal to the demand, keep September-sown plants divested of all male and female blossoms, and train the young growths regularly over the wires. Add more lumps of turfy loam to the roots as they appear on the surface of the hills or pots, but avoid the use of stimulants until they begin to bear fruit. Keep a sharp look-out for mildew, and check it at once by the application of dry sulphur to the leaves, renovation of the fermenting material, and the abundant use of water at a temperature equal to that of the soil containing the roots. Keep succession plants growing by shifting them on before they become pot-bound if the pit in which they are to be planted is not ready for them. Never bury the stems of winter plants, as deep potting or heavy earthing is the frequent cause of their

going off before the inexperienced are aware of their danger; but in potting or planting always keep the top of the ball near the surface, and coax the roots away into feeding ground some distance away from the stems. Where old veterans are still doing good service keep them copiously supplied with good warm, generous liquid, mulch the balls with short stable manure, and encourage an extension growth by allowing a number of the most promising Vines to ramble over any unoccupied part of the trellis. In every department keep the foliage free from insects by means of sponging or fumigating, and endeavour to maintain a healthy sturdy condition by internal cleanliness and the frequent removal of matter which may accumulate upon the glass, and so interfere with the passage of solar warmth and light.

MARKET FRUIT GARDENS.

The principal work in these will for some time to come consist in grubbing up exhausted trees and in the planting of new ones, and seldom has greater activity been observable in this branch of hardy fruit culture than that which occurs at the present time. Gooseberries and Currants that have occupied the intermediate spaces between standard trees for a certain number of years are being grubbed up. When the trees begin to meet and intercept the light they are no longer useful; such thick cropping can only be successfully carried on by extra supplies, and as the tall standard trees are the most profitable it is bad policy to let the under fruit stand so long as to check their growth. The work of clearing the ground is done in rather a summary manner by means of a horse and a chain, one end of which is slipped round the stem of the bush, which, with a sharp jerk, is drawn out with all its roots adhering to it. The ground is then well scarified with barrows, and sown down with permanent Grass seeds early in spring for feeding off with sheep. The bushes are drawn to an open space and burned, and their ashes are strewn on the surface. Orchards thus treated make rapid progress, for the upper roots take early possession of the freshly cultivated soil, and the trees generally become very fertile, as the surface soil is kept rich by top dressings. The Grass being allowed to get long at gathering time makes good winter keep for sheep. Apples are generally considered to keep better from trees grown on Grass than on cultivated ground, and in this locality anyone purchasing winter keeping sorts always give the preference to those from trees on Grass.

PLUMS as bush trees are being largely planted in many places, for, next to Apples, they are about the best market fruits we have. Dwarfs or half standards are also very popular planted 15 feet apart each way, with two rows of Gooseberries or Currants between them. The ground about these is generally manured and roughly dug up very soon after the fall of the leaf, and the trees are pruned after Christmas, when all Couch Grass and weeds are forked out. The sorts in greatest request for market are the Early Orleans, Rivers' Early Prolific, Rivers' Grand Duke, Cox's Emperor, the Bush Plum, the Czar, Victoria, Pond's Seedling, Pershore, Belle de Septembre, and Black Diamond. Plums require pruning in the young stage to keep the strong leading shoots from rushing up too quickly and thereby making weak, straggling trees, but after they get into bearing they require very little pruning beyond cutting away dead or weakly branches and shortening any straggling growths.

PEARS are being more planted as market fruits than formerly, and in soils where they succeed they are a remunerative crop. Tall standards treated like Apples on Grass are best, but dwarf bushes or pyramids produce the largest fruit. We have lately gathered very fine fruits from trees so managed of such sorts as Louise Bonne of Jersey, Van Mons Léon Leclerc, Catillac, Josephine de Malines, Gratioli of Jersey, Beurré Clairgeau, Marie Louise, Marie Louise d'Uccle, Vicar of Winkfield, &c. These always command a remunerative price in the market, not only for dessert, but also

for stewing. Bellissime d'Hiver, Verulam, and Catillac are best for culinary purposes, but second-rate dessert sorts like Vicar of Winkfield can be utilised for the purpose.

COB NUTS and FILBERTS are being largely planted just now; they flourish on stony land, such as that of the higher elevations where other fruits are precarious. They may be grown beneath tall standards, but are best when they get more sunlight. We observe lately that they are being planted in alternate rows with Damsons, as both succeed on light soil, and the Damson, planted as a standard and kept topped in rather closely, does not create much shade. The Nuts are planted about 15 feet apart as bushes, and pruned in the open cup fashion. Filberts are not nearly so largely grown as formerly; the Kentish Cob Nut is a much heavier cropper and more certain bearer, and Webb's Prize Cob is a grand Nut.

BUSH FRUITS, such as Gooseberries and Currants, are planted 6 feet apart each way generally as intermediate crops in young orchards, and lately Raspberries have been largely planted as field crops. They are planted in clumps 3 feet or 4 feet apart, and cut down annually to 3 feet high, not staked or tied as in gardens, but nevertheless in good soils and under liberal cultivation they yield fine crops that are all sold to jam manufacturers by the ton, as many as 4 or 5 tons being sent into Maidstone in one lot. The sorts most in demand are Fastolf, Carter's Prolific, and Prince of Wales; only red sorts suit the market.

KITCHEN GARDEN.

GLOBE ARTICHOKEs have for some years had a rough time of it, but last season, being so mild, they sprang up with their usual strength in the spring, and now present a very respectable appearance. Give them a good mulch with cow manure, and afterwards protect them with dead Bracken. February is the best time to make new plantations. Slipping off the offshoots from the parent plant is a much better system than growing them from seed. Digging, trenching, or manuring, as the case may be, all vacant quarters or borders after the crops are secured will be the order of the day. The time is fast approaching when Seakale, Asparagus, and Rhubarb will want looking to; Rhubarb, in fact, may be taken up now to force; it is quite ripe enough for that purpose. We gathered our first Mushrooms on October 26; they promise to be a good crop. Now is a capital time to plant Cauliflower plants under hand-lights, planting five under each light in a warm corner on a south border. In the case of Cauliflowers to plant out in March, we find by far the best plan is to plant them in small 3-inch pots. Keep them in cold frames, and expose them fully on all occasions except when there are heavy rains or sharp frosts. They get nice, stiff, and sturdy plants by March, and if turned carefully out of the pots, they never feel the effects of the shift.

HORTICULTURAL EXHIBITIONS.

EXHIBITORS in horticultural competitions are not usually slow in finding fault when they have a grievance, nor backward in making it known. It is well it should be so, as it tends to show committees who manage these competitions where there may be defects or shortcomings in the arrangements. There are, however, I think, few who have had much experience in these competitions who will agree with the remarks of "R. B." (p. 353) any more than those in the same strain which gave rise to his strictures. At most exhibitions there are usually a few individuals whose productions, according to their own ideas, do not get prizes equal to their merits; not by reason of any mistake in the judging, but through downright favouritism, such as "R. B." complains of. And the most unfortunate part of the business is that, although there are new committees elected from time to time and the judges frequently changed, still the same ill luck follows them. Show where they will, they suffer in like manner, and it is always the old cry of favouritism. But has it ever

occurred to "R. B." and those who make such charges that if these are correct, there is nothing less than a system of unmitigated collusion and fraud between the judges and those whom they favour? There is no escape from this. Favouritism as applied here is only another name for dishonesty. The most remarkable thing connected with the subject is that it is always the same unlucky individuals who suffer through such disreputable proceedings.

As an old exhibitor, who for a lengthened time had a fair opportunity of becoming acquainted with the proceedings at horticultural shows, large and small, in many parts of the country, I can without the least reservation say that I have never met with a single instance in which there was a shadow of suspicion of favouritism in the awards to any member of the committees representing the various societies, or other individual connected, no matter what his standing or influence might be. "R. B." would change the judges repeatedly, not allowing them to officiate twice in succession, thereby insinuating that those who act in that capacity are not to be trusted. This is a lower estimate of human nature than I should care to take, and one I am glad to say my experience warrants me in asserting is not shared by more than a very limited number of exhibitors. Where errors of an unmistakable description take place in the awards, such as might be construed into

FAVOURITISM, in nineteen cases out of twenty they occur through judges being appointed who are not able to grow up to the mark the things which they have to judge. When I was an exhibitor the necessity for judges who were thus qualified was the only thing that I used to urge. "R. B." complains that at one of the metropolitan shows where he was competing, some exhibitor who came later than the regulations stipulated for was allowed to compete, and was awarded a prize that others who were there in time with equally good productions were entitled to. This looks like a case of favouritism, in which both the authorities connected with the show and the judges would appear to have been in league, otherwise the productions of equal merit that reached the ground within the prescribed time would at least have been awarded equal prizes. I am a firm believer in

STANDING BY THE RULES in everything that goes to enforce fair and equal competition. The rules as to the time of exhibitors reaching a show are made by committees for their convenience, so as to get the staging done in reasonable time; but any exhibitor who attempts to get another who competes against him disqualified on such ground tries to take a mean advantage. I think the council whom "R. B." tells us he wrote to after his protesting acted perfectly right in taking no notice of his communication. As an evidence that all exhibitors are not actuated by the same spirit, allow me to mention a case of a like character where an exhibitor was out of time, but where a very different course was taken by those with whom he was competing, and which is an example of that good feeling which should ever exist amongst those engaged in such competitions. In 1876 the managers of the Westminster Aquarium offered large prizes—£50, £30, and £20—for twenty Orchids. Mr. Ward, then gardener to the late Mr. F. G. Wilkins, Leyton, entered and staged a fine collection, as did also Mr. Douglas, gardener to Mr. W. F. Whitbourne, Ilford. Mr. Hubberstey, who was then gardener to Mr. Wrigley, of Bury, Lancashire, had also entered, but was delayed on the railway, and did not reach the Aquarium until long after the time when all the exhibits should have been there, and within a few minutes of the time at which the judging should commence. Mr. Ward knew that in the absence of the Bury collection he would be first; he also felt tolerably sure that if they were forthcoming he would only be second, a difference of £20, besides the honour of taking the exceptionally large prize. Here was a fine chance and plenty of incentive for a protest which, if Mr. Ward and Mr. Douglas had acted as "R. B." tells us he did, they assuredly would have

made; but the course followed was different. "I, along with the other judges engaged in the different divisions, was in the building waiting the completion of the arrangements, and the next thing we saw was Mr. Ward, and, if I recollect rightly, Mr. Douglas also at high pressure speed helping to unpack and stage Mr. Hubberstey's collection. But they are both in the first flight of exhibitors, from amongst whom are rarely found those who try to make out that the promoters of horticultural shows and the judges who make the awards are a set of individuals who stoop to dishonest acts.

HORTICULTURAL EXHIBITIONS are now plentiful in all parts of the country, and have such an influence on gardening that where real grievances connected with them exist, exhibitors are only furthering the pursuit in making them known with a view to their being redressed. But that is very different from the groundless accusations indulged in by those who, when beaten, try to make out that they have suffered an injustice.

T. B.

THE MOUNTAIN TOBACCO.

(ARNICA MONTANA.)

VERY few seem to know this pretty composite from the mountains of Central Europe, yet it is



Arnica montana.

a most desirable plant in many ways; it flowers freely and is very showy in early summer. The annexed woodcut represents its habit of growth admirably. The flower-heads are large compared with the other parts of the plant, being some 3 inches or more across. The florets are of a bright orange, an effective colour among early summer flowers. I grow it admirably in the most exposed part of my rock garden, and find that it does best in a good loamy soil, rather stiff than otherwise. Planted well at the outset it gives no further trouble. During the last few years I have grown it better than formerly, and I get a better crop of flowers. It is a plant which I should like to see more generally cultivated than it is. The roots yield an acrid principle called arnicine.

J. W.

NOTES FROM FRANCE.

Pyramidal Oak.—There is an interesting note respecting this in the journal of the French National Horticultural Society. It appears to occur somewhat sparsely through the south-west of France, and has been much planted in the departments of Haute Garonne and l'Ariège. Especial mention is made of a fine group of this tree in the park of Verdais (Haute Garonne), and a true idea of the form which this Oak assumes when in full growth may be gathered from the fact that whilst the trees rise to a height of more than 100 feet, they do not individually measure more than 30 feet through at the base. I find that Gillet and Magne in their "Flore Française" mention a variety of Quercus Robur under the name of fastigiata, the description of which

accords with the above. Loudon also has it in his "Hortus Britannicus," giving it as a species and as a native of the south of France, but I should fancy that Gillet and Magne are right, and that it is but a variation of our common Oak. This Oak may be better known to planters in this country than I am aware of, but I do not remember seeing special mention made of it, and it seems to me to be such a valuable tree as to warrant its having a place in every park. The great tendency of our forest trees is to assume rounded, flat-headed masses of foliage, but here we have one which is apparently so distinct of form as to afford a welcome and decided contrast. If, as I think it may be safely assumed, it is a variety of the common Oak, its hardness is of course beyond all question, and it should be looked after by tree planters generally. I do not know whether it comes true from seed, but in all probability it does, seeing that it occurs over a widespread tract of country. It should not be difficult to procure acorns of this pyramidal Oak, and perhaps I may be helping those wishing to do so by mentioning that the attention of the French National Horticultural Society was first directed to it by M. Leo d'Ounous de Saverdun (Ariège), who furnished the details from which the note in their journal was compiled.

Monnina obtusifolia.—The *Revue Horticole* gives a coloured plate of this Peruvian shrub, and which, although introduced to our gardens so long ago as 1830, has, apparently, quite dropped out of cultivation. M. André, in his travels across the Andes, found it growing abundantly along with its congener *ligustrifolia*. Seeds gathered at that time failed to germinate, but it was afterwards introduced in another way. Seeing that it has been found at an altitude of over 5000 feet, it must be possessed of some hardness, and as a fact it appears to belong to that class of plants which are fairly happy in some of the most favoured localities in this country, but which are quite at home in a cool or even in an unheated glass structure. In M. André's garden at Cannes it grows well, and I should think that in such places as the Isle of Wight it would do well as a wall plant in a sunny place. The general appearance of the plant as portrayed reminds one somewhat of some of the shrubby *Veronicas*, the foliage being dense and lustrous, and the flowers in terminal violet-coloured spikes, with which the orange-coloured anthers afford a rather novel and pleasing contrast. M. George Brunt, of Poitiers, has the stock of this plant, and will put it into commerce next spring.

Mussæda theifera.—M. Regnier, nurseryman at Fontenay-sous-Bois, exhibited this at a recent meeting of the French National Horticultural Society. M. Regnier thus describes it: "This species, a native of Cochinchina, is of great merit, both by reason of the beauty and the sweet perfume of its flower, which reminds one of that of the Jessamine. It requires a stove or temperate house, demanding a compost of good lumpy peat, with plenty of water when growing and a period of rest at a lower temperature." The flowers are white, long, and tubular, the habit somewhat drooping, much in the way of the *Periwinkle* or of *Torenia asiatica*. It is, M. Regnier states, very suitable for hanging baskets, and would probably have a good effect grown in the same manner as *Æschynanthuses*. This plant is, I think, likely to become a favourite, and from the fact of the flowers being pure white and so sweetly scented they might prove useful for cutting. The cultural requirements seem to be about the same as those required for the old *M. frondosa*.

Double rose-coloured Myrobalan Plum.—Here we have a hardy flowering tree which is likely to prove one of the most important introductions to our gardens of late years. It was, it seems, brought over to the last international exhibition at Paris by the Japanese gardeners who showed their products there, and was by them given to M. Baltet, of Troyes. M. Baltet thus writes concerning it: "This shrub, which is very hardy and vigorous, is covered early in spring with numerous large sweet-

scented flowers disposed in thickly-set bunches. It is of good habit, the leaves tolerably large, being of a lively green, edged with bright carmine, the eyes and the leaf-stalks being coloured in the same manner. It flowers very early, three weeks before *Prunus triloba*." M. Carrière observes "that this description fails to convey an adequate idea of the beauty and merits of this plant, and that the beauty, size, and fine colour of the rose-coloured flowers place this in the very front rank of hardy ornamental plants." This, though high, is doubtless well-merited praise, as its great beauty is supplemented by exceptional precocity, flowering as it does much in advance of all other kinds, a fact which will be sure to give it an important place amongst forcing shrubs, the more especially as it is of a vigorous, but at the same time very floriferous nature.

Rose Merveille de Lyon.—I would beg to be allowed to supplement a short notice of this new Rose in a late number of THE GARDEN by observing that the high opinion formed of it in France appears to be likely to be confirmed by English Rose growers. A large trade grower who has grown nearly all the new varieties which have appeared during the last twenty years is delighted with it. He thinks it the finest Rose raised for a long time past and prophesies a great future for it. Trade growers are not generally very enthusiastic about novelties; they know how very few of them stand the test of time; therefore I am all the more inclined to take my friend's word, and should advise your readers to make a large cross against *Merveille de Lyon*. It is, I am given to understand, being distributed in this country, but the stock is short. J. C. B.

FERNS.

LARGE NON-ARBORESCENT FERNS.

FROM a decorative point of view, for the ornamentation of conservatories or large winter gardens, the numerous and, in many cases, striking plants which form this group are unequalled for diversity of foliage; and whatever their habit may be—drooping, as that of *Woodwardia radicans*; spreading, as that of the *Angiopteris* and *Marattias*; or erect, as that of *Todea arborea*; plants with massive foliage, as *Neottopteris australasica*; or with light and finely-cut fronds, as *Dennstaedtia davalloides* Youngi—they all come in for their share of usefulness, and some of them are found really indispensable where spacious houses have to be filled. What can have a more tropical and truly regal appearance in a conservatory than a naturally arranged group of the large growing *Davallias*—*polyantha*, for instance, which one cannot help admiring, especially when furnished with finely bronzed fronds, which, bright crimson in youth, turn with age to a beautiful dark, glossy green. *D. solida*, too, has great pendulous fronds with gracefully cut pinnae of a light shining green that contrast strikingly with those of the well-known and widely appreciated *Asplenium Nidus-avis*, remarkable alike for the extraordinary substance of its broad, entire, glossy fronds, and for the way in which they are produced, leaving at their base a circular hollow, from which distinctive character the popular name of Bird's-nest Fern originated. Where such groups exist and when they are surrounded by the noble head of a light and spreading Tree Fern, or, as at Chatsworth, by the peculiar growth of *Cibotium Barometz*, the Vegetable Lamb, and the intervening spaces filled with such plants as *Davallia cicutaria*, a kind with very finely cut long fronds, or with the elegantly habited *Polystichum capense*, the not less curious *Pteris Ghiesbreghtii*, whose soft, succulent stems and gigantic pale green fronds possess a most singular aspect, or the most handsome of all strong-growing Ferns, *Balanium Culcita*, a native of Madeira, with gorgeous broad triangular fronds of a most pleasing form and colour—such groups intermixed with a few noble fronds of *Marattias*, which are often borne on stout, robust fleshy stalks 10 feet to 12 feet high, produce a sight

never to be forgotten. Such diversity of forms and sizes makes a most effective display. How many intermediate tints is there not between the light, glaucous colour of *Microlepia platyphylla* and the very dark glossy green of *Lomaria cycadæfolia*. Besides the beautiful metallic or bronzy hue peculiar to the handsome *Didymochlæna lunulata* and *Lastrea erythrosora*, there are also shades of green sufficient to make of themselves a most interesting group. According to the position which they should occupy in the house, and also to suit their peculiar requirements, the large non-arborescent Ferns may be divided in three sections, the first, and also the most extensive, comprising only plants whose requirements are easily satisfied—plants which thrive well in the ordinary mixture of soil such as that used for Ferns in general. These are, of course, the sorts most frequently met with; even amateurs generally manage to find room for a few of them. These are marked 1 in the accompanying list, which is intended to serve as a guide to anyone wishing to plant a permanent fernery. The second section consists of plants that either require drier treatment or else kinds of a more drooping habit; in any case, they are all species which are benefited by being planted on elevated positions; these are marked 2. The semi-aquatic or swampy growing sorts, which are about the strongest growers of all, form a third and last section. These are on the list marked 3. These delight in being planted in the lowest part of the house and thrive best where the ground, which should be of a spongy character, can always be kept in a naturally damp condition. Great care has been taken in the compilation of this list, and none but the species which will grow in a minimum temperature of 45° during winter have been placed in it; therefore all of them can, without fear of failure, be grown together.

Name.	Average height.	Name	Average height.
3 <i>Acrostichum aureum</i>	6 ft.	2 <i>Hypolepis maurorachis</i>	4 ft.
1 <i>Adiantum cardifolium</i>	4	1 <i>Lastrea erythrosora</i>	4
1 <i>tenerum</i>	4	1 <i>patens</i>	4
1 <i>trapeziforme</i>	4	1 <i>setigera</i>	6
1 <i>Alsophila pinnata</i>	5	1 <i>Stadleri</i>	5
3 <i>Angiopteris evecta</i>	12	1 <i>Litobrochia grandifolia</i>	6
3 <i>pruinosa</i>	12	1 <i>Lomaria chilensis</i>	5
2 <i>Aspidium macrophyllum</i>	5	1 <i>cycadæfolia</i>	4
2 <i>Asplenium caudatum</i>	4	3 <i>Marattia alata</i>	10
2 <i>longissimum</i>	7	3 <i>Cooperi</i>	8
1 <i>lucidum</i>	4	3 <i>elegans</i>	8
3 <i>Balanium Culcita</i>	6	3 <i>Kaulfussii</i>	10
2 <i>Echechium brasilense</i>	6	3 <i>laxa</i>	7
3 <i>Ceratopteris thalictroides</i>	4	1 <i>Microlepia platyphylla</i>	6
1 <i>Cibotium Barometz</i>	10	1 <i>hirta cristata</i>	5
2 <i>Davallia ornata</i>	4	2 <i>Nephrolepis davalloides</i>	6
2 <i>polyantha</i>	5	2 <i>lucens</i>	5
1 <i>Dennstaedtia adiantoides</i>	5	1 <i>Neottopteris australasica</i>	7
1 <i>cicutaria</i>	5	1 <i>Nidus avis</i>	4
1 <i>davallioides</i> Youngi	7	1 <i>Phlebodium aureum</i>	6
1 <i>Didymochlæna lunulata</i>	6	2 <i>Polypodium lachnoides</i>	5
2 <i>Drynaria coronans</i>	4	1 <i>cruciatum</i>	6
2 <i>diversifolia</i>	6	1 <i>Polystichum capense</i>	8
2 <i>morbifolia</i>	5	2 <i>Pteris moluccana</i>	6
2 <i>Goniophlebium subauriculatum</i>	6	2 <i>Stenochlaena ascendens</i>	6
1 <i>subpinnatifidum</i>	5	1 <i>Thyrsopteris elegans</i>	5
2 <i>verrucosum</i>	5	3 <i>Todea arborea</i>	8
1 <i>Goniopteris diversifolia</i>	5	2 <i>Woodwardia radicans</i>	7
		2 <i>orientalis</i>	5

S.

MAIDEN-HAIR FERNS IN THE SUN.

I FEEL convinced that if those who grow Maiden-hair Ferns for room and conservatory decoration would give them a sunny, airy place instead of keeping them shaded and in a moist atmosphere, they would not have to complain of the fronds withering and turning brown when exposed to dry air, draughts, and other adverse circumstances. We have a dozen or two of plants in 4½-inch and 6-inch pots which have stood all the summer on the floor of a small lean-to house in a south exposure. They have had no shade, but have developed into nice bushy little specimens with every appearance of health and vigour in them. It is true the fronds are not quite so large nor so richly green as when grown in a moist, shaded place, but they are, figuratively speaking, as hard as nails, and would, I am sure, remain fresh and

healthy all the winter, whether confined in the close, vitiated atmosphere of a living room or where they might sometimes be exposed to currents of cold air.

Then, again, for bouquets and floral decorations generally, I am sure the fronds would last good very much longer. It is a pity our market people could not grow them in this way, but, unfortunately, it does not always pay them to do things in the manner best calculated to afford lasting pleasure to the purchaser. Those who buy Maiden-hair Ferns for the sake of the great luxuriance and deep rich green of the fronds have to pay too dear for that pleasure, which is a fleeting one, for this superabundant health cannot be maintained in the atmosphere of a dwelling house or in an ordinary greenhouse, but as long as people buy for immediate effect only, growers will naturally cultivate accordingly.

One point, however, is worthy of remark in the culture of Ferns in the sun, and that is the amount of moisture needed both at the roots and overhead. It is well known by Fern growers generally that the Maiden-hairs do not, when grown under the conditions generally accorded and considered indispensable for them, like to have their foliage wetted. But with a free, dry current of air playing round them, and a fierce light pouring on them for many hours at a time, the natural conditions are so much altered as to demand a modification in the cultural details. Frequent sprinklings overhead are, indeed, in these altered circumstances, indispensable, and, need I say, that water at the root is also required much oftener. J. C. B.

FLOWER GARDEN.

NARCISSUS INCOMPARABILIS.

IN THE GARDEN (p. 349) Mr. Engleheart asks if this plant ever bears any seeds. That it does so naturally as a wild plant is beyond question; hence it not only occupies rather an extended geographical area, but there are numerous seedling garden forms of it in cultivation. Whether Dean Herbert's hybrid *N. incomparabilis* ever bore seeds is doubtful, but it is now a well-established fact that but few hybrid plants whatever are absolutely sterile. Indeed if it were so, it follows that derivative hybrids—of which hundreds exist in our gardens—could never have been obtained. As to the scattered or sporadic distribution of *N. incomparabilis* wherever it is naturalised in quantity, precisely the same occurrence is true in the case of *N. Telemonius flore-pleno* (common double Daffodil), which, as is well known, never seeds. I never could quite satisfy myself how the double Daffodil manages to become scattered about in old orchards and meadows wherever it abounds; but that it is so distributed is a well-known fact. To be clear, we must remember that although *N. incomparabilis* is common as a wild plant on the Continent, as in France, it is quite easy to raise hybrids between the Daffodil and the Poet's Narcissus, which resembles the wild plant so nearly as to be practically the same thing; hence it is within the bounds of reason to assume that the wild plant is a hybrid naturally evolved by the inter-crossing of these two species. We have analogous cases in the alpine Primroses, as noted by Kerner, and even in our own meadows there are wild Oxlips, and by crossing the Cowslip with the common Primrose, hybrid Oxlips have been raised under cultivation in our gardens. The idea that hybrid plants must of necessity be sterile has long been proved to be erroneous. M. Naudin considers that of all known hybrids 25 per cent. only are absolutely sterile, and it is to this small class of hybrids only that the old name of "Mules" (*i.e.*, sterile hybrids) may properly be applied.

If Mr. Engleheart will look carefully at my article on pp. 318-319 he will find his assumption (see p. 349) an erroneous one. I certainly inferred that *N. incomparabilis* was known to be of hybrid origin in gardens, and assumed to be a wild hybrid in nature, but I nowhere "confidently

stated that *N. incomparabilis* was a hybrid, and therefore sterile." F. W. B.

SIDALCEA CANDIDA.

It is only within the past few years that the genus *Sidalcea* was heard of in gardens, and even now none of the species enjoy a wide reputation. As far as we are able to determine, there are four distinct species now in gardens, *viz.*, *S. malvæflora*, *S. oregana*, *S. humilis*, and *S. candida*, of which we give a woodcut illustration. They are all of a similar stamp as regards habit of growth and flowering, and all of them seem to be somewhat

soil and an open situation, not too dry in summer. The genus is essentially a Californian one, the only outlying member being *S. candida*, which occurs in the Rocky Mountains; but it does not go far enough westward to fall into the Californian flora.

Clove Carnations and their bloom.—

Mr. Muir states that he has (in S. Wales) these plants in flower sixteen or seventeen weeks—June to October. We have lately spoken of the long time during which they bloom in the neighbourhood of Edinburgh. Here, then, we have proof of these fine things lasting longer in bloom than



Flowers and foliage of *Sidalcea candida* (natural size); flowers white.

variable. *S. malvæflora* and *oregana* are botanically considered to be only forms of one species, but, be this as it may, they are distinct enough for garden purposes. Both have purplish pink flowers, but the flower-spike of *malvæflora* is much denser than that of *oregana*, which is altogether of stouter growth, and has a more branching and somewhat straggling habit. *S. humilis*, as its name implies, is of dwarf growth, the stems being long and trailing. *S. candida* has erect stems varying from 1½ feet to 3 feet high. Its flowers are not so large as those of *S. malvæflora*. They are pure white, and are borne abundantly; in fact, it is really a pretty plant, and one which might well be included in a select list of hardy perennials. All of them flower from the end of June till the end of August. The two best are *malvæflora* and *candida*, both of which when well grown make really attractive objects in the hardy plant border. As regards culture, there is but little to say. Their requirements are very moderate; they like a good

bedding plants, and when these have been destroyed by the autumn rains and storms Clove Carnations look fresh and well. It is much to be desired that our raisers would get a number of kinds of Carnations with the same valuable habit. It should not be difficult. With a dozen kinds as good as the old Glove, we might have a Carnation garden indeed.

Single blue Violets are flowers that any one can grow, and they prove most useful at this time of year in bunches placed in the drawing-room or boudoir. The best place in which to grow Violets is between the rows of bush fruit; a single row planted between Gooseberry or Currant bushes, and allowed to grow for a year or two, will yield an unfailing supply of sweet Violets. The shelter and shade of the bushes just suit their requirements, and during mild winters they will continue to yield plenty of blossoms. The single blue varieties, of which the Czar is the type, is the best for outdoor culture, as the more tender double

sorts require the shelter of glass to insure a continuous supply of their delicately perfumed blossoms.—J. G., *Hants.*

CARNATION W. P. MILNER.

THIS, although comparatively new, is one of the most useful Carnations with which I am acquainted, and one well worth a place in every garden. It is a strong grower and profuse flowerer, and its blooms are of the purest white and of large size. They are beautifully formed and never burst open when fully developed, a recommendation that many kinds do not possess. For beds and borders it is, in my opinion, the best Carnation that can be grown. But its usefulness extends further; it is admirably adapted for cultivation in pots for autumn and spring flowering. Healthy plants of it put out in spring in the usual way will in due time produce flowers and a good quantity of grass, which should, as soon as ready, be layered. The parent plants can be allowed to flower if their blooms during the early summer are required; if not, they should be removed as early as possible. The best plan is to plant out a quantity of plants in a southern aspect with this end in view, for by the removal of the flowers the grass will be stronger and ready for layering earlier, a decided advantage for the purpose wanted. These early layers, after they are well rooted, and if strong, will commence at once to grow and spindle rapidly for flowering. They should be lifted carefully, say towards the end of August if ready, or early in the following month, with a good ball of soil attached and then placed in 4-inch or 5-inch pots according to their size and strength. Two plants can be placed in the last size if the balls of soil are not too large or the plants too strong.

AFTER POTTING they should be placed in a cold frame and kept close for a fortnight, or until their roots are visible near the sides of the pots; after that they can be gradually hardened off and placed outside, or they can remain in the frame with the lights off while the weather remains favourable. They must be kept moderately moist at first until their roots are active and then carefully watered afterwards, never allowing them to suffer through an insufficient supply. Each plant will need an upright stake, and must have a light airy place in the greenhouse after the middle of October that is if there is any fear of a slight frost. Many of the earliest of the plants will, by the end of the month or early in the following, have their first flowers fully expanded, and they will in a temperature of from 45° to 50° continue supplying blooms for a long time, for the layers when lifted will be in various stages of development. Those

LAYERED LATER and ready for lifting now will, if placed in 3-inch pots and stored in a frame until rooted and well established in their pots, make grand plants for flowering in spring. They can be had in bloom by the end of March if, after being well established, they are removed to the temperature indicated above. After the new year, if the small pots are free of roots, they should be placed in 5-inch ones, and when they have commenced rooting in these they will bear gentle forcing; a night temperature of 50° will do with a gradual rise during the day. They must be brought forward gently, else they will soon draw up weakly, and a few poor flowers will only be produced. During the gentle forcing of these plants they must have air admitted to them daily and be kept as near the glass as possible. Select for spring flowerers good strong layers, and it should be remembered that the sooner they are established in the pots in which they are intended to flower the greater the success, because they can afterwards be brought on more gradually.

MANIFESTO.

Autumn flowering Chrysanthemums.

—The most beautiful and most valuable among these is, without doubt, Madame Desgrange. Some 200 plants of this are now in flower here, and making a grand display. The blooms are large, well formed, and pure white when fully ex-

panded. For all decorative purposes no flower is more useful, and, coming in at a time when good flowers are always scarce, it cannot be too highly recommended for extensive cultivation. Souvenir d'un Ami is also most useful, blooming, as it does, before Madame Desgrange. It is very free, good in colour, and may be had at almost any time in the autumn.—F. & A. DICKSON & SONS, *Upton Nurseries, Chester.*

Marvel of Peru.—Of this there are several varieties, but, as a rule, they have been much overrated. The name itself suggests something wonderful. Those who know nothing of them except what they read in seed lists and books might think they were exceptionally grand, but I have never found them to be so; they always have a weedy look, and cannot be compared with scores of other lovely annuals that might be named. They are not showy when viewed from a distance, and when closely inspected there is little about them to interest one. Their flowers are puny, of no distinct colour, and only fragrant at certain times. In mixed borders they have little to attract one, and by the majority of people would be passed by without comment. They are easily raised from seed, and will grow freely in the open air in summer, but these are their only recommendations.—J. MUIR.

Cliveden Yellow Pansy.—For bedding or massing in any way this Pansy is still the earliest to flower in spring. It is so hardy, too, that no sort of weather injures it. With us it begins to flower in February and continues quite a mass of bright yellow flowers for three or four months. It is altogether a most useful plant. It is neat in growth; so compact indeed is the growth, that we increase our stock by dividing the old plants in July and planting out the pieces preparatory to their being put in the flower beds in October for spring flowering.—J. C. C.

NOTES FROM HECKFIELD.

Flower beds in winter.—Though our thermometer has not yet receded to the freezing point, and many flowers are still in great beauty, notably so the single Dahlias, Marguerites, Japanese Anemones, Sweet Peas, Asters, and Michaelmas Daisies, yet wind and rain have played sad havoc with all the ordinary kinds of bedding plants, and we have therefore made a start to clear out all that will not stand frost that we may don the beds in winter dress, this being a part of our duties that an appreciative employer requires done well; hence, we try our best, and consequently with a fair amount of success. I have not time to enter into details of arrangement, or to name all the plants used, so must content myself by a few general remarks that may possibly be helpful to those who dislike bare beds under their windows in winter. Of course, under the old regime, before the bedding-out mania began, such beds were never empty, but I question whether they looked better than they would had they been so, for, to say the least, herbaceous plants do not look tidy in winter; certainly not sufficiently so to beget a liking for viewing them daily; and, presuming this view to be correct, the bedding-out system, with all its faults, must be credited with having fostered, or rather made imperative, the adornment of the beds in winter; at any rate it has had this effect here, and that to so great an extent that when making the summer arrangements the one great consideration is to work in all the plants possible, that, whilst they associate well with summer flowers, shall continue effective throughout the winter also; this was and is our primary rule. The next one is concerning variety, both in regard to suitability for bedding, colour—particularly in brightness for the winter season—and hardness. By adherence to these two rules—coupled with hard work as a matter of course—we have now no difficulty in getting bright effects in the beds in the winter, which, taking into account season, compare favourably with those of the summer. By way of illustration, I note the following as a fair sample of the way to transform a summer into a winter arrange-

ment. A large square bed I edge with *Herniaria glabra*, and having a groundwork of the same, or rather the divisional lines of the pattern being formed with this plant, the lines next to the green are *Sedum acre elegans*, the panels being filled in with *Alternanthera* and variegated *Mesembryanthemum*, the standard or dot plants being *Chamaepeuce Cassabonæ*, *Grevillea robusta*, and Australian *Dracænas*. The *Grevilleas* are now being replaced with golden *Retinosporas*, the *Mesembryanthemum* with *Sedum glaucum*, the *Alternantheras* with *Heaths*, and the *Dracænas* with *Cupressus Lawsoniana erecta viridis*, one of the best of all Conifers for the purpose. I may add that our *Sedums* are prepared in a reserve garden—a useful department in more ways than one—and are lifted in flakes with a spade like a turf and laid on the ground, and thus we get a furnished effect at once.

Planting out and top-dressing pot Strawberries.—"J. C. B.'s" notes in THE GARDEN (pp. 364 and 366) were evidently penned on the principle "tit for tat," and I have perhaps no cause of complaint, and I make none except to remind him that in all criticism it is desirable to quote an opponent correctly; this he does not do, but leaves the general reader to infer that I advise October planting in preference to August, which I certainly do not, but knowing that oftentimes it is impossible to do all things at the right time, and having more than once had fine crops of fruit the following year from good strong plants (this I stated they should be) put out in October, I thought the note might possibly meet the case of someone whom I would still counsel to proceed, and expect a good crop of fruit next year, that is if the plants be well protected by manual mulchings throughout the winter and spring. "J. C. B.'s" notions as to the injury in the formation of the fruit germ by moving in October I consider purely imaginary, or, in other words, as a "ghost which he has raised for the sake of laying it." With regard to the fruit germ in pot Strawberries, I am too matter of fact to be scientific, and therefore I cannot be supposed to know how fruit germs are manufactured; but this I do know, that if you feed them too liberally they burst, and grow, spread out, instead of rounding off or plumping up, to use a technical gardening term, and for this reason alone I would not at this season either top-dress or give manure water, but simply, as I said, keep them from starvation by never allowing them to suffer from lack of water, and I would well ripen the growth by full exposure to the atmosphere and by giving the plants plenty of space.

Gravel walks.—Rain and fog having, as it were, driven us off the turf on to the walks, the wish is a very natural one to have them—the walks—as easy to travel on as we find the turf to be. This in many instances will be very difficult, solely owing to the lack of suitable gravel, or a gravel that will not bind together however much it be rolled. Happily this is not our case, as we are favoured with a gravel that binds nearly as hard as concrete; but even this merit is not an unmixed evil, for the smooth hard surface the sooner gets moss-grown, and in frosty weather is pasty and uncomfortable, unless the surface be broken up at least once in the year, an operation that we are now engaged in, that we may have clean, hard, and dry walks throughout the winter. I, perhaps, ought to say that prior to the breaking up all the moss possible is scraped off and swept up; the surface is then turned to the depth of 3 inches or 4 inches, finely raked, and afterwards rolled till well consolidated. Where good binding gravel is not to be had, the foundations of walks should be deeper, and may be made of any material that will let the water through, such as brick rubble, fire clinkers, and rough coal ashes; the surface should be fine as possible, say an inch thickness of finely sifted stones on a bed of coal ashes, and which should be kept well rolled down. This makes a good firm walk; if a greater depth of stones be used, the walk will be loose and uncomfortable to the tread.

W. WILDSMITH.

ROSE GARDEN.

ROSES UNDER DIFFICULTIES.

MOST amateurs who try to grow Roses find no lack of people, experienced and otherwise, who tell them how they tried to grow Roses year after year without success, and how they finally abandoned the effort. Most horticultural failures result not from unsuitable climate, situation, or soil, but from downright want of knowledge as to the treatment required. How often do we hear of people planting Tea Roses in solid clay, and Hybrid Perpetuals in almost pure sand without previous preparation, and after carefully planting them loosely in the depth of winter, probably on a clear frosty day, they leave the rest to unsuitable soil and a beneficent Providence in the sure hope of a heavy crop of Roses the ensuing season. Current literature would tell them that where the Rose (or in fact anything else) grows and ripens its seed in a wild state, there the cultivated varieties may, with proper treatment, be absolutely forced to grow successfully. The river Trent is supposed to be the division line, north of which it is risky and unsafe to attempt anything in the way of Teas out of doors, except Gloire de Dijon, yet we find rosarians altering this line by judiciously sheltering their Teas, planting them on raised beds, and slightly protecting them with a mulch of long litter lightly scattered over branches and soil alike. They thus can grow Teas, for instance, much farther north than without such pains; so it is with Hybrid Perpetuals, Chinas, and Bourbons in naturally unfavourable localities. However, this tampering, if I may use the term, with natural lines of demarcation for Teas, belongs, perhaps, to the higher walks of Rose culture after success with hardier kinds. What I wish to point out is, that if amateurs will plant and manure their trees with brains, as we are told the artist did in mixing his colours, we should have fewer failures, and success begetting further successes.

A neighbour of mine just twelve months ago determined to grow Roses, and this in a district so unfavourable, and under such unsuitable conditions, as to be condemned by others better situated. The garden faces the south, and has a rapid slope down to a river at a decline of about 300 feet in half a mile, or very little further than from the dome of St. Paul's to the Thames. Two feet six inches of sandy soil on solid sandstone rock (how excellently drained!), and exposed to the south-west and north-west gales, which blew one season with such violence that a Cucumber frame was blown about, and window boxes shared the fate of my neighbour's chimney top. In fact, from "a' the airts the wind can blow," excepting the north, there was exposure, and no suitable place for Rose growing could be found until a happy thought suggested itself, viz., that as a predecessor had planted a hedge of Laurels to protect the western side of the lawn, why not take a slice off the turf and make a real Rose border? No sooner said than done. A spud was run down to cut off such roots as trespassed; the turf was dug up and carefully put on one side to rot, as the very best Rose soil; trenching and ameliorating the staple with cow manure was next done. I have omitted to say that, having obtained a list giving forty of the best Roses for such a garden, he went to the Rose nurseries, as all buyers should, just when Roses are in full bloom, and selected his plants there and then, having them marked as his. When November came they were planted, keeping only one Rose at a time from under cover. They were carefully sprinkled with soil over the roots by one man, whilst another held the Rose erect, and saw that the roots were spread out evenly and not cramped in the hole. On the first layer of soil a compost of rotted turf, cow and stable manure was filled in and well trodden down. The trees were then permanently labelled, and a top winter blanket of short stable manure 3 inches in thickness was placed on the whole bed, care being taken that the manure did not touch the stems. Late in April they were pruned, the vigorous growers to five or six eyes (the top one pointing outwards), and the stumpy

and weak growers to two or three eyes or buds. By delaying the pruning thus late the disastrous effects of the black fortnight's frosts of March were avoided.

The first bloom was cut on June 26 and the last on October 28, the indoor department for the whole four months never being without good Roses. All through spring a sharp look-out was kept for the "worm i' th' bud" always waiting in some snug spot to feed on and eat his way down the heart of each bloom and sweet juicy shoot; nooks and hiding-places were probed, and leaves which were curled up were duly squeezed and left in the full assurance that an enemy within was slain. At pruning time the aforesaid blanket of manure was lightly forked in, and once or twice during the season a dose of liquid manure was given to bushes which were backward in opening their blooms. Of these forty plants I subjoin a list of the bloomers in their order of floriferousness, and I wish it to be borne in mind that disbudding was carried out to the letter, the two outside buds being removed from clusters of three, and where a plant was very profuse of single buds they were extravagantly dealt with by a pair of small scissors. Together with the hundreds wasted in disbudding, 241 blooms were cut, many being $4\frac{1}{2}$ inches in diameter.

Baronne de Maynard ..	32	Captain Christy ..	5
John Hopper ..	30	Star of Waltham ..	4
Comtesse de Serenye ..	28	Mdme. Marie Verdier ..	4
Baroness de Rothschild ..	23	Dupuy Jamain ..	3
General Jacqueminot ..	20	La Rosière ..	3
La France ..	16	Dr. Andry ..	2
Baronne de Bonstettin ..	10	Pierre Notting ..	2
Senateur Vaisse ..	10	Beauty of Waltham ..	1
Mdme. Marie Finger ..	8	Comtesse d'Oxford ..	1
Lacharme ..	7	Duke of Wellington ..	1
Mons. E. Y. Teas ..	7	François Michelin ..	1
Alfred Colomb ..	6	Mdme. V. Verdier ..	1
Mdme. Ch. Wood ..	6		
Gloire de Dijon ..	5		241

Gloire de Dijon made new wood up to 8 feet in length and others in proportion.

As there is a £ s. d. side to Rose growing, I may say that the forty trees cost 33s. 4d., and this makes the Roses, with cost of manure, &c., come to 1½d. for each bloom, leaving the trees to the owner gratis, they having paid off the prime cost the first year. Whatever others may think who can produce double that bloom in second and subsequent years, this is beyond question successful Rose culture for an amateur under such difficulties as rarely combine in one instance, and as such I submit it as an encouragement to others to go and do likewise. R. A. H. G.

Horsforth, near Leeds.

Madame Oswald de Kerchove.—Being interested in white Roses, I secured this new one as soon as it was sent out, and planted it out under glass in a house in which there is no fire heat. It grew vigorously; so fast, indeed, that at the end of the second year it had reached a height of 10 feet. I was, however, disappointed with it, and why it should have a place amongst Hybrid Perpetuals I do not know. It has none of their features, but has all the characters of a Noisette. Indeed, to a great extent it is the counterpart of Aimée Vibert, but it is destitute of its pure colouring and fragrance; the latter is even unpleasant. I can only say that it is to be regretted that such a worthy name should be tacked on to such an inferior Rose.—J. C. C.

Sweet Brier in autumn.—It is not unusual to see Sweet Brier fairly well covered with hips in autumn, but a specimen has lately come under my notice that surpasses everything I have seen before in that respect. It was a single plant, about 5 feet in height, in the form of a bush, every twig of which was bearing clusters of bright red fruits in such numbers that the branches hung gracefully down with their weight. The different shades of colour in the hips, which ranged from a dull red to bright coral, has a charming effect. Such examples are certainly worth imitating.—J. C. C.

William Allen Richardson is the name of the little Noisette Rose alluded to in THE GARDEN (p. 331) under the head "Rose Memories, 1883." It was inadvertently omitted by Mr. Woodall.

KITCHEN GARDEN.

NOTES ON POTATOES.

EVERY year numbers of new Potatoes are introduced and numbers of old ones discarded. Some of the new sorts are undoubtedly good, but few of them ever become general favourites. This is not through deficiency as regards distinctiveness, as score after score of sorts could be named that are quite different in many respects from all others in cultivation, but they lack disease-resisting powers, the quality of being remunerative, and above all the capability of giving satisfaction as table Potatoes. In the case of most of our garden productions it is the rule that what is best for exhibition is also best for the table, but this is rarely the case with Potatoes. I could name many unique as show sorts which are absolutely fifth-rate, or worse, when placed on the table, and there are others which are ugly and which would stand no chance of being awarded a prize at any ordinary show, which are nevertheless faultless when cooked. It is hard to make some people believe this, but it is nevertheless the case. I always try to grow a few show Potatoes and a good many for the table, but I would never think of depending on show sorts for the main culinary supply. Some years ago I had ninety sorts of Potatoes on trial here, and I was so disappointed with many of them, that at lifting time I decided to give up further trials and adhere to a few of the best kinds; but when planting time comes round, one can never resist such trials, and this season, as in previous ones, I have a number of new Potatoes on hand; altogether, indeed, my Potato experience has become rather extensive, although reliable kinds are still limited. The principal characters of each sort may be briefly given under its name as follows:—

WHITE ROUNDS.—Amongst these Porter's Excelsior is a very early Potato with dwarf stems and handsome tubers, and as a frame variety not so much grown as it should be. I regard it as the best of all the rounds for frame work, and in quality it is really splendid when grown in a dry soil, but nothing but extreme disappointment will follow its cultivation in an ordinary way in open quarters, as in that case three parts of the tubers will become diseased before they are matured, and many of those which appear good when newly dug up will, if kept for a time, become diseased too, and in many seasons it will be found a difficult matter to save enough for seed. When well grown it is a fine exhibition sort, and one which makes a beautiful dish, but I can only recommend it as an early frame sort. Schoolmaster is useless as an early kind, but for planting for a main crop it cannot be too strongly recommended. Here it has done well for many years, and this season I think it is better than ever. It is most prolific and a capital sort for resisting disease. With us we do not get in its case one pound of bad tubers in a hundredweight, and I can with the utmost confidence recommend its being extensively planted. Scotch Champion is altogether a coarser Potato than the preceding. It grows much taller, and the tubers are very deep-eyed and often, if at all large, hollow in the centre. Its looks are against it as regards competition, but if grown in a field and the produce only of middling size, its quality is first-rate. Considering, however, the enormous stems which it produces, it cannot be grown profitably in ordinary gardens. Nevertheless, it deserves the character which it possesses of being able to resist disease. The tubers of Wheeler's Safeguard somewhat resemble those of the Champion, but they are not so deep in the eye and are never hollow-hearted. It is also a good sort to resist disease. It grows very compactly, and is one of the best of all the mid-season varieties. Rector of Woodstock is a showy kind, but as regards quality and disease-resisting powers only fourth-rate. Sutton's First and Best is a very early round, coming in almost as quickly as the early kidneys, and it is suited for either frame or border culture. Its tubers are not very large, but wonderfully good in quality. With us Bedford Prolific has never done so well

as some others. The tubers come very uneven as regards size; they do not boil well, and are very liable to become diseased. It was awarded a first-class certificate at the International Show in 1877, but for all that I fear it will never become a generally grown main crop sort. White Emperor, too, was honoured in a similar way in 1877, but its handsome shape is deceptive, as it is one of the very worst I could name for decaying through disease. Reading Hero is said to resist disease in the same remarkable way as Magnum Bonum, but I cannot say this much for it. It is, however, a useful round Potato, and merits a trial in various soils and situations. Paterson's Queen and Victoria are fine kinds on the table. Indeed, I know of none better, but they only yield a light crop, and they become badly diseased. Where, however, good Potatoes must be had at any cost, and ground is plentiful, these two should receive attention. The Regent is another of the same stamp and thoroughly good. Model belies its name as regards every quality worth having in a Potato. Breadfruit is one of the best of the American kinds in this section.

COLOURED ROUNDS.—Red Emperor is very liable to become diseased, good tubers being the exception. When disease spares them the tubers grow to a large size and are very handsome, but it is only worth growing for exhibition, and then it will never pay for space and attention. Reading Russet is as handsome as the preceding, and, so far as I have been able to prove, good in every way. Peach Blow did remarkably well with us for several years, but it became diseased and dwindled away until it died out, and now we have none of it. Adirondack is a handsome sort, with rosy tubers of the highest excellence. Grampian has none of the hardy character, which its name would imply; on the contrary, it is one of the most tender Potatoes grown. Three parts of the crop are generally useless through disease, and the remainder is next to useless where table qualities are considered. Blanchard is another of the same stamp. Triumph is a beautiful reddish one which possesses many good qualities. Lye's Favourite became extinct with us through disease, and I do not intend renewing our stock of it. Scotch Blue is one of the best of its class, as it is hardy and boils well. Vicar of Laleham is comparatively new and so far remarkably good. It is very prolific, not liable to disease, and grand when cooked.

WHITE KIDNEYS.—Amongst these International is the handsomest Potato in cultivation. This year I had tubers of it weighing 22 ounces, faultless in shape, and without spot or blemish, but here ends its good qualities, as, although it bears a heavy crop, it is very liable to disease, and apart from that it is one of the worst Potatoes when cooked I ever tasted. Snowdrop is new and most promising. I have only grown it one year; it came here from Northamptonshire, and so far has proved a second International with this difference, that the leaves and stems resemble those of Schoolmaster. The whole of the tubers are quite free from disease and when cooked decidedly mealy. Covent Garden Perfection, a second early sort, deserves its name, being indeed perfection in every way. It and the Gloucestershire Kidney are our main crop kidneys, and I have never found any other two to equal them. Woodstock Kidney is a second International as regards being liable to disease, but it is superior to it in quality, and a very fine show kind when it can be had large enough. St. Patrick is very uneven in shape, has a great many eyes, and one cannot speak very highly of it. Snowflake becomes so much diseased, that few will care to grow it. Veitch's and Rivers' Ashleaf varieties are the best of the early kidneys, Mona's Pride is an old Potato, but still a good one. McKinlay's Pride bears a good name with some, but here it has never deserved this, as the crop generally has been far from first class. Magnum Bonum in many fields and gardens has got a bad name lately, as it is becoming liable to disease, and it is degenerating as regards crop, but I can still speak of it as being one of the best late Potatoes in cultivation. Where not now so fine as it has been I would recommend a change of seed to

be made, and would begin again with a thoroughly good stock.

COLOURED KIDNEYS.—Beauty of Hebron, like the generality of American Potatoes, is a heavy cropper, but the tubers are very rough and far from being perfect in quality. White Elephant is the same type of Potato, and produces a great crop of very large tubers, and where quantity is the foremost consideration I would say grow this sort, but its quality does not correspond with its cropping propensity, and this will prevent it ever becoming that general favourite which some are inclined to predict. Wonderful Red Kidney is a prolific sort; the tubers are not large, but very good in quality. Early Rose is the earliest of all the coloured kidneys, and on this account deserves to be grown, but its quality can only be termed second-rate. Good coloured kidneys are not so plentiful as white ones, but for general use this need not be regretted. J. MUIR.

Margam, Taibach, Glamorganshire.

EARLY TOMATOES.

I HAVE grown several different varieties of Tomatoes planted out in a span-roofed pit with an open front facing the south. There are two rows of plants in the pit, and they stand 22 feet apart each way. They are fastened to stakes, and the leaves were well thinned out when the plants were making their growth. When they had attained the height of 4 feet they were stopped, when they soon produced plenty of fruit. All the different sorts were sown at one time and received the same treatment during growth. They were planted in the pit on June 29 in rather rich soil, as the pit being used in winter for salads and in spring for pricking out annuals or anything that may require a sheltered situation. Frequent waterings with liquid manure were given. The ripening period of the different varieties was as follows: First, Alpha, a fine bright, red fruit of fair medium size, very prolific and excellent in flavour. Livingstone's Perfection, six days later than Alpha. This is a most desirable sort to grow, producing very large, smooth red fruit, a little more acid than some sorts. Orangefield, a dwarf-growing variety, producing abundance of medium sized red fruit rather uneven in shape. Conqueror comes into use about the same time as Orangefield. This is a very superior variety, producing large, smooth red fruit, rich and agreeably flavoured, and well adapted for exhibition purposes. Hathaway's Excelsior: This is one of the finest Tomatoes in cultivation. Its fruit is perfectly globular, smooth, and large in size, and a heavy cropper. Greengage, a prolific variety, having handsome yellow fruit, very pleasant in flavour, and much used in a raw state in salads. Dedham Favourite, a handsome ruby-coloured fruit, large, and perfectly round and smooth. This is a variety better suited for indoor than outdoor cultivation, as it requires a higher temperature to bring it to perfection than some sorts. The plants in the pit have produced an abundant crop, but only a few fruit ripened. They were in $4\frac{1}{2}$ -inch pots when planted out, and, on an average, from 12 inches to 15 inches in height. We cut the first fruit off Alpha on August 24, and the other sorts came in at intervals afterwards.

WM. CHRISTISON.

MUSHROOMS IN SHEDS.

SHEDS are admirable places in which to grow Mushrooms. We have a properly heated and special Mushroom house here, but it is never used; we prefer making up our beds in sheds, amongst which that used for potting is a favourite place, and so are the Potato and wheelbarrow sheds. We grow them, too, along the back of an unheated orangery, and it is astonishing how well they succeed in all these places. We do not get our manure in large quantities—not more than one cart-load at a time, and that once a week or so, but we do not object to this, as we prefer to have small beds, and a good many of them, rather than one large one. We cannot get any manure until the carriage horses return from London at

the end of the season, and this year our first bed was not formed until the second week in September, when it was made up in a cool shed. We are now gathering from it; young Mushrooms are coming up thickly and fast in clusters of a dozen or more. The beds are generally placed against the walls, lean-to fashion; they are about 2 feet high at the back, 3 feet wide, and slope down to the floor in front. We like to have a good quantity of short straw with the manure, and the bed is made as firm as treading with the feet can make it. The spawn is inserted when the bed is tolerably warm, and it is soiled over immediately afterwards. We believe in shutting in a good deal of heat, and the longer this is retained the better will the bed bear. From 80° to 90° is a good temperature at spawning time, and the longer it can be retained at that heat the sooner will the Mushrooms appear. As soon as the soil is beaten firmly on the surface, a sprinkling of sand or very fine ashes is applied and beaten in, too, with a spade. In this, when the Mushrooms appear, they are not so liable to damp off as on soil alone. As soon as the beds are spawned, soiled, and finished off, a layer of dry hay is put over the surface, and this is allowed to remain until the Mushrooms begin to appear, when it is removed, and hurdles with mats tied over them substituted in such a manner that they do not rest on the surface or interfere with the growth of the Mushrooms. When a dish is wanted these are turned to one side and put on again afterwards. We have sometimes kept the hay on all through the bearing time, but in damp weather it soon makes the surface of the bed very damp, and this is injurious to the Mushrooms. We find them succeed very well in any temperature, from 45° to 60°. Cold draughts of wind do most harm, and to be successful in producing Mushrooms these must be avoided. J. M.

Surface stir any young growing crops of Cabbages, Onions, Lettuces, Endive, &c., when the weather is dry, as after heavy rains such stirrings are of the greatest benefit to growing crops. They aerate the soil and make it loose and crumbling. Another operation requiring attention is to prick out all the small plants of Cabbages, Lettuces, Endive, &c., in beds 3 inches apart, as they make far better plants than if left in the seed bed. Many are puzzled to know what to plant in kitchen gardens now, but my advice is to prick the plants out into nursery beds, and thoroughly cultivate the land for their reception, leaving the surface rough; then break it down in February, and transplant carefully with a good ball of earth.—J. G., *Hants.*

Chou de Burghley.—"W. I." (p. 342) has doubts of this standing the winter, complains of its producing great quantities of superfluous leaves, and will be better pleased when Mr. Gilbert raises a neater growing and better fixed variety. It is now about five years since I was among the first to cultivate this fine vegetable, and can answer for a good many of its qualities. Speaking from experience, it is as hardy as a Drumhead Savoy. It produces no more superfluous leaves than any ordinary Cabbage, and in our case we have never noticed any unfixedness of character. A plant here and there may grow taller than the others, but without exception they invariably produce fine conical shaped heads, which never fail to give satisfaction in the kitchen. This useful vegetable merits the attention of every cultivator. So long as it lasts no other Cabbage will be acceptable on the dinner table.—J. MUIR, *Margam.*

SHORT NOTES.—KITCHEN.

Beetroots.—These have been multiplying in variety of late: this year we have grown eight different sorts, but the best of them all is still Dell's Beet.—J.

Turnip-rooted Parsnip.—This is not so well known as the ordinary Parsnip. The latter sends its root deep down into the soil, but the Turnip-rooted kind is specially suited for shallow soils, i.e., soils from 6 inches to 1 foot in depth. It bulbs in every way the same as a common Turnip, and is as useful and well flavoured as the best of deep rooting Parsnips.—J. M.

ORCHIDS.

CULTURAL NOTES.

Pure Sphagnum for Odontoglossums.

—Not liking the look of a number of *Odontoglossums* last spring that were growing in a compost of Sphagnum, peat, and sand—most of them in the compost they were potted in when bought—and noticing that in every case the Sphagnum contained the most and best roots, I determined to do away with the peat altogether and use pure Sphagnum alone, and not much of it. I therefore filled up the pots with clean crocks and charcoal knobs to within an inch of the rim, and on these placed a firm seat of Sphagnum, in which the roots of the plants were pegged and covered. The result is that they have since all made far better roots and more of them, as well as finer growths, than they did in the mixed compost, and I shall never use peat again for such subjects. A thin, hard seat covered with Moss and kept moist seems to be all they need; but what the real food of epiphytal Orchids is it would be well to learn. The Vine and other fruits, as well as Potatoes and other vegetables, have been analysed, and we know pretty well now what they are composed of and what manures suit them best, but on the subject of Orchid food we seem to be quite at sea. Yet a few buds, leaves, and flowers analysed would, no doubt, afford us the desired information. We commend the idea to the scientific committee at South Kensington. Orchids are the most popular indoor plants in cultivation just now and the most valuable, and numbers are being continually lost by mismanagement; hence I think it extremely desirable to ascertain as much about their composition as possible.

Disa grandiflora.—I see frequent remarks about the best position for this Orchid. I received two small plants in 1881, and having been told, or read somewhere that they naturally grew on the hill-tops in a kind of chilly Scotch mist, I judged the coldest house in the place would suit them best, and they were placed in a cool corner of the Camellia house, where we grow *Cinerarias* and other cool subjects, fire-heat never being used except to exclude frost, and from that spot they have never been moved, as we have a particular prejudice against moving a plant an inch from a spot that seems to suit it. The two plants when they came had two small shoots each, and one has now twenty-five breaks and the other a few less, and both have flowered every year.

Dove Plant.—I have never succeeded in blooming this Orchid, though our plant is a fine one; it has fine foliage and bulbs like moderate-sized Turnips, and has been tried all ways. A noted grower said peat and Sphagnum was the best compost for it, and that it should have a good period of rest, both of which it had, but they did no good. Next, another equally good man said it should be grown like a *Calanthe* in a good rich compost, and it has been so grown, resulting in bulbs of still larger size and fine foliage, but no flower. Not long since I called on a neighbour who does not grow many Orchids or take much pains with what he has, and he had a plant of this *Peristeria* growing among a miscellaneous lot of stove plants, evidently pretty much left to itself, and one of the bulbs had a grand spike on it nearly 4 feet high. I was told it bloomed freely. It appeared to me to be flowering from bulbs with green leaves on them. I have often seen the plant, but seldom in flower, yet no doubt there is a way by which it may be induced to bloom freely.

Flowering of *Cœlogyne cristata*.—Whether owing to the free thinning out of the bulbs in past years, or to the rather thin layer of compost, well elevated above the pan, thereby promoting a fine growth, I cannot say, but our *Cœlogyne*s have shown a decided tendency to extra free flowering lately. I have never noticed so many pairs of flower-spikes from single bulbs as we have this year. On one small plant, in an 8-inch pot, I counted to-day about 40 spikes

to about a score of bulbs. The plant is growing chiefly in Sphagnum with a little peat and set up on a firm pile of large crocks and charcoal lumps. J. S.

Cypripedium cardinale.—Ever since the now well-known hybrid Lady's Slipper, *C. Sedeni*, was first raised, the work of raising new hybrids of this stamp has been going on with varying results. Among others of the race, *C. calurum*, *albo-purpureum*, and *porphyreum* have been produced. These are all distinct from the original *C. Sedeni*, which still remains unsurpassed in several respects, though as regards colour it is quite eclipsed by one called *C. cardinale*, of recent origin, and which may now be seen in bloom in Messrs. Veitch's nursery at Chelsea. The habit of growth as well as the size and form of the flower is almost the counterpart of *Sedeni*, but the colour is altogether brighter and richer. It is in fact as bright as that of the hardy North American *C. spectabile*, and many would not distinguish them by the flowers alone, except that in *cardinale* the dorsal sepal is much narrower than that of *spectabile*. It is by far the best of the race we have seen. It will undoubtedly supersede all the others in time, as its colour will be preferred to that of any other. It is one of the best of Mr. Sedeni's hybrids, and we should like to see it in flower in a country collection grown in pure air.

Cypripedium tessellatum porphyreum.—The little *C. concolor* is one of the most charming species of all the tropical Lady's Slippers, but unfortunately it is too uncommon in gardens, partly on account of its being rather a difficult plant to grow well. The nearest approach to *C. concolor* is the hybrid here named, which has for its parents *C. concolor* and *barbatum*. It partakes strongly of the robust growth of *barbatum*, while the flowers exhibit the refined beauty of those of *concolor*, with a little more colour. They have a yellow ground, which is washed and minutely speckled with purple. The pouch, which in *concolor* is compressed laterally, as if it had been pinched, is just the same in the hybrid, but the flower altogether is considerably larger. The foliage is exactly intermediate between that of the two parents. It is now in flower in the Royal Exotic Nursery, Chelsea, where it was raised by Mr. Sedeni. The plant in question bore two flowers on one spike, and one spike even bore three flowers—an unusual character in this section of *Cypripedium*. This hybrid will prove to be a grand addition to garden Orchids, being handsome and easily grown.

SHORT NOTES.—ORCHIDS.

Winter-flowering Orchids.—I should like the names of six inexpensive winter-flowering Orchids for stove culture.—J. A. C.

* * Try *Cœlogyne cristata*, *Dendrobium nobile*, *Cattleya Trianae*, *Cypripedium barbatum*, *Lælia anceps*, and *Dendrobium Wardianum*.—J. H.

Lælia monophylla.—This is a charming little Orchid, but known to but few cultivators. In growth it resembles *L. Dayana*, but is rather smaller. Its flowers, which are solitary or in pairs, are in size and form like those of *Sophronitis grandiflora*, but scarcely so brilliant. It is now in flower in a cool Orchid house at Kew.

Dendrobium formosum Berkeleyi.—This new variety proves to be a very handsome Orchid. The flowers are about the size of those of the type, pure white, of thick substance, and with a large blotch of golden yellow on the broad labellum. In growth it does not appear to differ from the ordinary *D. formosum*. It is now in flower in Mr. W. Bull's nursery.

Odontoglossum nebulosum candidum.—A flower of this chastely beautiful variety has been sent to us by Dr. Paterson. The flowers are larger than those of the typical form, and instead of being spotted, as usual, are wholly white except a few faint spots at the base of the sepals and a golden yellow crest. The ordinary form of *O. nebulosum* is a beautiful Orchid, but this surpasses it in delicacy.

Oncidium Weltoni resembles *O. fuscata*, with which it is often confounded. We saw the other day in the Victoria Nurseries, Upper Holloway, a flowering plant of what Mr. Williams calls the true *O. Weltoni*. Its flowers are the same in size and form as those of *O. fuscata*, but the colours are brighter, particularly those of the labellum, which is half pure white and half bright plum-purple, without the brownish blotch which overlays the purple in *O. fuscata*.

Cattleya labiata.—The discussion that has of late taken place respecting the characters of the true autumn flowering *C. labiata* has excited a good deal of interest with respect to this *Cattleya*, which many cultivators have not seen on account of its having become so rare of late years. It is now in bloom in several collections about London, notably in Messrs. Veitch's nursery, Chelsea, where also we saw the other day flowering specimens of the new *C. Gaskelliana* and the rare *C. Manglesi*.

Oncidium tigrinum.—The showiness and sweetness of this Orchid render it a most desirable plant to grow for October bloom. It bears tall loosely branching flower-spikes; the lips of the flowers are the most attractive, very nearly 2 inches across, and of a clear chrome-yellow. The perfume resembles that of Violets, and is sufficiently powerful to pervade a good sized room. A fine spike of this Orchid has been sent to us by Dr. Paterson, Fernfield, Bridge of Allan. It is also known by the name of *O. Barkeri*.

Cœlogyne ocellata maxima is one of the most beautiful Orchids now in flower; the long loose spikes of pure white blossoms blotched with yellow on the labellum are extremely pretty, produced as they are amidst the deep green foliage and shining bulbs. This variety is aptly named, for its flowers are fully a third larger than those of the ordinary form. It is now in flower in an intermediate Orchid house in Mr. B. S. Williams' nursery; it is growing in suspended pots, a position in which the pendulous flower-spikes are seen to advantage.

Cœlogyne Gardneriana.—Though this species was introduced from Nepal about the same year as the popular *C. cristata*, it is still comparatively unknown, though a charming plant and distinct from any other cultivated species of *Cœlogyne*. It bears drooping spikes of bloom, which, being long and unusually dense, form perfect wreaths of white. The transparent whiteness of the sepals and petals is set off, too, by the labellum, which is lemon or primrose-yellow. It is a most desirable Orchid, and one that continues to flower for a long time. A beautiful spike of it comes to us from Dr. Paterson.

Choice Cypripediums.—Some flowers of a few of the finest Lady's Slippers have been sent to us by Messrs. Thomson from their nurseries at Clovenfords, Galashiels. Among them are two forms of *C. insigne*, one named *punctatum violaceum*, the other *albo-marginatum*. The first is very handsome, and similar to that called *Chantini*. Its chief beauty lies in the dorsal sepal, which is not only very broad, but the upper part for fully an inch in depth is of snowy whiteness spotted heavily with violet-purple. This is, we consider, the best of the three forms bearing the names of Maulei, Chantini, and *punctatum violaceum*. The other variety of *C. insigne* sent (*albo-marginatum*) is remarkable for the broad margin of white which almost entirely encircles the upper sepal. An extremely fine form of the new *Spicerianum*, the best we have seen, comes from Messrs. Thomson under the name of *magnificum*. The flower is altogether above the usual size, and the white dorsal sepal measures 2½ inches across its widest part. This is the first varietal name to this *Cypripedium* that has come under our notice. Lastly, there is a flower of the true *C. purpuratum* of Hong Kong, a species not by any means so common as its name, which often has to stand for forms of *C. barbatum*. The characteristic features of *C. purpuratum* is the white dorsal sepal faintly lined with purple, and the purplish tint with which the whole flower is overcast.

Wall plants.—On the gable of a quaint old cottage, in the picturesque village of Wells, Somerset, I noticed this autumn a very suggestive and striking combination. *Cotoneaster microphylla*, in a free and natural state, covered the wall, and lightly scrambling and festooning itself from twig to twig was the pretty Canary Creeper, *Tropæolum aduncum*. The mixture of pale yellow

flowers and light green leaves, with the red berries and sombre green of the Cotoneaster, was charming.—A. M., *Cranmore*.

QUESTIONS.

5079.—*Allamandas*.—Can anyone inform me if there are any cultivated species of *Allamanda* that have flowers of any other colour than yellow?—GEORGE S.

5080.—*Cattleya crispata*.—Is it of rare occurrence for this *Cattleya* to seed without being artificially fertilised? I have a plant bearing a seed-pod; how can I best raise seedlings from it?—J. D.

5081.—*Conservatory boiler*.—Will some one (not a manufacturer) give an opinion as to the best boiler for heating a plant house 40 feet long and 16 feet wide? The house is to be used as a conservatory. Is an independent boiler sufficiently powerful to heat a house of this size?—C. C.

5082.—Can any gentleman of antiquarian tastes tell us the author of the following epigram, or to whom it refers? It was a sort of epitaph on a physician:—

He never killed his patients, because he never got any,
So Trinity College gave him the Professorship of Botany.

5083.—*Carpeting plants*.—In a corner of my garden are some Allium bulbs, which, in the course of the summer, have been overrun by a thick carpet of the common Stonecrop. May this be left without injury to the bulbs below, or should it be removed?—R. CURTIS, 23, *Pembroke Square, Kensington*.

5084.—*Cypripedium insigne*.—Should a plant of this which has been in a cold frame since June, but now in a house, be kept dry or wet in order to induce it to flower? Large specimens of it show a stray flower or two, but no more. Perhaps some Orchid grower will kindly answer this question.—G. N.

5085.—*Gladiolus viperatus*.—Can any of your correspondents inform me where I can procure bulbs of this *Gladiolus*? The plant is described in Mrs. Loudon's well-known quarto volume on bulbous plants, but I have not been able to find it in any one of the Dutch, English, or French bulb catalogues. I am desirous of making it one parent of a hybrid race of *Gladioli*, in order, if possible, to transfer its fragrance to its descendants.—W. G., *Newport, U.S.A.*

5086.—*Teak-wood for hothouse building*.—This material appears to be advantageous for certain reasons, but it is decidedly unsightly for houses in which a high temperature is maintained. The wood seems to favour a kind of debased jelly-like growth, and this, combined with its dark colour and actual unavoidable dirt, makes it unsightly. A friend of mine, who has teak-wood houses, thinks red deal with Oak sills the best. I want to know whether teak can be painted like any other wood, and I shall be obliged greatly for definite information on this point.—R. J. L.

5087.—*Gardeners' characters*.—Will any reader of THE GARDEN give me advice under the following circumstances? When engaged to go to my present place I gave the head gardener a written character, which he kept, and now, after being under him a year or two, he refuses to give me a character or return the one I gave him. What I want to know is, can I compel him to restore to me the original character? Moreover, am I compelled to give a written notice of my intention to leave, seeing that no mention was made of such being required when I was engaged?—ONE IN DIFFICULTY.

5088.—*Dahlias not flowering*.—Can anyone kindly give me information respecting double Dahlias not flowering? I have about fifty good varieties that flowered freely enough last year, but they have not shown a flower this season, nor do they show any signs of doing so even now. It surely cannot be the soil that makes the difference, as some were planted in the same place as last year and others in much better soil, a rich fibrous loam; all have grown very strongly, but, as I have said, not one flower is there on any of them. Others amongst my neighbours have shared the same fate as myself.—J. W. F.

5089.—*Diseased Cucumbers*.—I should be glad if any of the readers of THE GARDEN could tell me of any cure for Cucumber disease. I believe it has been here two or three years. It attacks the young fruit soon after it has been formed in the shape of dark spots, from which a gummy substance exudes and the points of the fruit do not swell; the leaves, too, when young look just as if they had been scalded. I have received seeds from a distance which I know to be free from disease. I have cleared all the soil out, whitewashed the house, and burned sulphur in it, had fresh fermenting material and soil from a different place, and yet the disease is worse this year than it was before. I have made up a hot-bed and had a new frame, and with the same result. I have tried ridge Cucumbers and they also became badly diseased.—W. J. B.

* * Our readers will greatly oblige by replying so far as their knowledge and observation permit to these questions. The title and number of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

NOTES OF THE WEEK.

Royal Botanic Society.—The following dates have been fixed for the exhibitions in the gardens of this Society next year, viz., spring flowers, March 26 and April 23; summer flowers and fruit, May 21 and June 18; evening *fête*, July 2. Botanical lectures on the Fridays in May and June.

Apple Show at Manchester.—An exhibition of Apples similar to that recently held at Chiswick was opened on Friday last at the Botanical Gardens, Manchester. Though not so extensive as the Chiswick show, it will, no doubt, prove attractive and instructive to Apple growers in the northern counties.

A berry-capped wall.—In a villa garden not far from where I write is a stone wall about 6 feet high, the top of which is beautifully clothed with a vigorous growth of *Cotoneaster microphylla*. The plants constituting this covering have, no doubt, been planted some years, and, owing to the lower growth being choked by evergreen shrubs growing close to the wall the *Cotoneaster* has succeeded in establishing itself on the top, which is not only clothed with healthy growth, but bristling all over with bright red berries, which at present have a very pleasing effect. I may add that this useful hardy shrub thrives in any aspect and in all kinds of soils.—J. C. C.

A Vine with decaying foliage has for some time past been one of the most striking of objects in Mr. A. Waterer's nursery at Knap Hill. It is apparently the *Vitis Labrusca* of North America. It has large leathery foliage, and each leaf is reddish crimson of the most brilliant description. It is a huge plant and climbs to a towering height over the tops of evergreen and deciduous trees, which it lights up with its fiery foliage. This and other Vines are not half enough used in the garden landscape. They produce an effect that is difficult to otherwise acquire, and what is more they need no culture, simply requiring to be well planted at the outset in an appropriate situation.

Materials for table decoration.—In most gardens flowers are scarce at the end of October and beginning of November, at least until *Chrysanthemums* come in. Vases may, however, be made pretty for table decoration by means of leaves consisting of those of *Ampelopsis Veitchii* as a fringe, and seed vessels or pods consisting of those of the sweet-scented *Clematis Flammula*, and of other varieties of *Clematis* having downy seed vessels. These should occupy the middle, and when carefully cut and mixed with leaves of some of the Japanese Maples, such as *Acer polymorphum dissectum* or *A. polymorphum palmatifidum*, the effect produced is excellent; a few flowers may also be worked in among the leaves, such as a few white and scarlet trusses of *Pelargoniums* and white and scarlet *Bouvardias*, finishing off with a few Fern fronds, and if at hand, a few heads of dry Grasses. These latter give the whole a light and elegant appearance.—W. C.

Ten lectures on the diseases of farm and garden crops will be delivered by Mr. Worthington G. Smith, F.L.S., before the Institute of Agriculture at the New British Museum, South Kensington, during the week November 12–17. The subjects will be: 1. Clover sickness; Clover mildew; *Peronospora trifoliorum*, D. By. 2. New disease of Potatoes, *Peziza postuma*, B. and Wils.; *Fusisporium Solani*, Mart. 3. New disease of Onions, *Puccinia mixta*, Fckl.; *Peronospora Schleideniana*, Ung.; *Mucor subtilissimus*, B. 4. New disease of Grass, *Isaria fuciformis*, Berk.; *Straw Blight*. 5. Diseases of Turnips, *Oidium Balsamii* Mont.; *Peronospora parasitica*, Pers.; Finger and Toe, *Plasmodiophora brassicæ*, Wor. 6. Ear Cockle, *Tylenchus tritici*, Bast.; Dodder, *Cuscuta trifolii* Bab. 7. Grass Blight or Mildew, *Erysiphe graminis*, D.C.; Corn Mildew, *Puccinia graminis*, Pers.; *Æcidium berberidis*, Pers. 8. New diseases of Wheat, Barley, and Rye Grass; *Fusisporium* sp.; Ergot, *Claviceps purpurea*, Tul. 9. Potato disease, *Peronospora infestans*, Mont.; its active state. 10. Potato disease: its passive

state. The lectures will be illustrated with actual specimens and new drawings made from Nature and uniformly enlarged to 1000 and 5000 diameters.

Edinburgh International Forestry Exhibition.—In addition to what was said respecting this exhibition (p. 349), we may state that specimens will be shown of the various kinds of axes used for felling trees, as also of the different descriptions of machines for preparing the timber for constructive purposes. There will also be on view examples of textile fabrics manufactured from bark. The literature of the subject will be illustrated by reports of the schools of forestry in all parts of the world. Closely allied to this branch of the subject is the preparation of working plans, showing the age of plantations and the stage of growth at which cutting should be resorted to. By the preparation of such plans the proprietors of forests are led to take a greater interest in the woods on their estates, and so are enabled the better to direct their management, preventing over-felling in some seasons, guarding against overcrowding at other times, and thus rendering the plantations less liable to the ravages of such a gale as that of October 14, 1881. The machinery section ought to be particularly interesting, for it will not only include the usual implements used in the felling and converting of wood generally, but also models of forester's huts, timber-slips, bridges and weirs, sluices, as well as the machinery employed in the transporting and transplanting of timber. The loan collection of the exhibition will, it is anticipated, prove one of the most attractive of all, including notable specimens of carving, wood engraving, photographs, paintings of famous trees, and also sporting trophies from all parts of the world.

VARIETIES OF PERNETTYA MUCRONATA.

A FEW days ago I paid a visit to Mr. Davis's nursery, Hillsborough, near Belfast, being curious to see how his new varieties of *Pernettya* were thriving. I was rewarded by a sight for which even the beautiful picture of some of these *Pernettyas* that appeared in THE GARDEN last May had not prepared me, nor, indeed, is it possible for one to fully realise the beautiful characters of these plants without seeing them as I saw them—at home in thousands, and thickly laden with their bright waxy-looking berries. In our old garden friend (*P. mucronata*) we have an evergreen of the very first order—that is if it is happily situated, and its berries are allowed by the birds to remain through the winter; and even without its crimson Pea-like fruits, *P. mucronata* is ornamental, owing to its shining green foliage and graceful drooping branches. Mr. Davis has given us in these new varieties—the result, I believe, of thirty years, persevering care and skilful selection—a set of evergreens whose berries vary from pure white to almost black, including lavenders, pinks, reds, scarlets, and very nearly blues. They vary, too, in form, and are clustered, piled in fact, round the branchlets in the greatest profusion. In the habit of the kinds there is also considerable variety, some being pendent, some erect; in others the leaves are arranged almost decussately, and in others again they are less crowded together, whilst in the different shades of green there is much distinctness. We walked through bed after bed of these beautiful plants, and they were all brilliant, thousands of berries being on plants in many cases not more than a foot high; then came the question of suitability for all gardens. Would these plants thrive like this, fruit like this, in England, for instance? That must be tested, and until it is done one cannot answer the question; but, so far as they have been tried, Mr. Davis said they do quite as well elsewhere as at Hillsborough, as, for instance, with Mr. Wilson at Wisley (see THE GARDEN, Vol. XXIII, p. 216) and in several other gardens in England. I afterwards saw at Glasnevin several of Mr. Davis's varieties, which, although not so forward as those at Hillsborough, were well set with berries. These new varieties are said to be

much more prolific than the old *P. mucronata* or *P. angustifolia*, and therefore it is not unreasonable to infer that where the old forms thrive these vigorous youngsters will succeed at least equally well. From what one can glean, a peaty soil will prove the most suitable for these plants, although, as is proved in the Hillsborough Nursery, a light loam answers almost as well, and we know that *P. mucronata* grows and fruits freely and abundantly on a good loam. As to the hardness of these new forms, there appears to be everything in favour of their proving even harder than their parents. In a florist's window in Belfast I saw some of these plants in pots offered for sale, and it would be difficult to find plants so useful and well adapted for decoration during the winter months as these appeared to be when grown as I saw them.

W. W.

WOODS AND FORESTS:

COVERT, PARK, ARBORETUM, AND NURSERY.

A Practical Journal of Planting for Use and Ornament.

It is intended to issue immediately a New Weekly Journal, of which the above title describes the aim. A large area of the poorer lands of the United Kingdom and of the hill and mountain country, of no agricultural value, is fitted for the profitable growth of timber, and many land-owners take much interest in ornamental planting. The landscape beauty of our country is owing mainly to the taste for planting long characteristic of the country gentleman.

These interests may be deepened and the love of planting extended by a high-class weekly journal which will furnish a supply of accurate information on every subject of practical interest to the planter for use or ornament.

WOODS AND FORESTS will be an illustrated journal produced in the best manner, and will illustrate and describe all the species of hardy trees and shrubs, including the newest and their varieties. It is believed that it will be welcome and useful to many country gentlemen and planters.

The journal will be conducted in a way not unworthy of the noble art of planting, and the Editor ventures to ask the sympathy and help of all practically interested in such work. It will be published at the same office as THE GARDEN. All letters should be addressed to the Editor of WOODS AND FORESTS, and not to any individual by name. We hope to publish sales of home-grown timber, and for that or other local matters of interest will have to depend on our readers' kindness.

W. R.

Coral Cottage.—In a Somerset village a cottage is thus named from the fact that its front wall is covered with the *Pyraeantha*, which, as most of your readers well know, bears a plentiful crop of bright red berries every year, and they retain their brightness from October to March. I have recently been to see this pretty cottage, and I must confess that it has a charming appearance. The greater portion of the house to a height of 7 feet is a perfect mass of brilliant coral berries. I have seen many fine examples of this hardy plant thriving and producing berries freely in all sorts of positions, but this one surpasses all I have seen. It is every year alike gay. I can only account for its extraordinary fruitfulness by the fact that it is well cared for, and that the aspect of the house on which it is growing is south, and otherwise well sheltered.—J. C. C.

OBITUARY.

THE LATE H. B. ELLWANGER.

WE have received a nicely printed pamphlet containing obituary notices of our friend H. B. ELLWANGER, author of the book on the Rose known to many of our readers. He was the son of the celebrated nurseryman at Rochester, N.Y. The pamphlet contains notices by the bishops and dignitaries of the church, in which he was interested. As one better known in the horticultural world than some of these gentlemen, we quote the words of the Hon. Marshall P. Wilder, which are as follow: "With heartfelt grief and deepest sympathy I contribute a few words in commemoration of the excellent character of our beloved friend Ellwanger, and the eminent services which he had rendered to the cause of horticulture and rural adornment. Although young in life, he was widely known both at home and abroad for his popular work on the Rose, especially for his enterprising and careful investigations and experiments in the classification and hybridisation of this queen of flowers. In the latter line of his studies he had already opened a new era in America, giving promise of equal or greater success than that which had crowned the most experienced rosarians of the Old World. This work established his reputation both at home and abroad, and his late article in the *Century* magazine added still further to it. How mysterious the providence of God in removing him from us thus early in life, in the midst of his usefulness, and with such bright prospects opening before him! It is only two months, at this writing, since he was sitting by my side, and expressing the great interest which he felt in the hybridisation of the Rose, and his hope that although we may not be able to paint the Lily, we may yet 'add perfume to the Rose.' Mr. Ellwanger was of a most amiable disposition, courteous, faithful in all the relations of life, and in every respect a true Christian gentleman. His death cannot but be universally lamented. Old as I am, he has gone before me, but it will not be long ere we shall meet again in that better land where the leaf shall not wither, nor the Rose ever fade."

THE DECIMAL COINAGE SYSTEM.

TO THE EDITOR OF THE GARDEN.

SIR,—I send you the following cutting from the *Times*, contributed by me, respecting this system, for part, at least, of which I hope you will find room in THE GARDEN. It is a system which I feel sure must benefit gardeners, seedsmen, and nurserymen as much as what are called mercantile men. My attention has been directed to the matter by the Board of Trade legalising the Birmingham wire gauge numbers in equivalents of parts of an inch instead of decimals, thus ignoring progress in our international trade. I am glad, however, to be able to state that the British Chamber of Commerce in Paris as well as the London Chamber will most likely soon bring their influence and authority to bear on the English Board of Trade, and show the unwisdom of its recent action in this matter. "Now that every country in Europe, I believe, has adopted the decimal system in money, weights, and measures, English trade interests are not a little injured by the difficulties which our Continental customers experience in comparing the cost of English goods in English money with the cost of their own home manufactures in their own decimal money. Our English system of money is a perplexity to them; and precious hours are lost, and I am afraid, at times, temper too, when any minute comparison has to be gone into between the prices of English and, let us say, the prices of French home manufactures. Englishmen who have for years resided in France regard our English system of money as simply 'barbarous.' And so it is compared with the noontide clearness and simplicity of decimals. Add a column of our pence amounting to 150, and then you say '12 out of 150, twelve times and 6 over, 6 and carry 12,' and so on and on till even wise heads are bothered, and bankers' and merchants' precious time wasted daily without end. And will you allow me to add a bit of pity for the poor little puzzled heads in our Board schools? Now add such a column of French centimes—'150 centimes'—there is an end of it, and you have only to drop your pen and make your decimal point thus 1.50—that is 15. and 50c. And with the same simplicity and accuracy you may go on with any amounts—to millions—and it is all the same—simplicity, a perfect godsend to every country which has adopted it; and what country now of any commercial importance, our own alone excepted, has not? The decimal system would save thousands and thousands of pounds sterling yearly, at the most moderate estimate, to English trade in the saving of time alone. And not only in addition, but in multiplication, division, and in every way in which figures are used

the same noontide clearness and simplicity present themselves. By the use of decimals international prices could be seen at a glance, both in England and in France for instance, and English trade interests in many ways would be not a little benefited. Who else but an English Board of Trade could think of 'prolonging and fossilising' such detestations (in calculations of measure for instance, whose chief professed object is greater accuracy) as 1-16th, 1-32nd, and 1-64th of an inch. It seems as if it were the mission of officialism to illustrate at times how best "not to do it."

90, Cannon Street.

J. B. BROWN.

Storing Apples.—My father had a large orchard in a favoured part of Surrey, and in it were grown many of the choicest keeping Apples. These were stored in a dry loft, beneath which three or four cows were kept at night in winter. Into this loft the fruit was taken as it came in from the orchard. The first to be used was placed at one end, and the rest followed in separate heaps, according to the order in which they ripened. These heaps sometimes contained from six to ten bushels, and were 2 feet and 3 feet in height. There they remained until the time came to send them to market. They were never examined or even uncovered; they were always covered with clean wheat straw, and the fruit kept quite as well, if not better, than I have seen it under apparently more favourable circumstances. The commonly received opinion that one decaying fruit will cause those near it to decay is a mistake. I have never in my lengthened experience known it to be so, and the same may be proved by anyone who has the care of Apples, provided always the air of the fruit room is dry and sweet through judicious ventilation.—J. C. C.

Stephanotis (E. G.).—It is not unusual for this plant to produce fruit.

Odontoglossum Pescatorei.—An unusually fine variety of this Orchid, supposed to be Veitchianum, was sold by auction on Friday last at Messrs. Protheroe & Morris's rooms, Cheshire, for 70 guineas.

Fungus (Lady K.).—The large buff coloured fungus is a somewhat abnormally grown example of *Hygrophorus pratensis*. It is one of the edible class not uncommon in pastures and not equally well esteemed for the table by all fungus eaters.—W.G.S.

THE weather on the 27th ult. in the west of England was so warm and fine that the lark filled the air with its song quite as clear as in June, and the thermometer on a south border in the open air registered 100° at half-past twelve o'clock in the gardens here.—C. LUCAS, Belmont, Taunton, Somerset.

The Gardeners' Benevolent Institution.—"Hortus" (p. 366) complains that he has never received the rules of this charity. Now in justice to the secretary, I may state that I have been an annual subscriber since 1857, and have, unsolicited, received a copy of the report in the early part of every year, and that has always been accompanied by the rules and regulations.—JOHN COLLINS, Kingston House, Dorchester.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received. In all cases where the numbers of the specimens sent are not mentioned, it must be inferred that the fruits to which they were attached are either local sorts, and therefore unknown at Chiswick, or that they are not in a fit condition for naming.

Names of fruits.—E. Charlesworth.—1 Sturmer Pippin; 2, Gloria Mundi (small sample); 3, Beurré Diel.—J. A. Glover.—1, Not known; 2, Maréchal de Cour; 3, Haddon's Incomparable; 4, not known; apparently a large Beurré Bosc.—J. P.—1, Cox's Orange Pippin; 2, Scarlet Nonpareil; 3, Old Nonpareil; 4, Downton Pippin.—St. Heliers.—1, itamston Duches.—D. F.—Not known.—A. B.—1, Northern Greening; 2, Norfolk Beefing.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—A. C. Van Eeden & Co.—It is the ordinary form of Cypripedium insignis (not Maulei).—Mrs. B. (Beechland).—Cotonaster affinis.—J. C. Clarke.—Polygonum cuspidatum.—Trapeziforme.—1, Adiantum tenerum; 2, Adiantum Sanctæ-Catharinæ; 3, Nephrolepis exaltata; 4, Eceremocarpus scaber.—C. D. (Torquay).—We do not undertake to name varieties of Pelargonium.—R. H. G.—1, Billbergia thyrsoides; 2, Tradescantia discolor variegata; 3, Dracana rosea lineata; 4, Adiantum Flemingi.—M. E. Elgodd.—Hemantus pubescens, Rhoeo japonica variegata.—J. S. B.—Salvia farinacea.—J. C.—Campanula Rapunculica.—Scot.—Not known.—J. S.—1, Erica melanthera; 2, E. mammosa; 3, E. cerinthoides; 4, E. Aitoniana.—Hastings.—Too small to name; please send better specimens.—S. J.—To all appearance the Rose is Madame Berard, a sport from Gloire de Dijon.

This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

VIOLETS IN AUTUMN.

BUT few, I apprehend, grow too many Violets. I know of no other flower that is such a universal favourite, if, perhaps, we except the Lily of the Valley. Just now our beds are flowering profusely. To-day I picked a dozen bunches off as many yards in length of 4-foot beds, and we generally gather blooms from them during nine months out of the twelve, *i.e.*, provided the winter is mild. There are few plants that are more grateful for a little kindly and timely attention than Violets. As soon as they go out of flower, which will be early in May—a little earlier or later, according to locality and aspect—the plants should be entirely taken up, the ground well dug and enriched with some old well-rotted manure—that from old hotbeds answering admirably; until this operation is completed and the beds reformed, the plants should be carefully heeled in in order that the roots may be kept fresh. We make our beds, as has been stated, 4 feet wide; five rows are put in each bed, and the plants stand some 10 inches or 12 inches asunder. Our earliest flowering and principal beds are on a warm south border, where they are partially shaded from the mid-day sun. We plant in shade and cold borders for succession, but the latter cannot compare with those on the more favoured aspect, either as regards quantity or quality of bloom. There are those who advocate the planting of Violets in shady places; certainly their native habitat is the shady hedge-side or the still more shady wood. I have, however, found them on the sun-burnt copse, but they looked as if they were from home. Whenever I have been asked what aspect suits them best, I have no hesitation in saying a warm, sheltered one. Let it be understood that I write from a cold latitude, subject to much wet and heavy frost and snow. In planting we use the strongest and best rooted runners. Of these we have little difficulty in getting a full supply, as we rarely cut away the runners in spring; on the contrary, we leave them purposely for the remaking of our beds. Prior to planting we put on the beds about an inch in depth of soil and old material from the potting shed, which has a tendency to promote quick root action.

On referring to my notes I find that we did not make our new beds until the last day in May this year. It is sometimes well to wait a week or even a fortnight beyond the usual time of planting in order to get strong and well-rooted runners, as good, healthy runners are half the battle, and there is no treatment one can give either a weak runner or a cutting of any plant that can beat or equal the parent as regards strength-giving; therefore, wait, as I have said, until good runners can be got. When planting is finished, water with a fine-rosed pot to settle the soil, and during the next three months, if the weather is dry, water attentively and keep a sharp out-look for red spider, which, if it once gets a footing, is rather hard to get rid of. The best way I find is to have a small quantity of insecticide in some handy vessel and to carefully go over every plant and dip them. By

timely attention to this little or no harm will be the result. Whenever the plants commence to grow they naturally throw out quantities of runners, which must at this season be assiduously cut off, for in this lies the quality of the future bloom. It is only those who have kept this part of their culture strictly enforced who know which is best—the cutting here commended or letting them run semi-wild. As early as July quantities of small deformed blooms will appear, which immediately run to seed; such would exhaust the plants even more than runners, and accordingly they must be constantly pinched off. Towards the middle of August good and well-formed blooms will appear, and these will be welcomed for any purpose for which they may be required. The more they are gathered, too, the more will come forth in succession until stopped by hard frost.

As to varieties, I find *Victoria Regina* to be the best, both as regards freedom of blooming, size, and sweetness; we also grow the *Czar*, but only in the proportion of ten of the former to one of the latter. For frame work we grow the old *Neapolitan*, which, if well treated, will not disappoint anyone. We prepare them specially for frame work by planting yearly the best of the runners on a south aspect. This variety is extremely fertile as respects runners, which must, as in the others, be kept in check. In September or early in October we lift them with roots intact and plant them in frames, allowing 8 inches between the rows and 6 inches between the plants. They are blooming with us now, but we look to spring for getting a full supply from them. We also grow in frames a smaller quantity of *Victoria*, which rarely fails to keep up a succession when those outside are frost-bound or covered it may be with snow.

S. KEVAN.

Templepatrick, Antrim.

** Finer Violets or sweeter than those which accompanied this communication could not be, and the healthy foliage with which they were surrounded showed clearly how well they had succeeded under the treatment just described.—ED.

ANTIGONON LEPTOPUS.

LAST year I recorded in *THE GARDEN* my experience with this *Antigonon*, and expressed my disappointment at not being able to induce plants of it to flower well, although I tried them under various conditions. In the autumn, however, I had the satisfaction of flowering a strong plant of it fairly well, but found that instead of the flowers growing to the dimensions, and assuming the attractive colours of plants grown in tropical countries, they were small and rather dull coloured. I at once suspected that our plant was not the true leptopus, or that it was a very diminutive flowered form of it, but on examining dried specimens in the Kew herbarium I was surprised to find that the flowers were not larger there than those on our growing plant, and that its real beauty in the Tropics was owing to the growth of the fruit and the accrescent calyx, the latter enveloping the fruit and growing to the size and assuming the rich colours with which we are familiar in pictures and descriptions of this plant, and which bears some resemblance to the so-called flowers of the *Bougainvillea*, or nearer still to the fruit of some species of *Rumex*. Although our plant bore a quantity of flowers, they all dropped off without setting, and that in spite of our efforts at artificial fertilisation. This failure of the flowers to develop the ornamental characters we wished

to see led us to infer that the agency of some insect was required to bring about fertilisation; and as the insect did not turn up in the shape of any of those which we saw visit the flowers, the conclusion arrived at was that *Antigonon leptopus* was a hopeless garden plant in this country at least. I was, therefore, surprised to hear of Mr. Byrom's success with this plant, and the good account given by the editor of *THE GARDEN* of the flowers sent to him. I shall be pleased to learn whether the ovary and calices have continued to grow after the flowers themselves are over, or whether it is in the flowers alone that the beauty of Mr. Byrom's plant resides. As "*Veronica*," remarks, this plant is an ardent sun worshipper. but then the same may be said of many of our most beautiful plants from the Tropics, which, notwithstanding the absence of a scorching sun, are made to develop their best qualities to the full by skilful cultivation. Hitherto I have suspected that the really beautiful picture of *Antigonon leptopus* in the *Botanical Magazine* was an exaggerated one, but, perhaps, Mr. Byrom's plant will prove me to be wrong. B.

Gardenias at Port Elizabeth.—Plants of *Gardenia florida* grow in perfection in the Botanic Garden, St. George's Park, planted out in a border amongst other ornamental shrubs, fully exposed to the sun, and at present they are pictures to look at, their finely-scented flowers being borne on the points of the young shoots in great profusion. When first I saw them I was astonished that *Gardenia florida* could withstand the scorching rays of the sun in a climate like this, knowing it to be treated quite the reverse in England. I, however, never saw healthier looking plants, which are widely different from some I have seen in stoves at home. Most cultivators think that heat, moisture, and shade, and the roots in a good compost of peat and sand, are the principal points in order to ensure a crop of bloom; here they are growing in a poor, brown, porous soil, and get water about once a week. They are subjected to plenty of sun heat in summer; at that season the thermometer seldom falls below 130° in the sun, and often rises much higher. The winter season here is, however, very trying to plants of all classes, owing to the south-east winds, which are very cutting. Last winter was one of the coldest that gardeners of twenty-five years standing here have ever experienced; on several nights the thermometer stood at 45°, but even that low figure had no ill effect on *Gardenia florida*. I would, therefore, recommend growers of this favourite shrub to expose it to full sunshine, and not to be so particular about shading. The result would probably be more bloom and less scale and bug.—SAMUEL COLLIER, *Port Elizabeth, South Africa.*

Tropæolum Cooperi.—This is as bright in the flower garden now, November 1, as it was in July or August. It will not bear frost, but wet does it little or no harm; indeed, it is one of our best bedding plants. It never grows more than 6 inches high. The flowers are produced in dense masses, and their colour, a soft scarlet, is very effective. It is excellent for creeping amongst beds of shrubs. It is the only *Tropæolum* which we consider good enough for flower garden decoration. It cannot be raised from seed; stock must be secured in autumn from cuttings, and any quantity may be propagated in spring.—J. MUIR, *Margam.*

MARKET GARDEN NOTES.

DOUBLE WHITE PRIMULA.

THIS is one of the few things with which it would appear difficult to glut the market, probably because it is almost indispensable in a cut state for some kinds of floral decorations, and because it is not so easy of culture as are the generality of those plants which are grown for the supply of cut bloom for Covent Garden. Few plants, however, give such a rich reward for really good culture as this. I can well recollect the wonderful amount of bloom which some large specimens once furnished, and which were grown for the supply of a large trade establishment. The person who had charge of them was one of the best hard-wooded propagators of the day, and was especially skilful in the propagation and culture of double Chinese Primroses, and it is probable that but few could have maintained such large plants in perfect health for so long a period. When I first made their acquaintance they were in 12-inch pots, and they remained in them for at least four years without showing any signs of diminished vigour. They were annually top-dressed with some of the best fibrous peat procurable, and beyond the usual routine of daily care this was all the attention they received. They stood in the hard-wooded propagating house on inverted flower-pots near the glass, and had through the winter a constant temperature of about 55°. Undoubtedly much of the success obtained was due to extreme care in watering; the head propagator himself always attended to them in this matter, and pieces of crock were thickly laid over the surface soil, so that the latter should not be disturbed in watering. Costly bouquets being often made, there was a steady demand for double Primulas, and I can safely affirm that throughout the year these plants never failed to yield bloom. In the summer time, of course, there was not so much, but the amount they yielded all through the winter was very great. Still, I would not advise any one growing for profit to employ such large plants for cut bloom; they are not so manageable as smaller ones, and when once a mistake is made in watering they take a long time to recover. The pot commonly used by one of our best market growers is a 5-inch one, and this may be taken to be the best size, as it contains soil enough to allow of a good development. When under good culture the pots will become well filled with roots—a most important point in the case of plants which are so tender rooted as to render them very susceptible to injury from injudicious watering. To ensure a good supply of bloom all through the winter and early spring, it is customary to have two sets of plants, one of which is started in warmth about October, the other being kept cool until about January. This is of course where it is in the grower's interest to maintain a supply during that time, otherwise it is better to get as much bloom as possible just when flowers are scarcest.

PACKING GRAPES.

In spite of the great amount of information which has been given from time to time in the gardening papers upon this subject, I doubt if it is generally so well understood as it should be. The great fault which many appear to commit is that of taking too much pains, for although there is a right way and a good many wrong ways of going about the work, Grapes are extremely easy to pack well when the one great point connected therewith is rightly grasped. If I were asked to epitomise Grape packing, I should say pack tightly, for therein lies the whole secret, or at any rate so much of it that every other detail is of but secondary importance. Many run away with the idea that they cannot do anything better than envelop each bunch in paper; whereas they could scarcely find a surer way of reducing the value of their Grapes. The paper rubs the bloom off and does not in any way add to the security of the berries. I have more than once seen Grapes unpacked in Covent Garden which were much damaged in this way, and I remember very particularly a splendid sample of Lady Downes, and which had come a long journey, coming out all bruised and

crushed; they were not worth the cost of transit. "Look here," said the recipient, a Centre Row fruiterer, "did you ever see Grapes packed like these—thick paper round each bunch? If they had been dropped into the box and the lid shut down on them without further trouble, they would have come better." We pack our Grapes very simply and they never sustain injury; we have never had a bunch reduced in value by transit in a period of twelve years. Some soft hay is placed at the bottom of the box or basket, a sheet of paper goes on that, and the sides are lined with paper. The bunches are then, put in as closely together as it is possible to get them, not an inch of play being allowed if possible. A few leaves are put on the top and a sheet of paper, on which the lid shuts down with gentle pressure sufficient to prevent the bunches shifting. This is very important, especially when they have a long journey to make, as in the hurry of getting parcels out at various stations the baskets are not always so gently handled as they should be. In a general way we use what are termed "pea-baskets," that is to say, such as come from abroad early in the spring filled with green Peas. These hold about 15 lbs., but for a long journey I should not care to put more than 10 lbs. together. This year we have used some of the cross-handled baskets which the Jersey men use, and although, through not being provided with lids it seems a risky affair to send soft fruit in them, in reality they are very safe. Nothing can be put on them and the handle in a manner necessitates mild usage, as it is so much easier to lift them about in this way that no one would give himself the trouble to pitch them about roughly in the way square hampers often get served. So many hampers of game and other things are sent by rail nowadays, that, although "Fruit with care" may stare the hard-driven porter or guard in the face, he will often in the hurry of the moment treat the fruit hamper with little care. An excellent plan is to fix a stout rope to the tops of baskets; this enables the railway official to lift them easily without handles; whereas if no grasp is visible, he perforce seizes them in both arms, and naturally experiences some difficulty in lowering them gently to the ground. Let anyone try the experiment of taking a large heavy hamper without handles some distance and setting it down on the ground without jolting, and they will arrive at a correct estimate of the truth of my remarks. In conclusion, I would say never send soft fruit to a salesman without advising him even to the minute the train arrives at the terminus. A market porter will then be there to take the basket from the guard's van, so that it never goes on to the porter's truck, as fruit often gets more shaken there in five minutes than during a journey of some hours duration. You may always trust to a Covent Garden salesman for this attention; it is too much in their interest to receive goods in first-rate condition to neglect it. The more valuable the package is to the grower the greater is likely to be the salesman's profit thereon. Put on each basket a large label marked "Ripe fruit, with special care; this side up;" also the day of the month and the train it is to go by.

RUNNER BEANS.

These are rather largely grown in this neighbourhood, and are thought to be one of the most remunerative of market garden crops. When the season is fairly propitious and the culture good they yield heavily from early summer till quite into winter; but the earliest and latest gatherings fetch most money. When they first come in they often realise as much as 16s. per bushel. Mr. Shears, of Pyrford, who grows them well on his light land, sows them 3 feet apart, and this allows of the horse hoe being used amongst them. All through the growing time the tops are kept pinched off so that Runner Bean is in their case a misnomer; they are almost as dwarf of growth as French Beans of the stronger type. Mr. Shears has a curious method of sowing the red, white, and Painted Lady together, about a third of each, so that a field in bloom has a very pretty and cheer-

ful appearance. The reason given for thus mixing these three kinds is that if one variety should happen to fail it will not seriously affect the crop.

BEET.

Last year I had good proof of how the market value of a crop may be lowered if the time of sowing is not regulated by the nature and condition of the soil and the variety grown. The half of a large field was sown with Mangolds, the other half with Beet of that free growing strain commonly termed the Covent Garden Market. The seed of both was committed to the soil at the same time, and when the Beets came into full growth I ventured to remark that in all probability they would become too large for market purposes, and the result justified my prediction, as they made such coarse roots that the grower was obliged to give them to his cattle. Such a strong growing kind ought not to have been sown on rich soil before the middle of May. I have noticed the same error again this season; the roots were some three weeks ago too large for cooking. In striking contrast was a field of Dell's Crimson, which, being a small growing kind, had come under the same treatment to just the right size. This kind, even on good soil, may be sown the first week in May, but unless the soil is naturally poor, the middle of that month will be early enough for coarse growing kinds. J. C. B.

FLOWER GARDEN.

HOW TO IMPROVE COLUMBINES.

WHAT has been suggested as to single Anemones would apply with equal force to Columbines. We need in them decided tints which could be reproduced true from seed. We want large flowers and fixed colours and then we should have a hardy flower that might be employed in many ways very tellingly. At present the Columbine is one of the most variable of garden flowers, but it has been proved that the fixing of colours in plants naturally very much inclined to sport is only a question of time and patience. What has been done with Verbenas, Petunias, Phloxes, &c., could surely be equally well accomplished with Columbines. Much of course may, nay, has been done by rigid selection in the matter of seed saving, but bees appear to be very fond of Columbines, and it lies in the power of a good-sized bumble bee to render futile much of the pains taken in this direction when the colours are grown indiscriminately together. The shortest road to

SECURING FIXED COLOURS as well as size and substance of flower would be to take in hand one colour at a time, suppressing at once all other tints, although where there is a large extent of ground the object in view might be effected, but not of course so surely by isolating each colour. There are some deep rich shades of violet in this flower, and it is not rare to find a really beautiful clear white as pure in tint as any flower need be. These would prove very effective massed, as indeed would a bright claret-red, especially amongst low shrubs and in front of evergreens—places into which the Columbine seems to fit harmoniously, and where, owing to its hardy nature and the firm grasp which it takes of the soil, it will flower for years without feeling the need of a renewal of soil, although it appreciates good food. Of late some beautiful and distinct species of Columbine have been introduced into cultivation, but none seem so truly hardy as the old *Aquilegia vulgaris*, and if only so much attention were paid it as is lavished on many garden flowers, few of them would be found to surpass it as regards beauty. It is said that

HYBRIDISING COLUMBINES is a mistake, as likely to create an indiscriminate and undesirable mixture of colour, and that it would be better to keep each species true. Whether this is a proper view of the matter I know not, but if carried out it would undoubtedly bar all progress, and we must remember that not so many years ago the same opinion was expressed in the matter of Orchids, while now some of the finest and most useful

kinds we have are the result of skilful hybridisation. Some of the most beautiful species of Columbines are too miffy ever to become of real use as popular garden plants, but if their most charming features could be engrafted on the common kinds, how great would be the gain. That this is but a question of time, I feel assured, and, if I remember rightly, Mr. Wolley Dod has stated in *THE GARDEN* or elsewhere that he was hopeful of having done some good with *cœrulea* and *vulgaris* in this way. Others who grow a collection of Columbines and having leisure could scarcely render better service to gardening than in obtaining crops with *vulgaris* and some of the rarer kinds, letting the former be the seed bearer. Popular flowers are only those which unite vigour of constitution with beauty of flower, and this many of our fine species of Columbine cannot be said to do. J. C. B.

Tropæolum compactum Lustrous.—This dwarf compact-growing new variety was awarded a first-class certificate by the floral committee of the Royal Horticultural Society early in the summer. It has dark bronzy green foliage, and the flowers, which are produced freely and continuously, are thrown up well above the foliage. This particular strain seeds very sparingly indeed; consequently the energies of the plants are devoted to the production of flowers. I saw plants of it finely in bloom at the end of September.—R. D.

Lifting and wintering Dahlia roots.—As the weather keeps open the task of lifting Dahlias need not occupy attention just yet. The usual practice is to allow the plants to stand until blackened by frost, and then to cut them back to within 9 inches or so of the roots. Then advantage should be taken of the first mild, drying day to lift the latter, and carry them away to a shed with some soil attached to them to dry. They will winter anywhere provided the place is cool, dry, and free from frost. A warm cellar suits them well. Many have no other convenience than placing them under the stage of their greenhouses, but unless protected from drip harm is likely to ensue. They are best uncovered, but ample precaution must be taken against frost.—R.

Narcissus incomparabilis.—I am much obliged to Mr. Burbidge for his paragraph on *N. incomparabilis*, and am sorry to have misinterpreted his remarks on p. 349. With regard to the spreading of this Narcissus in scattered clumps, I certainly ought not to have overlooked the analogy of the common double Daffodil, for there is a meadow full of it near my house. But I shall be glad if Mr. Burbidge can tell me a little more about the seeding of *N. incomparabilis*. I asked for information about this, because I can nowhere find it clearly stated that either natural seedlings have been raised from *N. incomparabilis*, or hybrids of which it was the seed parent. In his book on the Narcissus, p. 12, Mr. Burbidge, quoting Herbert, mentions a plant "the produce of *N. incomparabilis* by *N. poeticus*," but this may mean that the pollen, and not the seed, was from the former. Mr. Barr, too (catalogue, autumn 1883, p. 9), conjectures that *N. Barri* is the result of crossing *incomparabilis* and *poeticus*; but does he mean that the seed was from *incomparabilis*? I know, of course, that there are now very many new varieties of the *incomparabilis* class—no fewer than thirty-seven in Mr. Barr's last list. But of these Mr. Barr himself says that we have no positive data as to their parentage, but that probably all these varieties are crosses between *N. poeticus* and the Trumpet Daffodils. What, then, are the "numerous seedling garden forms" of *N. incomparabilis* of which Mr. Burbidge speaks (p. 396)? I am giving my attention to the Narcissus family, and am greatly in need of accurate and detailed information about the crosses already effected, and the varieties which have been observed to bear pollen or seed, or both. Mr. Burbidge answers my query rather as if I had asked whether such a plant as *N. incom-*

parabilis can theoretically produce seed; whereas what I really want to know is whether it does so actually, and whether there are existing proofs in the shape of varieties of which it is the mother.—G. H. ENGLEHEART, *Applesham, Andover.*

Scarlet Clove Carnations.—THE GARDEN has done much to encourage the growth of the deliciously scented, hardy and brilliant Clove Carnations, and in last issue (page 396) it is stated that it is much to be desired that raisers would get a number of kinds with those valuable habits of blooming outdoors, as noted by Mr. Muir, from June to October. You will be glad to hear that a new seedling scarlet Clove has been raised that experts north of the Tyne think highly of, and that exceeds Mr. Muir's in blooming still (November). I have a seedling crimson Clove also in bloom, and a bright purple given me by Mr. Burbidge, but as the edges are not as even as those of the seedling referred to, I am afraid "the florists" would reject them, though I need not say, from their rich sweetness and continuous blooming habit, I would grow them still.—W. J. MURPHY, *Clonmel.*

Summer-flowering Chrysanthemums—These deserve to be classed amongst the very best of flower garden subjects. With us they begin flowering in June. They are in bloom now, and are wonderfully effective. They produce enormous masses of flowers, the rich colours of which put everything else in the shade. They bear rain and wind better than Pelargoniums, Calceolarias, or any plants of that kind. About 7 inches of rain fell here in September last, and this made Pelargonium blooms unsightly, but the Chrysanthemums appeared to relish the washing, as they were always bright and fresh. They grandly break up the monotony produced by the use of Pelargoniums and carpet work, and as their flowers do not make a flat mass of colour, they may be largely introduced without giving dissatisfaction. The old stools furnish abundance of cuttings in spring, and their propagation and culture are matters easily accomplished.—J. MUIR.

SHORT NOTES.—FLOWER.

Aster turbinellus.—Mr. Ellacombe praises this as the most graceful of the Michaelmas Daisies now in flower in his garden.

Saxifraga Wallacel.—I regard this as the best of the flowering Saxifrages. It flowers late for a spring flower, but is better on that account, as it comes into flower when some of the best things of the same colour are over. It prefers a dry spot on the rockery, but rots in a too rich or moist soil.—S. W.

Tuberous Begonias.—Here in lovely Malvern, where the air is so pure and bracing, these seem to thrive remarkably well. A friend grows them largely, and even speaks of growing them more extensively for bedding out, and really they make a better display than many plants used for that purpose.—J. S. T.

Salvia patens.—We have plants of this *Salvia* growing here and there in the kitchen garden borders, and they are in full bloom at the present time. It is a wonderful plant to bloom, and its numerous fine stems, carrying sky-blue flowers, are very attractive. The roots succeed well under the same treatment as that given to Dahlias.—J. MUIR, *Margam, Glamorganshire.*

Edging plants.—Will you allow me to suggest as an edging for spring beds young plants of *Meconopsis nepalensis*? The beauty of its leaves continues all winter. It is only a biennial, but seeds so freely, and is so easily raised from seed, that there is no difficulty in getting and keeping a stock of young plants.—GEORGE F. NELSON, *Heatherbank, Weybridge.*

Veronica rupestris.—A few months ago I spoke of this pretty creeper as producing profusely flowers of a true blue colour, and have now to say that it is and has been in full flower for some time, and is very attractive at this season. I do not know whether its late flowering is due to the plants having been shorn over for cuttings in July or not, but perhaps some of your correspondents can say if it blooms twice a year. In habit it is well suited for the rockery garden.—J. S. W.

Monstrous Plantain.—I send you several stalks of a monster form of *Plantago lanceolata* which I recently picked up in this neighbourhood growing wild. It is so remarkable in appearance, I thought you might like to inspect it. I have brought the plant into my border, and hope to grow it. Occasionally the seed-stalk protrudes through the tuft at the summit of the stalk, and in some instances the leaves assume the regularity of a flower of a green colour.—C. STUART, *Chirnside.*

Tritoma Uvaria from seed.—This can be raised from seed, and what may surprise not a few, be had in bloom in a comparatively short space of time. The seed needs to be sown in January in a strong heat, and when the plants are large enough to handle they should be gradually hardened off and then pricked off in 5-inch pots, in which they will root freely, and in these remain for the summer in a cold frame or in the open air plunged in Cocoa fibre or some such material. Here they can remain through the autumn and winter, and in April be planted out in a bed of good loam to flower; they will almost, if not quite all, bloom the same summer. Plants raised in this way show a little variation. During the past summer I saw a fine lot of seedlings so raised in flower. There were different shades of colour, and differences in habit of growth also, and by means of selection there is no knowing what improvements may be ultimately effected in this fine autumn-blooming plant.—R. D.

Papaver orientale from seed.—How few attempts have been made to raise this fine hardy perennial from seed, and yet if it were more generally known that it is not only easy to do so, but that some variations of a very pleasing character will be found among the seedlings, more people would probably resort to the system. During the summer I saw a bed of plants so raised in full bloom, and the difference in the colour of not a few was striking. For instance, there were flowers of a rich, deep shining crimson hue; on the other hand, there were some of a pale bright scarlet. Between these there were many shades, all of a pleasing and satisfactory character. It is easy to raise plants by sowing some seed in pans or shallow boxes and placing them in a cold frame, keeping the surface fairly moist and shaded from the sun where necessary; then they should be planted out in store beds, and finally formed into a plantation where they are intended to bloom, or the plants can be planted in the mixed border. It is a glorious subject, and though the blooms are a little evanescent in character, this is compensated for by the fact that the plants flower successively. This Poppy should be planted in a good and fairly rich loam in order to do so fine and good a subject ample justice.—D.

FRUIT GARDEN.

BUSH FRUITS FOR MARKET.

GOOSEBERRIES are largely grown in all parts of the kingdom and with great success, there being, as a rule, few failures. Since their culture for market has been taken up in earnest, sorts that really do bear crops of serviceable sized berries annually have become popular. Large Lancashire prize kinds answer for special purposes, but for general use it is safer to take the market grower's selection as a guide than that of the exhibitor. The usual routine of culture adopted is to plant healthy bushes two years old from cuttings, that have good heads, having been cut down once in the propagating beds; these are planted from 6 feet to 9 feet apart each way on deeply cultivated soil, and a light crop of vegetables or salad plants is taken off the ground between the rows the first year or two after planting. Many, too, grow a row of Strawberries between the lines of Gooseberries until the bushes occupy the whole of the ground. Pruning is done any time between the fall of the leaf and the swelling up of the buds in spring, but in most cases the bushes are thinned more severely than they are in private gardens, especially while young, the object being to get fine berries that fill up the measure quickly; all cross pieces of wood are cut out after the head is formed and the leading shoots are shortened, some of the old wood being annually removed and young vigorous shoots left to replace it. Young wood bears the best berries, but old spurs the largest number. When the bushes get old the wood is left thicker, so as to produce a quantity of berries for gathering green, a condition in which they fetch the most remunerative prices. Whitsuntide is the

date usually fixed on for commencing Gooseberry picking for tarts, the custom in market gardens being to go over the bushes and take off all the largest fruits, especially from the lower branches, as when heavy storms of rain occur these fruits get splashed with mud, thereby reducing their market value. About three gatherings are made of the crop; the some market all the berries green, others depend on ripe fruit, but as a rule green berries, as I have said, pay best. If left to ripen on the bushes, and wet weather sets in, the berries burst and quickly rot. Moreover, it is only a few varieties that sell well in a ripe state, such as the Early Golden Drop, Yellow Rough Warrington, and the small Rough Red, the last for preserving. The Gooseberry needs liberal manuring to keep it up to a high pitch of fruitfulness; a good winter dressing of decayed manure should be lightly forked in around the bushes. The greatest enemies to the Gooseberry grower are small birds. They pick the buds out during winter, and especially just as they are swelling up in February and March. Gooseberry caterpillars, too, attack the foliage, which must be dusted with Hellebore powder on the first sign of their appearance. It is usually applied by means of perforated tins like flour dredgers.

CURRENTS—Red, White, and Black—bear crops with greater certainty than most other cultivated fruits; the routine of planting and other items of cultivation are the same as those practised in the case of Gooseberries, but the pruning is varied according to the sort grown. Red and White Currants are closely spur pruned; only the leading shoots are allowed to extend until they have attained the desired length, and then they are stopped in very closely, and in the case of good healthy bushes the shoots get completely covered with fruit spurs and fruit buds, which develop into solid masses of fruit. Some growers summer pinch as soon as the young shoots have made half-a-dozen leaves, and there can be no question that the practice is an excellent one, the fruit-bearing buds being strengthened by exposure to light and air.

Black Currants are allowed to grow unchecked during summer; at the winter pruning a good deal of the old fruiting wood is annually cut out, and young strong shoots that spring from the base are allowed to take its place, as they produce by far the finest fruits. The spur system of pruning does not suit Black Currants, and I may add that although Red and White Currants grow and fruit freely in light, rather dry land, the Black Currant delights in plenty of moisture. Therefore if the soil is deficient in that respect, heavy top-dressings of cow manure should be applied to it in order to keep the roots cool. It is not often that birds attack the buds of Currant bushes in open fields, although they do so in gardens, and caterpillars are not so partial to their leaves as those of the Gooseberry. As regards varieties, the following are in most request, viz., Red—Raby Castle, Victoria, and Scotch Red, and the Red Grape is esteemed for its long bunches for dessert. Of white sorts, the Dutch and White Transparent are two good kinds; and of Black, the Naples, Baldwin, and Lee's Prolific. Currants for market are not gathered until they are fairly well coloured. They are then packed in sieves, or more generally half sieves, and sent to the salesman or direct to the shopkeeper; as fruits for preserving or culinary uses, few are more appreciated while procurable. I may add that the system of selling them by weight has nearly superseded that of measure. It is the best system for both buyer and seller. Market growers do not attempt to prolong their season by any system of netting them up, as is done in private gardens, as the extra price obtained does not compensate for such labour. The best way, as a rule, is to gather each sort as it is fit for use.

RASPBERRIES have lately commanded a deal of attention, and are now extensively grown as market fruits. The usual plan is to plant in lines from 4 feet to 6 feet apart, the canes being placed about a foot asunder. Good rich land is needed to produce heavy crops of fine fruit, for although

the Raspberry will grow freely in almost any kind of soil, and produce plenty of blossoms, it is only when its roots can find suitable food in abundance that it can carry a good crop of full sized fruit. In periods of drought the late blossoms dry up on poor soils instead of swelling off, but if rich mulchings are applied and copious waterings of liquid manure given, it is surprising the quantity of fruit which a good plantation will yield. I find in light soil that cow or pig manure, applied as a winter dressing, produces excellent results. The system of pruning is usually to cut the canes down to about 2 feet in height, and in that case no stakes or wires are employed, as is usual in private gardens. All surplus canes are dug up in winter and employed for making new plantations, for although the Raspberry makes fresh wood every season, and by good culture may be kept prolific for many years, it is necessary to always have young plantations coming on. Market gardeners plant a certain number of rows every year and do away with an equal number of old stock. The finest Raspberries are gathered with the stalks attached to them and sent to market for dessert, but the greatest demand is for jam manufacture, for which purpose they are in great request and realise fair prices, even in the most abundant fruit seasons. The varieties grown for market are Carter's Prolific, the Red and White Antwerp, Prince of Wales, and the Fastolf; the red kinds are much more grown than the white, the latter being only for dessert. A new sort called Baumforth's Seedling is very highly spoken of by those who have tried it.

NUTS of various kinds are a remunerative crop, but although they succeed in almost any kind of soil, it is only in Kent where they are extensively grown. The system of pruning by which hollow, cup-shaped bushes are formed is probably the cause of the fruit being so fine, as where the bushes are allowed to grow as they like the fruit is not nearly so fine as when the restrictive system is adopted. Nuts are usually planted as an under crop beneath Apple, Pear, or Plum trees, amongst Currants and Gooseberries, about 15 feet apart, but it takes several years to form a good Nut bush. The pruning of Nuts is made a speciality of by men who cut the bushes at so much per score or hundred, according to size and age. They cut out the centre shoots, and always prune to a bud pointing outwards. All suckers are broken clean off, as well as all coarse, watery shoots; only the wiry-looking twigs are retained; and the size which the Nuts attain under this system of pruning is the best guarantee of its soundness. Rags and other refuse are dug in amongst the bushes in winter, and in summer the strong shoots are stopped when in full growth, being broken by hand, an operation that has the effect of increasing the size of the Nuts. Cob Nuts are now much more largely planted than Filberts. The Kentish Cob and Webb's Prize, the Cosford Nut and Red and White Filbert are the sorts usually grown, and in almost all kinds of seasons they realise good prices, the flavour of good home-grown Nuts being superior to that of imported ones; in fact, our home growers can defy competition in the matter of bush fruits, the cultivation of which is likely to attain very large proportions.

Gosport, Hants.

JAMES GROOM.

Standard v. trained Peach trees.—"J. S. W." (p. 383) writes as follows concerning this matter: "'P. G.' says his conclusions were drawn from standards 12 feet high, and in his first note he says the house that held these trees was only 12 feet high. This I leave him to explain." True, I stated in my first letter that the house was 12 feet high, and so it is, and I stated in my second that some of the trees were 12 feet high, and so they are. They may now be seen with their top shoots pressing upon the under surface of the glass. Without in any way condemning the planting of standard and pyramidal Peach trees under glass, I stated what is quite true, viz., that I had obtained as good crops of larger, better coloured, and better flavoured fruit from trees trained under a glass roof, and at a distance

of some 18 inches from it, than I ever obtained from standards or pyramids. These statements, together with those of other growers who may have had experience in the culture both of standard and trained trees, might, I thought, be likely to induce intending planters to well consider the matter before they extensively planted either standard or trained trees.—P. G.

PEARS AND APPLES.

THE singularly mild autumn which we have had, merciful alike to fruit and foliage, has shown us pretty clearly the advantages to be derived from a judicious planting of the above, so as to obtain an extended season from any particular variety. That old favourite, King of Pippins, from bushes, standards, and cordons on a north-west wall, comes in in the order named, the difference between the two first and the cordons being very marked. So good is the King, even when weighed in the balance against first-class fruit, that any extension of its season is acceptable, especially when we bear in mind its great productiveness, and it has also the merit of accommodating itself to different kinds of soil more readily than many varieties. Marie Louise Pears from a west and a north-east wall also have the line sharply drawn between their ripening season, and the same remark holds good with Louise Bonne, which, by the way, is late with us this season. I hope to give more attention to this matter another season, with the view of sending accurate information as to the dates of ripening, and to notice especially the difference between old trees on walls and young pyramids. The attention of intending planters should be directed to this question, as especially in the case of small gardens it would tend to give what is so much required, viz., a constant supply of fruit, instead of abundance at one time and scarcity at another. Another point worthy of consideration before Apple trees are purchased is the selection of those sorts that have proved themselves to be sound keepers. I do not mean keepers in the way of Easter Pippin as opposed to the Codlin, but those that will remain sound for a length of time after they are once ripe, instead of those which are over almost as soon as ready. Manks Codlin is perhaps as good an early Apple as could be named in this respect, and might be followed by King of the Pippins, Rymer, Blenheim Orange, Dumelow's Seedling, and Norfolk Beaufin, half-a-dozen all good for culinary purposes. This list might be extended with some equally sound varieties to the exclusion of many non-keepers that serve only to occupy the shelves of the fruit room for a very brief period. With the exception of the Codlin, the above sorts are all pretty firm in skin and flesh, an advantage which is very apparent where they are apt to receive rather rough handling.

E. B.

PLANTING FRUIT TREES.

THE time has again come round when fruit trees have to be planted, and many engaged in the work will doubtless, before spring, treat the trees in the matter of pruning as they have always been in the habit of treating similar young stock, by cutting the shoots hard back so as to leave them not more than possibly one-fourth or less of the length they were when moved from the nursery. Trained trees, including Peaches, Nectarines, Plums, and Pears, are fruits that usually come in for this kind of cutting, which is done, no doubt, under the mistaken notion that the wall or espalier, as the case may be, cannot be properly furnished unless the trees are thus reduced. Standard Apples and Plums suffer by this sort of mutilation to a greater extent than dwarf trees. It is scarcely needful to say that when the roots have been reduced by transplanting, and the branches severely cut in the same season, the mutilation of both top and bottom is doubly weakening to young trees. In place of this senseless cutting back, only the strong shoots should be shortened, or, still better, have their buds rubbed off for a length more or less, proportionate to the length which they are above

the weaker shoots; then during the summer will be seen the difference in the growth made compared with that which takes place where severe shoot-shortening is practised.

Observant planters have long noticed the ill effects that follow hard cutting back, and have avoided it. My own practice has always been not only to confine the shortening back to any shoots that were much stronger than the others, but also to defer pruning until after the buds not rubbed out in the way just stated had broken into growth and made some progress, by which means the loss of sap is least experienced. As to the extent to which the shoots require being interfered with, much depends on the shape the young trees have when received from the nursery, especially trained examples for walls. Respecting these, it may well be said that there are trained trees and trained trees; some are so much better than others, independent of size and health, that I would much rather pay for them than have others for nothing. In the selection of trained trees a point should be made to always have them with the lower branches strong; if a little stronger than those that form the centre of the tree, no harm will be done, but the reverse; the middle of the tree will always take care of itself. Young trained trees with a gross shoot or two in the centre and weak lower branches I would not have at any price. I would much prefer maidens, as with them the right shape can be secured by stopping the shoots that need it whilst soft and growing, thereby all but dispensing with the use of the knife. T. BAINES.

Marie Louise Pear.—This by some is considered to be the very best Pear in cultivation. I do not go so far as that, but I am positive that there is no better or more generally profitable sort grown. I have not had it really good from pyramids or standards, but on a wall it seldom or never fails. Even on a north aspect it succeeds fairly well, while on any other it with us rarely fails to perfect good crops of fine fruits. These ripen during October and late in November, and in size, colour, and quality are simply perfection. If handled carefully, fully ripe fruit will keep good for several days, and this is an advantage, especially seeing how desirous we are to prolong the season of so good a Pear.—W. I.

Apples for north walls.—Having a rather long piece of wall with a north aspect, where the soil is thin and poor, I have tried to grow various kinds of Apples upon it. I began with Royal Somerset, but this only grew sparingly and never produced a blossom. At the next trial I put in Golden Ducket (a local variety of great merit), but it signally failed. Four years ago I planted in the same place Lord Suffield, which thrives as well as I could expect, and has borne two good crops of fruit. Perhaps if the soil was better, other kinds would prove satisfactory; but a soil that will not grow an Orleans Plum could hardly be expected to grow Apples. The experiment shows, however, that Lord Suffield will thrive where others fail.—J. C. C.

Setting fruit with the aid of the syringe has been practised by a few for a long time, and it would, doubtless, have been in general use by this time had it been known how far it might be carried on safely. I have used the syringe during the blooming season on all classes of fruits for many years with satisfactory results, and particularly so in the case of stone fruits. In fact, in 1858, I renewed a part of some Vine borders, and, being more anxious for good growth than fruit, I made free use of the syringe on the bunches during the time when they were in bloom, and more particularly in the case of Muscats, as I should have been satisfied if none had set, but the reverse was the case. I believe every bloom set, and the berries swelled to a good size and finished well; the result satisfied me so well, that I have used the syringe in setting fruit ever since. In accordance with the condition of the weather at the time and the temperature inside, no moisture should be given in the morning till most of the bloom is open, which, as a rule, it will be between nine

and eleven o'clock; then syringe, using the finest rose or, what is better, the jet end and finger. When properly used this produces a fine spray, which leaves the foliage and bloom covered as if with drops of dew. This is not only beneficial to setting the fruit, but also to its swelling. The syringe will not, however, make good other deficiencies, such as worn-out or badly drained borders, or, what is more frequent, inside borders dust dry, except a few inches on the surface; these and other defects must be attended to, or syringe setting will be a failure. Fruit set under such conditions have a tendency to give a check to red spider, which too often breeds freely during the blooming season, either from too dry an atmosphere or too dry borders.—JAMES SMITH, *Waterdale Gardens*.

Ripening the wood of Vines.—Heat is an efficient ripener, and a little fire heat judiciously applied will be of great use now where the wood is soft and spongy. It is often said that Grape shanking proceeds from the wood being unripe, and doubtless in a sense this is so, but then the main cause of unripe wood is deep rooting in ungenial soil; therefore the true remedy for shanking will be lifting the roots and placing them near the surface in turfy loam.—E. H.

Fruit culture.—Mr. F. C. Barker, at the congress at Woodford, is reported to have stated that Apples and Pears grafted on the Crab and Pear stocks bear "hardly any fruit during the first seven or eight years after planting"—a statement which can only mislead intending planters. No variety of Apple or Pear is so long in bearing as that; indeed all ordinary free kinds will bear the second year after planting as maidens, and freely during the following years. I have seen trees of Lord Suffield and other sorts nearly bent down with the crop the second season.—J. S. W.

Gas tar and Vines.—I regard Mr. Clayton's evidence (p. 364) in favour of gas tar as at the best but negative. The probability is that he destroyed the bug by the scrubbing with a brush and "strong soap and water," and the two coats of paint afterwards, one consisting of clay and tar, and the other of clay and lime. Such a smothering would kill most breathing creatures. Where Mr. Clayton had most reason to fear the bug coming from the following season were the walls and wood-work, and he realised this apparently by dosing both with a mixture which he dared not apply to his Vines, and gave the tar the credit for it all. Once bug makes its appearance in a viney, I feel sure that it is harboured in the wood-work, walls, and borders more than on the Vines, which can be cleaned by scrubbing alone. Mr. Clayton left almost nothing for the tar to do.—J. S. W.

SHORT NOTES.—FRUIT.

Standard v. trained Peaches.—In THE GARDEN (p. 383), four lines from the bottom of the note on this subject, for "standards" read "trained trees."—J. S. W.

English raised Grapes.—If Mr. Westcott (p. 383) will read "spot" for "spoil," which is a misprint, he will see that his remarks on this subject are uncalled for. I quite agree with all he says about the Lady Downes Grape.—J. S. W.

Marie Louise d'Uccle.—This is quite distinct from Marie Louise. I have never seen it trained to a wall, but according to my experience it forms a very fine pyramid, especially when grown on a Pear stock, and during favourable seasons perfects heavy crops of clean, medium-sized fruits. These usually ripen during the latter part of October, and in quality resemble and are not much inferior to Marie Louise.—I.

The autumn blossoming of fruit trees is a very prevalent evil this year, a circumstance attributable to the trees, after having been nearly defoliated by violent gales of wind some time ago, being subjected to mild weather and heavy rains in September. They then started into active growth, and the result is that the buds have started afresh. In the case of trees that retain their foliage, the fruit buds are in their normal condition.—J. G., *Hants*.

Victoria Nectarine.—Judging from "J. S.'s" remarks (p. 383), our tree, presumably of Victoria Nectarine, cannot be correctly named. It is probably in the best position in the whole range of houses, yet the fruit coloured indifferently. When I stated it was not a vigorous grower, I did not mean to imply that I was dissatisfied with its growth; quite the reverse. It is not so vigorous as others are I could name.—W. I. M.

Pruning Vines ought to be well understood, seeing the number of books and treatises written on the subject. Yet I find almost daily instances of Vines crowded to suffocation, the shoots being laid in only a few inches apart. I would advise all owners of Vines that produce unsatisfactory crops to see that the winter pruning is attended to as soon as the leaves are off. Then thoroughly clean the glass, wood-work, &c., and wash and paint the Vines with a mixture of Gishurst compound, soft soap, and clay. Do not forget the roots, as on them depends the crop; carefully loosen the border, and give it a good coating of rotten manure. If liquid manure is available, give a good soaking with that treatment, which the Vine soon well repays.—J. G., *Hants*.

Root-pruning fruit trees.—This operation implies a check to the whole of the forces of the tree, and this, in fact, is the object in view, the check being given to correct an evil habit; but the correction having been administered, if precautions are taken against a repetition of the offence, the sooner the balance of Nature is restored the better. In the case of large old trees the renovation will be more completely effected by taking away the exhausted soil from the trench and substituting good sound fresh material. This treatment will tempt the roots to start again and make plenty of fibres immediately. Autumn is the time usually selected by most cultivators for root pruning, but it does not follow that in all cases autumn is the best time for performing that operation. I believe that if done carefully and the trees are well attended to afterwards with water, it may be done at any time.—E. H.

Planting and top-dressing Strawberries.—I have but little more to add to this subject beyond what I have stated (p. 364), which is simply the outcome of experience gained in the culture of Strawberries for market extending over a period of some years. Mr. Wildsmith says, "I am too matter of fact to be scientific, and I therefore cannot be supposed to know how fruit germs are manufactured." Perhaps not; but the question asked was, "When is the fruit bud formed?" Surely no scientific teaching is needed to know that in the case of hardy fruits it is in the autumn, and I am sufficiently "matter of fact" to know that a half-starved plant will produce a very poor fruit bud. There is a wide difference between feeding a Strawberry until the crowns burst and giving it the food needful to the formation of strong bloom trusses; and here I may add that although I have practised what I preach in the matter of top-dressing, I have rarely had a burst crown. As regards transplanting fruiting plants in mid-October, I would ask what good end is gained thereby even if, as Mr. Wildsmith says, "the injury to the fruit germ is imaginary?" Healthy plants at that time are still growing (ours were); the root disturbance must check them. Why not allow them the remaining fortnight of growth, and move them when they have come into a state of perfect rest? One word more in conclusion. Although I differ from Mr. Wildsmith in a general way, I willingly and heartily endorse his injunction to give plenty of water in autumn. The partial drying off which formed—and, indeed, does in some gardens still form—an item of Strawberry culture is pernicious in the extreme; it is contrary to Nature and common sense.—J. C. B.

Glass v. brick or tile copings.—Much has been said from time to time in favour of wide glass copings, but there are a great many who are opposed to them. The latter probably have to deal with comparatively low-lying, sheltered situations. I know places in which it is a rare occurrence to have a failure either in the case of Peaches or choice Pears on walls under ordinary brick copings; but it is just the reverse in exposed places. In the latter, Peaches, Pears, and choice varieties of Plums must have all the assistance one can give them if without a permanent house or case, both of which entail extra labour in the way of watering and ventilating. Some time ago it was a rare occurrence to see a healthy leaf on our Peach trees; all were blistered; but now, under a glass coping, they are excellent, making good

wood and bearing fruit. Choice and rare varieties of Pears do well under a glass coping, and the demand for such fruits is every year increasing. I send you samples grown under our glass coping, and also some from under a tile coping projecting 7 inches beyond the wall. I feel sure that Pears alone grown under glass copings would soon repay the outlay for that kind of protection. I may add that our glass copings are 3 feet wide, and that we are just commencing to put up 300 feet more of them. —A. EVANS, *Lythe Hill, Surrey*.

* * * Admirable Pears were sent with this, showing a very great difference in favour compared with those grown under the brick coping. There can be no doubt that a good glass coping is of great advantage to the fruit grower. Its absence often explains failure in regard to wall fruit. It is not, however, necessary to have a glass coping, as a light wooden one 2 feet wide is excellent. Of course it must be removed when spring frosts are past, but that is no disadvantage in warm districts, but rather the other way. In some cold districts the glass coping is too valuable to be dispensed with. Of the Pears grown by Mr. A. Evans, six weighed 5 lbs. 14 ozs., or nearly 1 lb. each. —ED.

PLANTS IN FLOWER.

November Carnations.—I send a few Carnations from Mrs. Tindall's garden at East Mount to show what an excellent autumn bloomer *Clarisse* is even when out of doors. Having very mild and fine weather now, all flowers are better than usual for the season. —EDWARD H. WOODALL, *Scarborough*.

* Very beautiful—as fine almost as July blooms; others, too, particularly a deep crimson sort, which came along with *Clarisse*, are uncommonly fine for the season. —ED.

Gustavia gracillima.—This is again flowering at Kew in the Victoria house. It is apparently a free flowerer when grown in a very moist state, but, so far as I have watched it, it will not flower equally well in a dry house. To possessors of this plant I would say, do not prune or do anything in the way of stopping the shoots, or there will be but little or no flower. —B.

Pitcairnia odorata.—A handsome white-flowered Bromeliad, with a spike of Hyacinth-like, sweet-scented flowers. It belongs to the grassy-leaved section of the genus, and appears to be a free flowerer. When grown into a large specimen this species will doubtless prove a useful winter-flowering plant. There is a small plant of it now in flower in the stove at Kew.

Desfontainia spinosa.—I sent you some flowering sprays of this shrub on August 1; from the same plant I now send you some more flowers gathered this day, Nov. 7. The plant was well in bloom in the end of July, and has continued in flower until now, thus giving us a blooming season of nearly four months. It has been the admiration of everyone who has seen it. —J. GARLAND, *Killerton, Exeter*.

Sagittaria montevidensis.—This is developing into a very fine plant under the treatment which it is receiving in the Water Lily house at Kew. It is planted in one of the mud beds in which the Numbiums are grown. The leaves are now as large as the largest of the common white Arum, and the flower-spikes, which are produced in abundance, are as thick as one's thumb, and bear a profusion of large white and maroon flowers. For tropical aquaria this plant will prove a valuable acquisition.

Late-sown Antirrhinums.—These, if sown in the open ground in May or June, will not begin flowering until September, and then will go on blooming until nearly Christmas. The flowers are very varied and bright in colour, and most pleasing at this time either in the mixed border or in flower-glasses. Antirrhinums are amongst the hardest and easiest grown of all border plants, and not so much cultivated as they deserve to be. —CAMBRIAN.

Sonerila argentea.—In one of the stoves at Kew a good-sized plant of this in a suspended pot is one of the prettiest objects imaginable in the way of stove plants. Its foliage is silvery white speckled with green, and the whole plant is profusely studded with clusters of rosy pink blossoms—a charming contrast, with the foliage. The growth is dwarf and compact, which admirably adapts it for culture in hanging pans or pots.

Begonia Listeri.—This, apparently a hybrid between one of the heraclefolia group and a marbled spotted species, was raised, I believe, by Mr. Lister, who is employed in one of the Indian gardens. It grows to a height of about 2 feet, and is of shrubby, compact habit; the handsome palmate leaves, with white spots on the upper

surface, are of themselves sufficiently ornamental for garden purposes to deserve recognition. The flowers, however, are its chief attraction; they are borne in bunches from the axils of the leaves and resemble those of the rosy *B. semperflorens*. The species sent out by M. Linden last year under the name of *B. diadema* is no doubt this plant. It is now in flower at Kew.

Passiflora kermesina.—What a lovely stove climber this is! It surely cannot be known in a general way, or we should not find many stoves without it. Its beauty and elegance are all the more prominent, inasmuch as it habitually flowers at this season. The lovely carmine of the flowers and the port-wine-stained leaves produce a charming effect as they hang in festoons from the roofs of a hothouse. At Chatsworth it forms a charming object in the large conservatory, where it drapes a pillar, and falls carelessly about with all the grace imaginable.

Marguerites.—Chatsworth follows the fashion of growing a goodly stock of these valuable plants for a winter supply of bloom. One of the houses is nearly filled with large plants of the various kinds, preference being evidently given to the beautiful soft yellow *Etoile d'Or*. The white *Chrysanthemum frutescens* and *Halleri* are likewise grown in quantities, and these all produce a cut-and-come-again crop of bloom throughout the winter. Their soft colours and peculiar elegance make them favourites in every garden, from that of the nobleman to the cottager.

Primula obconica.—This new Japanese species has proved itself a much more valuable garden plant than was anticipated. Its chief value is its continuous and persistent flowering. It begins to flower in spring and continues till winter. There is now a good specimen of it in bloom in the Heath house at Kew carrying seven spikes of bloom, the delicate mauve colour of which has a most pleasing effect, and distinct from all other cultivated *Primulas*. Its complete hardiness is doubtful, but it appears to need the protection of a frame only. It is evergreen, and may be propagated freely either by seed or division. Its other name is *P. poculiformis*.

Amaryllis Ackermanni pulcherrima.—The true variety of this *Amaryllis* is indeed a beautiful plant, and if it can be induced to flower at this season it is doubly valuable. We saw it the other day at Chatsworth, and greatly admired the glowing richness of its colour—a maroon-crimson overlaid with a satiny lustre. There are spurious *Ackermanni pulcherrimas* in gardens, but no one seeing the genuine plant can mistake any other for it, except it be perhaps some of the dark hybrids like *Othello*, *Murillo*, *Gustave Doré*, and others that Messrs. Veitch have bred from it. Another fine *Amaryllis* in bloom at Chatsworth just now is named *Prince Albert*, which may be best described as an improved form of *A. aulica*.

Musa coccinea.—Amongst the luxuriant groves of Bananas and Plantains in the large conservatory at Chatsworth this somewhat uncommon species stands out conspicuous from all the rest by the brilliancy of its flower leaves, which are of a glowing vermilion tipped with gold. These flower bracts it produces in a huge, dense tuft, quite erect, at the termination of the stem. In large houses, such as the Chatsworth conservatory, this plant produces a noble effect, and, moreover, is attractive at this dull season. It thrives admirably in an intermediate temperature, and seems to prefer being planted out to being confined in a pot. The *Musa* plantations at Chatsworth are the finest examples of tropical plant growth that we have seen under glass.

The Chrysanthemum season has now fairly set in, and the coming fortnight will be a busy time with growers and exhibitors of this invaluable winter flower. There is no lack of *Chrysanthemum* shows in the neighbourhood of London, both competitive and otherwise, and these include the finest collections of the flower that can be got together. Among the most important of the public exhibitions are those in the Inner Temple and

Middle Temple Gardens, the collections in each of which number about a thousand plants, representing the finest of the older and the best on the newer kinds. There are also collections if the Victoria and Finsbury Parks, both thoroughly representative. The principal nurseries, more over, about London vie with each other in making a special display of *Chrysanthemums*. The best nursery collections are those of Messrs. Veitch, Chelsea; Mr. Turner, Slough; Messrs. E. G. Henderson, Maida Vale; Messrs. Cannell, Swanley; Messrs. Laing, Forest Hill; and Messrs. Dixon, Hackney. In all these nurseries full collections may be seen during the next three or four weeks. On the 14th inst. the principal houses in Mr. Turner's nursery, at Slough, will be illuminated from 6 till 9 o'clock in the evening.

Nymphæa tuberosa.—For prolonged blooming this is perhaps the best of all the *Nymphæas*. It resembles *N. alba* in general appearance, and is often taken for it, only the flowers are rather larger; but while this species ceases to flower after August, *N. tuberosa* goes on until stopped by frost. Here it has not been without flowers since June, and now (Nov. 8) some are still open and in good condition, and others will succeed them if vouchsafed a little bright sun. The leaves, too, are quite fresh and green, while those of other species have perished, or are in an advanced state of decay. I believe it is from the Cape of Good Hope, the home of the *Aponogeton*, whose continuous flowering properties are well known. —J. M., *Charmouth, Dorset*.

Eranthemum Andersoni.—If I remember rightly, this lovely stove plant was introduced by Mr. Bull at least fourteen years ago, and yet is not so extensively known or cultivated as many an inferior plant of more recent introduction. I have from the first been a constant admirer of it, and though I do not consider it very serviceable, I always grow a few plants of it. It is rather liable to be infested by scale and green fly, but otherwise it is very easily grown, and well developed spikes of its delicate blooms invariably attract attention. —W. I.

Short notes from Cork.—I have been cutting quantities of the *Cactus Dahlia*, and have it still a mass of brilliant scarlet. It will become, I apprehend, very much in demand. A first-class plant now in bloom is the white-flowered *Ageratum conspicuum*. This should be grown in quantity and potted to flower in a cold house. It is of twice the value of any of the *Eupatoriums* that I know of. West Brighton Gem is the best of all the zonal *Pelargoniums* as regards quantity of bloom, winter and summer, under glass. With respect to white flowers for pot culture, nothing is better than double white *Primulas* grown from cuttings. I have a fine lot coming into bloom now. Plants of a good type of the German *Scabious* sown in June and potted on furnish flowers for cutting after the *Chrysanthemums* are over. If I had room I would grow plenty of them. The single *Dahlias* are still a mass of flower. I have in my collection Union Jack, Paragon, Harlequin, White Queen, Pantaloon, Beauty of Cambridge, *Lutea grandiflora*, and others. —WM. BAYLOR HARTLAND, *Temple Hill, Cork*.

MR. BROCKBANK, of Didsbury, near Manchester, has published an unwarrantable statement in a contemporary journal concerning a figure of the fine *Helleborus altifolius* published in *THE GARDEN*. The plant was drawn for us by Mrs. Duffield, who is generally painstaking in keeping true to Nature in her flower painting. "Mrs. Duffield's picture (*GARDEN*, April 24, 1878)," Mr. Brockbank says, "has small botanical value. It is an artist's picture only, very great licence having been taken both with the colour and form of the plant. One of the flowers is tinted throughout a deep pink; the leaf also is not at all like the sturdy leaf of *altifolius*."

Mrs. Duffield, commenting on the above, says, "Mr. Brockbank is exceedingly rash, to use the mildest term, in asserting that 'great licence has been taken both with the form and colour' of plants which he did not see. I can conscientiously claim for my work the merit of most scrupulous fidelity, and in this instance, as in all others, I copied exactly the flowers sent to me for that purpose." We saw the plant before it was drawn, and there is no licence whatever taken with it, which was grown at Tooting. —ED.

INDOOR GARDEN.

MYOPORUM PARVIFOLIUM.

I HOPE that Mr. Lynch, who has taken this plant in hand, will not treat it as one of botanical interest merely, but will endeavour to so grow it that its decorative worth may be fully seen. It seems strange that the knowledge of the value of this Myoporum as a market and decorative plant generally should be so long in making its way across the Channel. For the last twenty years many thousands of it have been sold annually in the flower markets of Paris, and I knew one Parisian market grower who always held a stock of some 30,000 plants of it. It is indeed one of the plants most largely grown around Paris. Very few, I think, looking at this plant growing naturally, would attach any decorative value to it, and, as a fact, it is the method of culture followed by the French which gives it great value. Naturally it is of prostrate habit, throwing out its slender stems about in the same way as *Cytisus purpureus*, and, like that well-known hardy shrub, it must be grown in a standard form in order to fully estimate its worth. If Mr. Lynch will treat his young plants as follows, I will answer for it that he will be well pleased with the result of his labours. They should, of course, be kept quite cool through the winter and be grown along under ordinary greenhouse treatment through the spring, although if it is desired to form good specimens quickly they may be pushed along in a warm, light house in a temperature of from 55° to 60° by day through February, March, and until the middle of May, when they will be best in cold frames. They should not be stopped, but allowed to run up to a height of about 18 inches, putting a stake to each one and pinching out the top when it reaches that or, indeed, any desired height, for if large specimens are wished for and which are to keep on from year to year, a proportionate increase in the height of the stem will have to be allowed.

THE RESULT OF STOPPING will be the formation of laterals more or less all the way up the stem; of these about half a dozen of the topmost ones are to be left. As these advance in growth they should be stopped, and this pinching back is to be continued at intervals until August, as the object is just to form a bushy many-branched head the first year. And here I may observe that a more profitable as well as a quicker way is to plant out about the beginning of May, in free rich soil in frames, lifting them in the last week in September. This is the way some of the Parisian growers do them the first season, and it is to be commended as economising labour in no slight degree, whilst imparting greater luxuriance in less time. Another way that I have found to answer well is to plant out in the open ground in a sunny position in June. The plants make good growth there, as this Myoporum is a plant which is of a hardy nature, and withstands very well the vicissitudes of our summer climate, but the plants naturally do not make such progress as when grown under glass. Whichever

CULTURAL METHOD is adopted, the autumn should find the grower possessed of nice bushy-headed specimens in 2½-inch or 4½-inch pots, according as convenience or culture has been more or less good. Wintered again quite cool, they are in fit condition for going into their blooming pots in March, and all that one has to do is to allow of the free extension of the shoots, which will have for result the formation of good specimens laden with drooping branches a foot or so in length, and smothered with flowers. Such plants have a most elegant appearance, and are entirely distinct from any other flowering plant I know. Those who have much decoration to do will, I am sure, be able to judge of the value of such a graceful habited plant as this Myoporum when thus grown. Mr. Lynch says that this species has many synonyms, which is, I know, correct, but the name by which it is commonly known in France is *crystallinum*, and I am sorry that that name has not been adopted in this country, as it so aptly

describes the peculiar appearance of the leaves, which are dotted with crystal-like excrescences. Perhaps, if Mr. Lynch and some others who have the opportunity of easily bringing their cultural products before the public were to grow this plant well, it would soon become as popular here as in France. It only wants to be seen to be appreciated.

J. C. B.

PHYSIANTHUS ALBENS.

A FEW weeks ago we received some graceful, well-flowered branches of this interesting plant



Physianthus
albens

Pendell Court
Sept 25th 1883

from Mr. C. Green, Sir George Macleay's gardener at Pendell Court, Bletchingley. As many of our readers seem unacquainted with this plant, we give a sketch of it from the specimens which Mr. Green sent us. It bears some resemblance to the *Stephanotis*, the leaves being leathery, deep green in colour, and the flowers white and tubular. It, moreover, belongs to the same family as the *Stephanotis*. It is a native of the province of St. Paul, in Brazil, and was first introduced to our gardens some thirty years ago. Some botanists place it in the genus *Arauja*. In the

warmer parts of the country this plant is hardy enough to survive our winters out-of-doors, but it does not flourish so well as when planted in an unheated house. At Pendell Court it is planted in a good border in a span-roofed house facing the east, and kept cool in winter. Treated in this way, it forms a most attractive and elegant plant from the end of summer till late in autumn. In the third week in October Mr. Green informed us that it was still in bloom, and had been so continuously from the early part of September.

HÆMADICTYON NUTANS.

WHEN handsome-leaved plants first became fashionable, those usually met with possessed beautiful and well defined markings, and were of comparatively small growth, such as some of the *Anæctochilus*, with the elegant veinings of the leaves of which this *Hæmadictyon* may be compared, for in some stages of its leaf development the nerves, both principal and lateral, come nearly up to those of *Anæctochilus setaceus*. But in later years, since so many plants of larger proportions have been introduced, many of the most beautiful—and this *Hæmadictyon* amongst them—are rarely seen. *Hæmadictyon* or *Echites nutans* is an evergreen twiner from the West Indies, and therefore requires a brisk heat to grow it in a way that will bring out its delicate leaf markings to the full. Its young, soft, quick-growing shoots are not so easily rooted as those of some plants, but, as is generally found with things that do not propagate freely from shoot cuttings, it can be readily increased by means of

ROOT CUTTINGS. If a portion of the strongest are removed from a healthy plant, cut into bits about three-fourths of an inch long and inserted in pots filled with sand, so as just to leave the tops of the pieces above the sand, placed in a house or pit where a temperature of about 70° is kept up, they will soon form buds and shoots. About the beginning of March is as good a time as any for putting them in, as then the plants from which the cuttings are taken will not have made much growth, and consequently will not receive much check or injury from the removal of a portion of the roots. When the shoots are 3 inches or 4 inches long, the young plants can be moved singly into small sized pots at first, as this *Hæmadictyon*, like all its congeners, cannot bear over-potting; good peat, seven parts to one of sand, will answer for it. After this keep them close for a few days until the roots have begun to move, giving more heat as the weather gets warmer; they will bear as much as the hottest stove plants, with plenty of moisture in the atmosphere and shaded always from the sun when it is at all powerful, for if its rays when very bright come directly upon them, it will impair the beautiful veining in the leaves. It requires the ordinary amount of air needed by stove plants that succeed best with a humid atmosphere, but care must be taken to never over-water, as if the soil gets too wet it will rot the roots. The plant looks best when grown with four or five shoots, each allowed to twine up a thin stick. If, when the young stock requires more room, four or six are put in a 6-inch or 7-inch pot half filled with drainage, the rest sandy peat, that will be the best way of managing them; so done, they are much more effective than when grown singly. Through the remainder of the summer continue to treat them as so far advised. Winter in a reduced temperature, keeping them drier at the roots than most plants, and about the beginning of March head them down to within 8 inches or 9 inches of the pots, giving more warmth to induce them to break quickly. As soon as they have made new shoots 8 inches or 10 inches long turn them out of the pots, removing as much of the old potting material as can be done without injuring the roots, and place them in pots 2 inches or 3 inches larger, with fresh open soil. All they will now require is routine treatment such as advised for the summer before, giving longer sticks, as the plants, being stronger, will make much longer shoots. With a plant of this descrip-

tion the object will not be to grow large specimens, but rather confine them to something like the size indicated, in which way they will better answer the purpose they are best adapted for, which is to afford contrast and variety amongst the many stronger and coarser growing fine-leaved plants generally met with in stoves. They will last for years and can be kept within the size required by heading them down in the spring annually.

INSECTS.—This *Hæmadictyon* is subject to most insects that will live upon the nearly-allied *Dipladenias*; they must be kept under by daily syringing with tepid water during the growing season, and sponging when required. T. BAINES.

ROGIERAS.

THESE handsome plants have never been so much grown as the beauty of their flowers warrants, and where their cultivation has been attempted it has often happened that they have bloomed indifferently. This may generally, I think, be traced to their having been grown in too much heat, or, still further, to having their roots confined to pots, which they do not like so well as being planted out. They are hard-wooded evergreen shrubs. Their flowers are borne in bunches, in form not unlike those of a *Rondeletia*. Their propagation is by cuttings, that strike best when made of shoots produced from branches that have been cut back, taking the young growths off with a heel in spring as soon as large enough. These I have found root much better than cuttings made of ordinary shoots. They do best put singly in little pots filled with sand, kept moist, close, and shaded. When they are well rooted and sufficiently hardened pot in sandy peat. A temperature of 65° in the night is enough for them during the summer, with a proportionate rise by day. Syringe overhead daily, allowing them plenty of light, with a little shade in very bright weather, and more air than the generality of stove plants require.

By the middle of July move them into 6-inch pots, using good peat. During this time they will need the points of the shoots pinching out, otherwise they will run up thin with insufficient branches. Give more air in the autumn; if the plants can be accommodated with a temperature of 50° in the night through the winter, it will be enough, giving just as much water as will keep the soil fairly moist. In March use a little more warmth, and as soon as they show signs of beginning to grow, move them into 9-inch or 10-inch pots, treating them during summer as advised for the preceding season. Should any of the branches evince a disposition to out-grow the rest, cut them back. The pots they are now in will be large enough to see them through the season. Treat as before during the summer and following winter, and in the spring they should be planted out where they are to remain. The best position is up against the end of a house, where their heads will get a fair amount of light, and a small border can be made wherein to turn them out, draining it sufficiently and filling it with turfy peat, to which add a moderate quantity of sand and some broken crocks. The shoots should be trained out in fan shape, and will require nothing more than keeping them regularly arranged to cover the allotted space. They will flower during the ensuing summer, after which slightly cut them in and encourage further growth. Each year when the blooming is over they will want more or less shortening back according to the extent to be covered. When the soil gets tolerably well filled with roots a good plan is to give weak manure water once a week through the growing season. If this course is pursued, the result will be sturdy bushes that will in due season produce plenty of flowers.

There are only a small number of species in cultivation, of which the undermentioned are the most desirable. *R. gratissima*.—Flowers pink, a fine species which, treated as above advised, grows well. It comes from Mexico and blooms in the summer and autumn. *R. amena*.—A pretty rose-coloured kind that blooms in the summer and

autumn. A native of Guatemala. *R. versicolor* has red flowers, and is also a summer and autumn bloomer; from Central America.

INSECTS.—These plants are not usually much subject to insects if kept syringed, as they should be, during the summer, and they are not placed in contact with other things that are affected with scale, which is troublesome when once it gets established on them; where present, sponging is the best means of removing them. T. B.

POTTING HYACINTHS AND TULIPS.

ONE ought always to be able to give a reason for what is done, but I am not sure that I can give a reason for potting our exhibition Hyacinths the last week in October. I would not like to pot them earlier than that, nor do I care to let potting be done later. I have observed that the roots are then just on the point of issuing from the base of the bulbs, and ready at once to lay hold of the compost in which they are potted. We use very rich material in the way of soil, richer than we do for any other plant. One part of rich cow manure is added to two parts of good loam, one part of leaf mould, and one of sand. There is a right and a wrong way even in potting a Hyacinth bulb. The wrong way is to place the bulb on the surface, and press it into the soil. This causes the latter to become hard under the bulbs and many of them are lifted out of the pots by the roots which cannot penetrate it. The right way is to make a space in the compost large enough to contain the bulb; put in some sand and then put in the bulb, pressing the soil firmly round it, and leaving the crown just above the surface. Over each crown place a little clean sand. Plunge the pots out of doors in Cocoa fibre refuse or leaf-mould. 5-inch and 6-inch pots are the sizes in which we place one bulb.

EARLY TULIPS we always pot at the same time as Hyacinths. It will be seen on examination that the roots are also issuing from the base of these in October, and that it is quite time to pot them; some of the bulbs will also have made some top growth. Three bulbs are put into a 6-inch pot, using sandy soil and a considerable portion of stable manure, instead of that from the cowhouses. J. DOUGLAS.

SCHUBERTIAS.

THERE are two species of these pretty, free-blooming plants, both natives of Brazil. *S. graveolens* has pale yellow flowers, and *S. grandiflora* bears white blossoms. Both are very distinct in general appearance and also in the character of their flowers, which are produced during the summer months. They can be struck from cuttings composed of the young shoots, such as have sprung from branches that have been cut back and have attained a length of 4 inches or 5 inches, taking them off with a heel in spring and putting them singly in little pots in sand. They should be set in a close, shady place under a propagating glass in a temperature of 70°; they will usually root in about a month or six weeks. After allowing a little time for their getting inured to the air of the house move them into 4-inch pots, using good turfy peat containing plenty of vegetable fibre, adding sand enough to keep it porous.

As soon as they begin to grow pinch out the points of the shoots, otherwise, from their natural scandent habit, they will run up thin and insufficiently furnished. They will thrive during the summer under similar conditions of heat, shade, moisture, and air as are found to answer for the generality of evergreen stove plants, giving them pots 3 inches or 4 inches larger about the beginning of July, inserting a few sticks in the soil to train the shoots to. They may produce a few flowers towards autumn, but it is better not to consider these the first season, but rather to get the plants as strong as possible for the second year. Give them all the light that can be afforded through the autumn, with more air and a drier atmosphere, wintering in a temperature of 60°. In the spring, when the heat of the house is raised, move them into 10-inch or 12-inch pots, and treat them

as in the previous summer, keeping the shoots trained in a way that will prevent their getting entangled. Manure water will assist the plants when their time of blooming approaches, which if all goes well will be about July. They will keep on flowering until the end of August; afterwards they should have their shoots well shortened back. Winter as before, give larger pots in spring, and in other respects treat as in the preceding summer; after this the plants may be either cut back and grown on again, or discarded and their place taken by young ones.

INSECTS.—If not attended to well in the matter of syringing daily during the growing season, they are liable to get infested with red spider and thrips, otherwise these insects do not usually trouble *Schubertias*. If mealy bug affect them, the plants should be laid on their sides and syringed freely with insecticide, repeating the application until quite clear. T. BAINES.

PERSIAN CYCLAMENS IN WINTER.

MANY fail to flower Persian Cyclamens in mid-winter through placing the plants in too low a temperature and in deficient light. After the beginning of November the house in which they are growing should be maintained at from 50° to 54° during the daytime and from 45° to 50° at night. They also require all the light which it is possible to give them. A shelf near the glass is the best place for them, and before being put on it it should be covered with a layer of Cocoa fibre or Moss, which will lessen the supply of water to be given to the roots. Next to a suitable temperature, a judicious system of ventilation is most important, as if cold currents of air are admitted they will not only check growth, but cause the youngest leaves to curl. Front ventilation should only be resorted to when the air is mild. In winter the brightest weather is often that which is most treacherous, as it is generally accompanied by a cold air, hurtful to all tender plants under glass if admitted both by back and front ventilators at the same time. Watering must also be done with caution, as about half the quantity will suffice for November and the three succeeding months that will be needed in bright weather during March and April. A gentle stimulant in the way of weak doses of liquid manure or soot water is very helpful if given regularly as often as the plants require water, but anything more exciting should be withheld until daylight has increased. Concentrated manures are too powerful to be used with the best results during the dark days of winter, and at no time have I found these plants to be very much benefited by their use; where, however, they are thought to be beneficial, the middle of February will be early enough to commence using them, and then the quantity given must be small compared with what such plants as *Pelargoniums* will bear. J. C. C.

WINTER FLOWERING PELARGONIUMS.

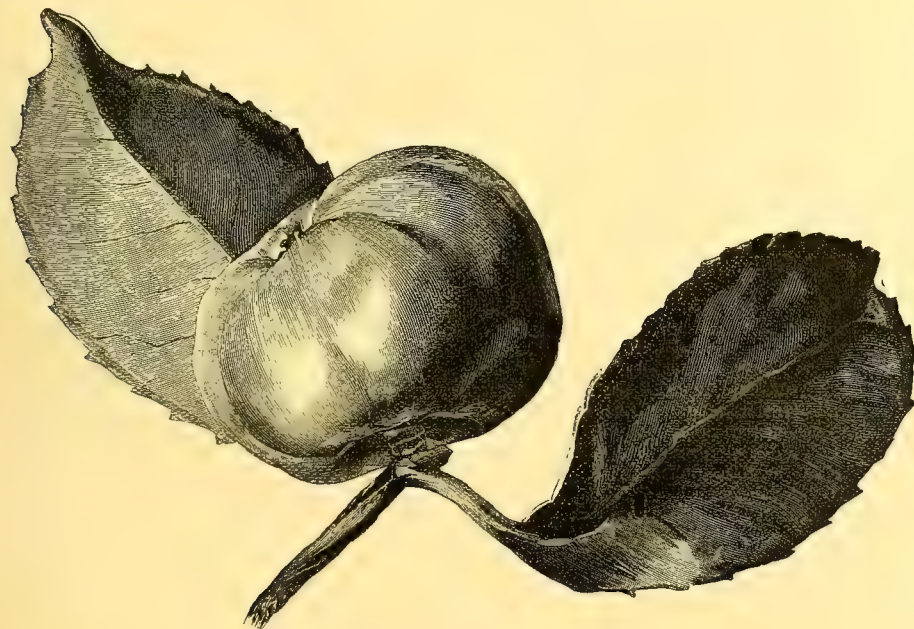
IF zonal *Pelargoniums* for winter flowering have been properly prepared, they will now be coming into blossom. Therefore, the next essential condition is a light warm house, for it is impossible to have them in good condition unless the air of the house is kept dry and a suitable temperature is maintained. The day heat should be from 55° to 60° and 45° at night, and a moderate amount of air should be even every day whenever the weather is favourable. Motion in the air of the house is an indispensable condition if they are to be kept free from damp and with perfect trusses of flowers. In lofty and dark conservatories it is a difficult matter to keep these plants in good condition for any length of time; therefore, if possible, a more suitable structure should be selected for them—one in which there is nothing between the plants and the glass to obstruct the light, and where they can be either near the front lights or on a shelf near the roof. Unfortunately, but few can devote a house specially to them, but where they can be so treated few plants are more easily managed or more attractive when in bloom during the winter

months. All points considered, it is a question if there is another class of plants that can equal them, but it must be understood that their merits must not be settled by the condition in which they are generally seen in private gardens, for in very few of these is there proper convenience for giving them the treatment which they require. If we want to see zonals grown and flowered in winter as they should be we must go to Swanley, where whole houses are devoted to them, and where, when once seen, they make an impression not easily effaced. To induce the plants to continue flowering the application of a fertiliser of some sort is necessary; that which can be given in a liquid form is the best. I have found an ounce of the best guano to a gallon of water administered once in ten days equal to any of the artificial manures now used. Cleanliness is another point of importance in reference to them; all decaying flowers should be carefully removed with a pair of scissors, and all yellow leaves should be regularly picked off. J. C. C.

Salvia Pitcheri.—This is a most useful plant for autumn flowering in the conservatory, as the colour, an intense dark blue, is different from that of any plant in flower at the same time,

the other of the purest white. The first is named Lord Beaconsfield, the other Marchioness of Exeter. Plants in 6-inch pots readily throw up eight and ten flower-spikes, and each of these bear a cluster of lovely double flowers. They bloom more freely than any single flowering seedlings I ever had; and as the individual blooms are as double as a white Camellia, and as large as a half-crown-piece, they are of the highest decorative value. Indeed there is nothing I have ever seen in the way of Primulas to equal them. They are admirably suited to place in rooms; the spikes may also be used in a cut state whole, or the individual blooms may be gathered and used for button-hole bouquet making. For all these purposes they never fail to please. We propagate our plants in March or April by division, grow them on in cold frames during summer, and they flower freely about this time in a greenhouse or conservatory temperature.—J. MUIR.

Lilium auratum.—We have now potted our stock of this Lily. The plants after blooming were treated as recommended in THE GARDEN (p. 286), with the result that most of the pots were firmly packed with healthy growing roots; so firm, indeed, were some of them, that it was with difficulty we could separate the drainage from the roots.



Fruit of Camellia japonica.

and it is so easily grown that any one having a greenhouse may manage it. After my plants go out of flower, early in November, the stems are cut down and the pots set on the floor of a cool Peach house. In April they are shaken out of the old soil and repotted in fresh material; they are then placed under the shelter of a south wall. In summer they are associated with the Chrysanthemums, where they remain until the end of September, when they commence to flower. The only fault this *Salvia* has is its somewhat weak, lanky flower-stems, which do not submit to pinching or training so well as those of some plants. When unchecked and supported by a few sticks they will grow to a height of 4 feet, and then produce spikes of flower from 6 inches to 9 inches long, which in October are most valuable either on the plants or in the shape of cut flowers. The plant being herbaceous in character is easily increased by division, or it may be raised from cuttings made of the young growths in spring.—J. C. B.

Gilbert's Primulas.—These are charming with us at present, and will remain so for some months to come. Two only amongst them are distinct, but these are truly beautiful. One is red,

In the case of a few that had been exposed to wet, all the outer roots were rotten, and the ball dropped to pieces with a touch. Our plan is to wrench the old flower-stems, with all the roots attached, out of the crown of the bulbs, disturbing the lower part of the ball of roots as little as possible. Some of them have been potted this year without disturbing the stems at all. The compost used is good turfy loam and fibrous peat in equal parts, with a fifth part of rotten stable manure; some nodules of charcoal are useful for keeping the compost open and sweet. Imported bulbs will soon be arriving; they require pots not too large for the size of the bulbs. Some of the latter last year were very large, and these were potted in 8-inch pots, while the smallest were put into 5-inch and 6-inch pots. All the bruised scales must be removed; if not, they decay and cause injury to the bulbs. It is a good plan to place some sharp sand, mixed with a portion of powdered charcoal, round the bulbs.—J. DOUGLAS.

Lilium tenuifolium is a favourite with me. It is a charming species not so often seen in our greenhouses as it ought to be. It flowers in June, and is ready to be repotted early in September; if disturbed later the bulbs get injured.—J. DOUGLAS.

5081.—**Independent boilers** are made to heat from 20 ft. to 2000 ft. of hot-water pipe. As to the best form, "C. C." may have twenty different opinions from persons who have used as many different forms or makes of boilers, in cast or wrought iron, sheet iron, or copper, some plain cylinders, some conical, others saddle, others tubular, or, again, a combination of any two of these, every one of which has its merits and demerits, about which only a practical engineer (not a manufacturer of one especial make, but one who has tried all sorts) can advise. No single boiler yet made is or can be perfect. Whatever boiler "C. C." may select, let him beware of putting 200 feet of 4-inch pipe on to a boiler calculated for 400 feet of 2-inch, and also remember that half the secret of successful heating is in the quantity and arrangement of the pipes, as, no matter what the power of boiler is, the water cannot be hotter than boiling point, whether two pipes or four are used.—B. W. W.

FRUIT OF CAMELLIA JAPONICA.

THE fruiting of the Camellia in this country being rather uncommon, we have taken the opportunity of illustrating one of three sent to us a fortnight ago by Mr. J. Menzies, South Lytchett, who says, "The fruits are from a large plant of the single red, grown out of doors against a wall with an east aspect, and protected by a glazed coping 4 feet wide. The double, semi-double, and single varieties have from time to time borne fruit out of doors here from which I have raised seedlings, but have hitherto failed to get any variety worth sending out or naming."

In the annexed woodcut the fruit is represented natural size. Its appearance is somewhat singular. It is very hard and has a glazed appearance like that of porcelain. The colour is pale green, except on the exposed side, which is dull red. It is furrowed like a Tomato, and on the day after we received it the furrows opened and exposed three or four large mahogany-brown seeds embedded in hard pulp.

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 335.)

HYPOLEPIS.—A small genus comprising only three species, all handsome and free growing. They are provided with creeping rhizomes, and are most useful when planted on a rockery, as they greatly enjoy being associated with the stones, although their rhizomes do not cling to them. They are all easily cultivated, and if kept in pots, should be grown in rough peat with a good sprinkling of silver sand, as at all times of the year they require an abundant supply of water at the roots. It is indispensable that the drainage should be perfect, a remark also applicable to plants grown in pots; both in these and planted out, the lack or deficiency of drainage produces the most disastrous results. In a cut state their fronds are valuable for mixing with flowers.

H. AMAURORACHYS.—This is an Australian species and the strongest grower of the group. Its remarkably handsome and elegantly shaped fronds, which are produced in great abundance from thick hairy rhizomes, are of a light and cheerful green, tripinnate, and grow to about 3 feet in height, with pinnules closely set and serrated on their margins. It is a highly ornamental species, and one very distinct from any other in cultivation. Greenhouse.

H. DISTANS.—A very elegant New Zealand species, and wonderfully well adapted for growing in a Fern case, where its exceedingly elegant foliage develops itself to perfection. Although not so robust as the kind above described, its very pretty fronds, which are bipinnate and grow to about 12 inches high, are found very valuable for cutting for bouquets; they are of an intense green colour, and have their minute pinnules serrated on their margins. This species deserves general cultivation. Greenhouse.

H. TENUIFOLIA (reptans).—This very handsome and most distinct species comes from the Polynesian Islands, and also from New Zealand. It seems a species nearly intermediate between the two sorts just described. Its beautiful fronds grow from 1 foot to 2 feet high, and are divided into very fine segments; the whole of the plant is of a very cheerful bright green colour, and of an unusually bold and striking habit. Greenhouse.

LASTREA.—This genus includes many species possessing great beauty and others unequalled for their hardness and power of endurance. A genus comprising so many species must of necessity have a wide geographical range, and therefore we find in it kinds suitable for the tropical fernery, the greenhouse, and even for the open air. Indeed, it is well represented in this country by several species and an endless list of graceful varieties. Many of the kinds, too, are peculiarly interesting on account of their simple forked or pinnate veins, but the principal reason why they are so popular lies in their constitution being so robust and their habits so accommodating. Amongst *Lastreas* there are plants of all sizes, from the tiny-growing *L. sancta* from Jamaica, with small fronds only a few inches long, to the majestic West Indian *L. villosa* or the beautifully plumose Japanese *L. Sandishi*, both of which produce very fine fronds from 4 feet to 6 feet long. Whatever be their size, however, they all are of equally easy culture; all thrive well in a mixture of loam and peat, which for the most robust kinds should be in about equal parts, with an additional sprinkling of silver sand; for the smaller species, and consequently kinds slower in growth, less loam and more sand should be used in the soil. Most *Lastreas*, especially the strong-growing kinds, are quite indifferent as to shading; a little sunshine acts as a strengthening agent, making their foliage much more lasting during the winter months than it could otherwise possibly be. They all require a good supply of water at the roots, principally during their growing season, and although they do not suffer from occasional waterings overhead, it is very doubtful if they derive any benefit from them. In any case they must not be kept close; confinement in the case of *Lastreas* means not only in many instances an invasion of trips, their greatest enemy, but also that brownness of mature fronds which often puzzles the amateur grower, but which by the practical man is never mistaken for insect depredations. The only way by which such unhealthy appearances can be avoided is to grow them in well-ventilated houses, where moisture cannot condense on their foliage.

L. ALBO-PUNCTATA.—This distinct and very pretty evergreen species from the Mauritius possesses an entirely original character, and at first sight has all the appearance of an elegantly variegated Fern, owing to the upper surface of the pinnae being completely dotted over with small white spots. The fronds, which seldom exceed 10 inches in height, are erect and pinnate with pinnae deeply pinnatifid; they are produced on a slender creeping caudex. The colour of the whole plant is a very dark green, showing off to perfection the small white dots with which the pinnae are adorned. Stove.

L. AMABILIS.—This very distinct species from Southern India is one of medium growth only, as its bipinnate, acuminate sub-membranaceous fronds rarely exceed 12 inches in height. They are produced from a creeping caudex no thicker than an ordinary lead pencil, covered with scales of a ferruginous colour, and borne on stalks about 6 inches long, slender, subflexuose, and paleaceous below. Pinnae rather distant, the terminal one as large, if not even larger, than the rest; the pinnules, which are about an inch long, are sub-falcate, acute, and provided with sharp teeth, as in the common *Polystichum aculeatum*. The whole plant is of a beautiful dark glossy green. Greenhouse.

L. ANGUSTIFRONS.—A very peculiar species from Nepaul, with tripinnatifid fronds attaining sometimes 2 feet in length and 6 inches to 8 inches in width, with pinnae distant and lanceolate-

flexuose; pinnules also distant and lanceolate in shape. These long fronds, which have a somewhat curious appearance, rise from a creeping rhizome, and are of a rather leathery texture. Greenhouse.

L. APICIFLORA.—This handsome Himalayan species is one of the most robust and strongest growers of the whole genus, and makes a very effective, highly decorative plant, but very seldom met with in cultivation; yet its oblong, lanceolate, membranaceous, pinnate fronds, which often measure between 3 feet and 4 feet in height, are exceedingly showy. They are produced from a short, stout, erect caudex clothed all over with subulate scales; the pinnae, which are about an inch broad and 5 inches long, are very numerous and closely set. It is of a pleasing light green. Greenhouse.

L. ARISTATA.—A peculiarly beautiful evergreen Japanese species, with tripinnatifid fronds of a very coriaceous nature and deltoid in shape. They are produced freely from thick, fleshy, underground rhizomes, which delight in finding their way in any rough material—peat, or partly decayed vegetable matter, or even partly decomposed Moss. The fronds, of a bright shining green colour, are borne on densely hairy stalks, and in their native habitats measure sometimes 3 feet in height, although under cultivation they seldom exceed 18 inches. It is an altogether very ornamental and exceedingly useful plant, and a certain character of distinctness is imparted to it by its large sori, which nearly cover the whole of the underside of the fronds. Although it has also been found in and imported from the East Indies, it is essentially a Fern for the greenhouse.

L. ARISTATA VARIEGATA.—This handsome form of the preceding species, although of only recent introduction, is working its way into collections; it needs no further proof of its excellency than the great esteem in which it is held by the public as a plant of first-class quality for indoor decoration. It is one of those useful varieties which, indeed, cannot be praised too highly. It is quite as hardy and quite as good a grower as the species from which it has issued, although of rather smaller dimensions, as the fronds, which are also tripinnatifid and equally coriaceous, seldom reach more than 12 inches in length; these are nearly trapeziform, of a dark glossy green with a whitish band running all along the centre of the pinnae. The pinnules are very sharply toothed along the edges, and the fronds, as in the original species, are produced on thick underground rhizomes. It is also of Japanese origin; and although the contrast between the colours of the centre and the sides of the pinnae is much more marked if grown in a little heat, it succeeds admirably in the greenhouse.

L. ATRATA.—This is another most interesting Japanese Fern of handsome appearance and easy growth. Its gracefully arching fronds, sometimes reaching 3 feet in length, are produced from a thick and very fleshy short caudex, rarely measuring over 6 inches above ground. They are pinnate, with pinnae alternate and deeply serrated, about 4 inches long by an inch wide at the base. The rough black or very dark chaffy scales which entirely cover the robust stalk on which they are borne give the plant a most conspicuous appearance, which is also rendered all the more decorative by the way in which these fronds are disposed, forming a natural vase of beautiful dark green. Greenhouse.

L. BLUMEL.—A strong growing species, native of Ceylon, particularly striking on account of the very shaggy appearance of its stalks, which are covered with linear red scales; similar scales are also found to clothe its otherwise pubescent rachises. Its handsome tripinnate fronds are pinnatifid nearly to the base and composed of obtuse, entire pinnules pubescent on both sides. It is very distinct and rare in cultivation. Stove.

L. CALCARATA.—Although nearly allied to *L. falculoba*, this very ornamental plant from Ceylon is sufficiently distinct to entitle it to the rank of a species. The fronds, which are of a rather leathery texture, oblong-lanceolate in shape and pinnate,

are perfectly glabrous, except on the stalk. The pinnae, which are alternate, are about 1½ inches long, entire at the base, and more or less pinnatifid in their superior part. Stove.

L. CHRYSOLOBA.—A very fine Brazilian species of medium growth. It is a most valuable plant from a decorative point of view, although still rare in cultivation. Its pretty pinnate fronds grow to about 15 inches in height, and are produced from a fleshy decumbent caudex. The peculiarity noticeable in this singular plant is found in the pinnatifid pinnae, the whole of the under surface of which is nearly covered with bright reddish brown sori, contrasting singularly with the glossy dark green of the upper surface. Greenhouse.

L. COCHLEATA.—This very curious plant, a native of the Neilgherries, has been described by some authors as a distinct species; whereas by others it has only been considered to be a form of the *Lastrea Filix-mas*, although it has proved to retain under cultivation its distinctive characters, which do not belong to the *Filix-mas* group, and which consist in a peculiarity of the fertile fronds. These, when they first appear, are quite contracted and covered with one mass of fructification, and another peculiarity of theirs is that they do not develop until the autumn, when they make an entirely separate growth. The sterile fronds, which are produced all the year round, are of much larger dimensions, often measuring 3 feet long; they are broad, ovate-lanceolate, and pinnatifid nearly to the base, with pinnules sharply toothed. These handsome fronds are borne on stalks sometimes scaly, but often quite glabrous and rising from a stout, erect caudex.

L. CONCINNA (*L. Thwaitesii*).—A species of medium growth, native of Ceylon, and somewhat allied to *L. deparioides*, also from the same habitat. Its triangular fronds, which grow to about 2 feet long, are borne on stalks dark and shining, except at their base, which is scaly. The cuneate-lanceolate form of the pinnae and the crenolobate-lanceolate form of the pinnules, with lobes sparingly denticulate, give the whole plant a most pleasing appearance. It is a very distinct plant. Stove.

L. CUSPIDATA.—This is a very distinct species from Natal. Its ample fronds, fully 2 feet long by 10 inches broad, borne on stalks 15 inches to 18 inches high, of a most beautiful claret colour, give to the plant an unusually decorative character, which no other member of the genus possesses. These are pinnate, with numerous pinnae about 8 in. long by half-an-inch broad, and finely serrated on the edges. It is a species requiring a great abundance of water at the roots. Greenhouse.

L. DECOMPOSITA.—This is a very handsome Australian species of comparatively easy culture and medium growth, exceedingly useful for table decoration and also for forming an edging in the house in front of taller-growing kinds, as it is of an extremely neat and compact habit. It also makes a pretty specimen for the Fern case, where it succeeds remarkably well. Its fronds, which are produced abundantly from a small crown, are decumbent in shape, seldom exceed 10 inches in height, and are of a dark green colour. It is altogether a most desirable plant for decoration. Greenhouse.

L. DECURRENS.—A beautiful evergreen species from China and Japan, and entirely distinct from any other species already in cultivation. The fronds, which are produced freely from a succulent underground creeping rhizome covered with chaffy greyish scales, are of a pale green colour, and vary between 8 inches and 15 inches in height. There is a peculiarity possessed by this species only, inasmuch as these fronds, which are lanceolate in shape, differ from those of all other kinds by being simply pinnate in their lower, but pinnatifid in their upper part. Care must be taken not to overwater this plant, as excessive moisture at the roots is certain death to it. Greenhouse.

L. DELTOIDEA.—This beautiful and very singular species, found at the same time in Jamaica and in Southern India, is undoubtedly one of the

most ornamental evergreen species contained in the genus. Although in its own habitats the fronds attain 3 feet in length, it is very seldom indeed that under cultivation they exceed 18 inches high. They are of a bright dark green colour, and pinnate nearly to the base. The arrangement of the pinnæ, as in the species above described, is most peculiar. The first ten pairs, in the lower part of the frond, are reduced in size and measure only half-an-inch in length; whereas the others, which are obtusely lobed, are generally 2 inches or 3 inches long. It is a very good grower. Stove.

L. ELEGANS.—A very fine species from Ceylon, with beautifully arched, decomposed fronds produced freely from a short succulent rhizome of erect habit. They rarely grow more than 30 inches high, and are of a bright, pleasing green colour, and their base is unusually well clothed with brownish scales, which remain on the plant as long as the fronds themselves. Stove.

PELLÆA.

MAIDEN-HAIR FERNS IN THE SUN.

WE devote a considerable amount of house space to Fern culture, but fully half of this is occupied by the Maiden-hair or *Adiantum cuneatum*, than which there is no more generally serviceable plant in cultivation. Ours are required for conservatories and rooms, and also for grouping with plants elsewhere; while in a cut state the fronds are indispensable for vases, wreaths, bouquets, and dinner-table decoration. I find that when mixed with ordinary greenhouse and conservatory plants they must be grown under precisely the same conditions as these are, as if removed from a heated, moist atmosphere to a colder one they soon collapse. Grown in a cool, airy house, with little or no shade, the fronds are much smaller than when otherwise treated; and, indeed, unless extra quantities of liquid manure, as well as abundance of moisture be given at the roots, they soon become positively shabby. In any case they assert their deciduous character, and about this time gradually present a faded appearance. Another characteristic of these hardy-grown plants is the fact of their requiring to be more frequently repotted than those grown under different conditions. The pots soon become literally crowded with roots, the soil being apparently all absorbed. Ours are principally in 5-inch pots, and every spring, or when growth is commencing, they have either their ball of roots roughly reduced and repotted in the same sized pot, or the plant is split in two, the balls of roots rounded off, and then each half is given either a 4-inch or 5-inch pot. The compost employed consists of three parts turfy loam to one part of leaf soil, with sand and charcoal freely added. About the middle of September a certain number of these coolly-grown plants have their balls of roots rather roughly loosened and put into 8-inch pots, and they are then transferred to a forcing house. From these, during the months of November, December, and January, we cut great quantities of large, beautiful green fronds, which, if not durable, last as long as we particularly wish them to do, viz., for about three hours on the dining-table. Strange to say, these young and very succulent fronds do not curl up when laid on the cloth without water so quickly as fully matured fronds cut from large specimens growing in the mixed fernery do. We use large quantities of *Adiantum cuneatum* on the dinner-table, these being generally seedlings either one year old and in 2½-inch pots or two years old in 5-inch pots. They are kept in heat, are constantly green and growing, besides being more light and elegant than the majority of plants resulting from division.

We do not confine our attention exclusively to *Adiantum cuneatum*, as we find *A. gracillimum* and *A. mundulum* to succeed admirably under cool treatment, and both are serviceable—the former for mixing with flowering plants or in a cut state for vases and bouquets, and *A. mundulum* for furnishing much the best fronds for button-hole bouquets. *A. concinnum lætum* is also amenable to cool treatment, the young fronds being especially attractive

in colour. The best substitute for *A. cuneatum* in a greenhouse during the winter months is *A. Capillus-veneris*, of which the most valuable form is *mauritizianum*. These are half hardy, and in pots spread and form fronds throughout the winter. They are surface rooting and rhizomatous, and need not be often disturbed. Ours are growing in well-drained 4-inch and 5-inch pots, and we attach much value to them. While agreeing with "J. C. B." (p. 395) that for many purposes the Maiden-hair Fern is best grown in a comparatively exposed cool position, I still greatly prefer the general appearance of those growing in heat and in a somewhat shaded position. Even the half-hardy *A. Capillus-veneris* section is improved in appearance if grown in gentle heat.

W. I. M.

ROSE GARDEN.

THE FIRST PRUNING OF ROSES.

THIS, if not already done, should be set about at once. It should consist in the cutting out of all weakly and semi-exhausted shoots right close to the main stem or root stock. This early pruning should do for our Roses exactly what the fruit grower has done a month or six weeks since for his Raspberry canes, viz., cut out all last year's bearing shoots and all superfluous and weakly ones of the current season. Of course the different habits of Roses from Raspberries will suggest a somewhat different interpretation of the facts in the above sentence. The Raspberry shoots bloom but once and die; the Rose shoots flower many times and live. Nevertheless, a good many of the latter are better treated as annuals or, at the most, biennials.

Rosarians have become familiar with such phrases as maiden plants and maiden blooms. The system of Rose pruning I am now endeavouring to describe and recommend will probably make us equally familiar with maiden shoots, for not only are the first blooms on maiden plants the finest, but likewise the first blooms on maiden shoots. Hence the importance of so pruning our Roses as to favour, if not force, the production of a constant succession of maiden shoots. When this is done, the Roses not only renew their growth, but also their strength and their beauty annually. While they do this they can hardly be said to grow old, and it is well nigh impossible for them to become weakly or diseased. This early and severe pruning is one of the surest means of making the plants recover their strength and renew their youth. The constant suppression and annual removal of all weakly or semi-exhausted shoots not only forces a succession of youthful and vigorous ones, but also removes the chief source of exhaustion, that is, the production of numerous small flowers. Few plants have suffered more from excessive blooming than Roses, and the most fruitful source of over-flowering is the presence of an excessive number of shoots; the older and the weaker, as a rule, too, the more floriferous. One perfect Rose bloom is worth three small ones anywhere, commercially or æsthetically, and the early removal of such shoots concentrates vigour and ensures the highest quality. Severe pruning is, as a rule, among Roses the parent and perpetuator of vigour. The majority of our non-climbing Roses are suffering more or less from an excessive diffusion of force. The vital force amply sufficient for three or six shoots is dispersed through nine, a dozen, or more, and, as is natural, the plant soon droops and dies. The early and vigorous removal of all superfluous shoots would economise food as well as concentrate vital force, and thus exert a compound influence in augmenting the strength of the Roses; for there would be fewer buds and shoots to feed as well as more food to fill them with. The conditions for the perfect nutrition and maturation of the wood and buds would also be vastly improved. The vigorous suppression of all useless wood would more fully expose the useful to the full influence of light, heat, and air. The result would be augmented strength instead of, as is too

often the case, a growing and increasing weakness, ending in disease and death. The sooner, and I had almost added the more severely, this sort of pruning is set about and carried through the better. D. T. F.

NIPHETOS IN OCTOBER.

SELDOM has this fine Rose been so plentiful or so persistent in its blooming as this year. All the summer long it has been in bloom in all directions on standards, dwarfs, and trained on walls. One of the chief merits of Niphetos is that almost every growth, however short or weak, is crowded with its pearly white buds, and in a favourable position it makes many growths a year, and so also it yields many harvests of bloom. Even now when the late autumn is fading into winter, choice buds of Niphetos may yet be picked in comparative plenty. The cold and the wet are prone to mar their purity somewhat, as well as to rot a few of them partly through near their bases. But any tarnished petals may be pulled off, and yet leave a sufficiency of perfect ones to form perfect button-holes or other bouquets. And as to the rottenness at the base induced at times by an excess of moisture or of cold, skilful mounting and leafing will keep the buds together and clothe such deformities with the freshest verdure. Besides, such damaged buds are the stray exception, not the rule, even at this late season. The buds indoors have been of course more numerous, as well as more perfect. A wall or roof of Niphetos Rose in frost-proof quarters, or, better still, in a house or pit where a temperature of 45° or 50° could be secured as a minimum in the coldest weather, furnishes a continuous succession of flowers throughout the year. I know of no white Rose to match Niphetos, no pink to equal Adam or President. D. T. FISH.

NOTES ON ROSES.

AUTUMN ROSES have been unusually plentiful this season, and many very fine blooms have been produced. Indeed, to my mind autumn Roses are always sweeter and prettier than summer ones, as in June and July, when the sun is strong and the weather warm, the blooms are not open very long before they begin to decay and their fragrance is gone, but in autumn they remain fresh for a long time, and their delicious scent, especially in the morning, when sparkling with dew, is delightful. Bourbon Roses flower more freely than any of the others in autumn, and the kind that is best known in this section is probably *Souvenir de la Malmaison*, a glorious autumn Rose. It grows freely, is always plentifully provided with fresh green leaves, and the flowers are produced in massive clusters; some of the individual blooms measure 5 inches in diameter, and their pale blush colour, as well as their delicious scent, is most delightful. *Acidale*, *Baronne de Noirmont*, *Catherine Guillot*, *François Dugommier*, and *Reine Victoria* are other good Bourbons. China Roses are hardly worth growing for their individual blooms in a cut state, but they are the first to flower in spring and the last to bloom in autumn; they are also very effective when planted in groups in pleasure grounds. Every garden of any extent should have one or more beds of this class of Roses. Tea Roses, when planted in sheltered, sunny situations, come in very late in the autumn, and the leading type of them, *Gloire de Dijon*, frequently produces very fine blooms up to Christmas. *Cheshunt Hybrid* is another fine Rose belonging to the same section. It is one of the freest flowering Roses with which I am acquainted and one which should be in every garden. It is no idle Rambler, but grows freely and blooms most profusely for a very long period. How is it Moss Roses are not more extensively grown in gardens than they are? They are grand in the bud state, and have many other good qualities to recommend them. Bennett's Pedigree Roses have never succeeded well with me. They absolutely refuse to grow freely, and the blooms, although good in colour, were too few to be satisfactory. I know a good many who have tried them, but I know of none

with whom they have succeeded well. Paul Néron, a Hybrid Perpetual, blooms finely in autumn, and its flowers are the largest of all I have seen among Roses. Marie Baumann, so intensely beautiful in midseason, is a poor Rose in autumn, while Louis Van Houtte at that season is a perfect gem. Its flowers are not very large, but they make up for this fault in numbers, and besides being very full in the centre they are of that fiery red which makes itself felt in the dull autumn weather. It is as yet rather early to plant Roses, but it is not too soon to select the sorts, and I would advise all intending purchasers to send their orders to some Roses grower at once, with the request that their plants be marked for them; in nurseries it is generally a case of first come first served. We have found the best of Rose plants degenerate after a few years, and the only way to insure success is to buy in a quantity annually, or say every other year. Ground for new Roses cannot be too deeply trenched or well manured at this season.

CAMBRIAN.

ROSES ON NORTH WALLS.

THOSE who wish to cut Roses as near as may be all the year round from the open air should plant them on walls of every aspect. Some time since I strongly advocated the furnishing of walls with Roses as being more profitable than fruit trees. But in most gardens and demesnes room enough might be found for both, still leaving much wall or fence unclothed. There are also many cold walls in bleak places where choice fruits either refuse to grow or to thrive to any good purpose; such afford capital sites for many of our most useful Roses. Such hardy Teas as Gloire de Dijon and Homère will not only live, but thrive well and bloom profusely on such bleak aspects. Not only this, but the flowers are improved in colour and form by hard treatment of the plants. Gloire de Dijon from a north wall has a refinement of form and a fulness of deep orange colour that we seldom see in the flowers gathered from warmer sites. Other and more tender Roses such as Triomphe des Rennes, Celine Forestier, and Souvenir de la Malmaison, are also improved when grown on cool aspects. Another Rose which is often not much better than semi-double in the full blaze of summer heat and under such forcing conditions has a faded, washed-out pink colour, closes up its petals, and deepens into a vivid pink Rose of great usefulness in the late and early winter; this is the little known and less grown pink Gloire de Dijon or Gloire de Bordeaux. I hope soon to try the effects of cool sites on such Roses as White Baroness, Mabel Morrison, &c. Were these to close up their petals somewhat, by contracting their diameter and adding to the substance if not the number of their petals, they would become among the most valuable of all Roses for decorative purposes.

D. T. F.

CARPETING ROSE BEDS.

THE great increase of dwarf Roses on their own roots renders the discussion of this question of less urgency and importance than it used to be. Still, the baldness and bareness of the ground line of Rose beds and borders is one of the least attractive features of the majority of gardens. The bare earth is accepted as the penalty we must pay for the luxuriant growth and rich bloom of the Roses. The Rose is a gross feeder, and the more food it can have the better the result. Such is the short and easy way of settling the question in favour of allowing no rival to compete with Rose roots for the food in the soil in which they grow. There are, however, several missing links in this chain of dogmatic reasoning which well deserve the earnest attention of rosarians. Such as, for example, whether the sun and air do not steal more strength from the bare ground than would be absorbed by a surface vegetation at once dense and the reverse of gross. Such a covering might possibly conserve more food than it absorbed, and if so, the Rose roots would be the gainers, while the beauty of the covering would also be a gain. There are at least two ways of meeting

the difficulties or dangers arising from the surface covering of Rose beds. The one is by choosing such plants as will afford the most protection to the surface with the least impoverishment of the mass of the soil; and the other is to confine the roots of the plants used for surfacing in pots, tubs, or sunk pockets formed of brick, stone, or cement. A great many plants, such as many annuals, bulbs, succulents, and herbaceous plants, yield a maximum amount of surface covering and beauty with a minimum amount of soil exhaustion. Many creeping plants again, such as Periwinkles, Ivies, Clematis, &c., if planted in enclosed areas or pockets, will afford beautiful surfacings for Rose beds and borders without the possibility of exhausting the root run. Nothing, perhaps, looks so rich as a covering of Clematis under Roses, though other plants, such as Pavonia grandiflora, the variegated Mesembryanthemum, and single or Pompone Dahlia, pegged down, also have a rich and pleasing effect. While suggesting these as a mere sample of scores of plants that may be used, it may be well to add that there are no surface coverings for the soil of Rose beds equal to Roses themselves. Dwarf Roses so planted and trained as to fairly cover the whole earth, that is the perfection of Rose growing in the open as near as may be. Mignonette, so generally used for this purpose, is too gross a grower and greedy a feeder on rich Rose soils. A thin covering of Phlox Drummondii and its finer varieties forms a brilliant carpet, and so do Indian Pinks of the improved Heddewigi strains; while under old tall standard Roses, Cloves, Carnations, Picotees, and Pinks afford a contrast of form and colour and a harmonious bouquet of perfume that seldom fails to please.

D. T. F.

GARDEN FLORA.

PLATE 413.

CITRON-SCENTED ODONTOGLOSSUM.

(O. CITROSMUM VARS. ROSEUM AND ALBUM.*)

THE Citron-scented Odontoglossum is one of the oldest members of the genus represented in our gardens, having been introduced from Mexico or Guatemala (it seems doubtful which) by the late Mr. Barker in 1840 or 1841. A plant in flower was first exhibited at the Horticultural Gardens, Chiswick, in July, 1842, by Mr. Brocklehurst, of The Fence, Macclesfield, to whom it had been given by Mr. Barker. In habit, as in inflorescence, it is quite distinct from all other species. Although long known in our gardens, it was preceded by at least two other species—*O. biconense* from Guatemala in 1837, and *O. grande* from Mexico in 1839. Our present plant has been called *O. pendulum*, on account of its flower-spikes naturally assuming a drooping habit. It blooms during the spring months as a rule, the spikes being produced along with the young growth, and it is necessary to watch and protect them very closely, so tempting is their succulence to the nocturnal slug. When well grown the plant is very beautiful, as its long spikes of sweet wax-like blossoms droop from the glossy pseudo-bulbs and deep green leaves, each inflorescence consisting of from ten to thirty flowers. There are several varieties, varying in colour from pure white (as in our plate) to those of a creamy whiteness, in which the lip is more or less rosy. The pure white form and the one with a dark rosy lip are alike very rare, the intermediate and less distinct forms being far more commonly met with; all, however, are beautiful. This species enjoys a warmer temperature than that usually afforded to Odontoglossums of the *O. Alexandræ* and *O. Pescatorei*

* The white variety was drawn from a very fine specimen in Mr. W. Soper's garden, 307, Clapham Road. The other variety was drawn in Mr. W. Bull's nursery, Chelsea, June 7, 1883.

groups, a *Cattleya* house temperature being better adapted to its requirements. It is also impatient of too much moisture at the root, and should grow near the light in a compost of fibrous peat, with a little Sphagnum Moss added, elevating the plant well above the rim of the pot on a well-drained base.

For a long time *O. citrosmum* remained alone as the type of its section, but in 1868 Messrs. Veitch and Sons introduced *O. Krameri*, a pretty little species from Costa Rica, with lilac-purple or violet-tinted flowers.

F. W. B.

SEASONABLE WORK.

FLORAL DECORATIONS.

AMONGST cut flowers the different varieties of *Epiphyllum truncatum* will now be found useful. We arrange them chiefly in specimen glasses for the dinner-table, removing the blooms with one growth attached thereto. If cut as soon as they are properly open, they will last nearly or quite a week with a change of water. Sprays of *Libonia floribunda* are also pretty when used in a similar way, either by themselves or in association with a small blue *Salvia*; failing the latter, an early spike or two of the white Roman *Hyacinth* would be a good substitute. Though only lasting in beauty one day, the lovely colour of *Ipomœa Horsfalliae* will always recommend it. Two or three of its blossoms and a spray of Maiden-hair Fern arranged in a small glass or white china vase will be appreciated either in the boudoir or drawing-room. Another lovely flower of which stray specimens still open occasionally is the major variety of *Franciscea calycina*; this could be used in a similar way. Of white flowers for this season, *Jasminum gracillimum* is one of the best, and when better known it will be grown extensively for the purposes just named, as well as for bouquets and coat flowers. The seldom-seen *Urceolina aurea* is another useful subject as this time of year. Its singular pendent flowers are always attractive; a spike or two of them would associate well with the Paper-white *Narcissus* in a small vase. The thing to be regretted is that it is still so seldom met with in any quantity.

OF PLANTS, the following are suitable for indoor decoration at this season, especially in dark positions and likewise where large fires may be kept up or a considerable amount of gas consumed, viz., *Ficus elastica* and *Aspidistra lurida* and its variegated variety—three of the best. *Aralia Sieboldi*, with palmate foliage, is another useful indoor plant. The *Rhopalas* are likewise useful subjects that will stand a good deal of bad usage. *R. corcovadense* and *De Jonghei* are two of the best of them. *Cyperus alternifolius* from seed makes an excellent table plant; raised in this manner a greater quantity of small growth is obtained than in any other way. Amongst *Dracenas* the best of the coloured section is *D. terminalis*, and amongst green-leaved sorts *D. congesta* and *rubra*. For rather large vases *D. australis* and *indivisa* are the best. The *Lomatias* and *Grevillea robusta* furnish us with a class of Fern-like plants that are most useful in a small state. The *Grevillea*, being easily raised from seed, ought not to be overlooked. Of Ferns, *Asplenium bulbiferum* and *flaccidum* are two of the hardiest. *Cyrtomium falcatum*, with fronds of a dark, glossy green, is an excellent Fern for keeping in a room the year round. *Davallia canariensis* is the best of its genus as an indoor plant. *Nipholobolus Lingua* is another Fern that will thrive long under adverse circumstances; so will *Pteris tremula*, which, in a half specimen size, is a handsome subject for a large basket or vase. *Nephrolepis pectinata* is likewise a good kind, not too robust or straggling in growth. *Platyterium allicorne*, when well established, will be found to withstand a large amount of rough treatment, lasting long in good condition even where there is but little light. Of Palms, the hardiest, and therefore the most valuable during the next few months, are *Phoenix reclinata* and



ODONTOGLOSSUM CITREOSMUM ALBUM AND ROSEUM

tenuis, *Chamaerops humilis* and *Fortunei*, *Corypha australis*, *Latania borbonica*, and *Seaforthia elegans*, together with the invaluable varieties of the comparatively new kinds of *Kentia*. In order to ensure success and to enable the plants to withstand a considerable amount of adverse treatment, they should be well established before being brought forward for any kind of decorative work. Where the time can be spared, an occasional sponging of the foliage in the case of such as can be operated on without injury to the leaves will be found to be beneficial. Close attention must also be paid to watering; the happy medium should be hit upon, neither allowing them to become too dry nor too wet. Care should also be taken not to allow them to absorb stagnant water drained from them into the receptacle in which they have been placed.

FLOWER GARDEN.

GENERAL WORK.—The more important work now is the transplanting of trees, shrubs, and Roses, which, as a rule, do best when planted in autumn, for although in open weather planting may with safety be done all through the winter, a comparison of results would soon determine the undecided in favour of autumn planting. If an exception to this rule were made, it ought only to be in those cases where the plastic nature of the soil renders it all but impossible to plant at any season earlier than the middle of February. Pending the advent of suitable weather for transplanting, other heavy jobs should be undertaken, such as gravel digging, draining, road and walk making and mending, the cutting of verges, laying of turf, trimming hedges, and the burning up of the cuttings, together with the summer's accumulation of the rubbish heap, the ashes from which are of great manurial value for almost any crop. Bulbs will not longer bear postponement of planting, at least not without deteriorating effects. The marvellous reaction that has of late years taken place in favour of hardy flowers has to a large extent done away with the reproach once so common in gardens, viz., that of having bare beds for six months or more out of the twelve. Where these undesirable conditions still hold sway, there will be a certain amount of satisfaction obtained in the way of neatness and of profit to the land if the beds be at once deeply trenched, neatly edged, and the soil levelled down with a rake. The baldness and grave-like appearance of the beds may be relieved at the price of a few hours' labour only by dotting over them a few trimmed, tree-like branches of evergreen shrubs, a recommendation that is made not because it is a desirable way to furnish the beds, but simply as being preferable to the depressing sight that such beds present at the dull season of the year, when to make amends for gloominess we ought to strive the more to impart brightness to our gardens.

BEDDING PLANTS.—*Dahlias*, *Gladioli*, and all other tuberous plants when lifted and partially dried ought to be planted thickly in boxes or on the floor of a cool cellar or shed; sifted leaf-soil and Cocoa fibre refuse are the best materials with which to surround them. *Lobelias* of the cardinalis section, *Verbena venosa*, and *Salvia patens* winter best in daylight, and therefore these should be afforded the shelter of a cold pit, but may be heeled in quite as thickly and with similar material as the preceding. *Pelargoniums* must be kept on the dry side as to moisture at the root, whilst the atmosphere should be as dry as possible. Where there are houses specially constructed for wintering and growing such plants, there is no difficulty as to wintering the plants well, but oftener than not one has to put up with makeshift contrivances, or else to make use of vineries, Peach houses, &c., when the first duty must, of course, be the trees, and therefore bedding plants have to take their chance, but with careful watering and timely removal of decaying leaves they can generally be wintered with a fair amount of success. It is necessary to keep the tender section in strong heat—shelves in Pine and plant stoves are the best positions, and the plants at this season must be

but sparingly watered. The hardier material in cold frames, such as *Verbenas*, *Calceolarias*, and *Violas*, should be fully exposed in fine weather, and the surface of the soil loosened with a pointed stick to prevent the growth of Moss and fungus, either of which, if allowed to extend, would cause the plants to rot off.

INDOOR PLANTS.

IXORAS.—Where not already done, large plants of these should be sufficiently cut in, and the weak shoots removed altogether, otherwise where treated so as to induce free growth, they get unwieldy, with quantities of small branches that produce small heads of flower. This holds good with most of the varieties now in cultivation, as well as with the different species, including *I. coccinea*, the best of the whole family when so managed as to bring out its true character.

DIPLADENIAS.—Pot specimens of these that have had a short rest under dry treatment may now be freely cut back, shortening them in to a few eyes beyond where they were headed back to last season, turning them at once out of the pots, removing most of the old soil, and repotting in the best fibrous peat, to which a liberal amount of sand has been added. This treatment is advisable for plants that are wanted to bloom early in the spring, say to commence opening their flowers about the middle of May, and where a sufficient amount of heat can be kept up through the winter; otherwise it is better to defer the cutting back and repotting for several months yet. In all cases, plants so managed should have a thorough cleansing from insects.

CLERODENDRON BALFOURI.—This plant at one time was looked upon as a spring and summer bloomer, but when treated suitably, with a sufficient number to be brought on in succession, it may be had in flower during each month in the year, for growth that has been made under conditions to give enough solidity to the wood seldom fails to bloom when placed in a growing temperature after being fairly rested. Few things are more effective than its pure white bracts, but in their case, as with many other things, where required for cutting they must be grown in a manner that will impart to them a hardy character. In no way is this better attained than by training the shoots up the rafters of an ordinary stove. Examples that flowered in the spring, and afterwards made growth early and had the soil allowed to become dry, so as to stop further extension and ripen up the foliage, will now have lost most of their leaves, and should have such portion of the extremities of the shoots as are at all soft cut away, so as to induce them to break back; all the side growths produced after being so treated will, where the plants have been properly matured, show flower by the time they have extended a foot or so. If very full of roots the plants should have more room given them, not attempting to shake them out or disturb the roots, as this would most likely interfere with their blooming. In all cases whether thus given more room or sustained by the help of manure water, which they will require after breaking into growth, the dry balls ought to be moistened by soaking for several hours in tepid water. It is not well to hurry them at this season; a night temperature of 60° to 65° with a proportionate rise in the day will cause them to move slowly for a time. Plants of this *Clerodendron* that bloomed late in the summer and have since made sufficient growth may at once be put to rest, withholding water until the foliage flags freely, after which give a little, but not nearly so much as to fully moisten the soil, which would have the effect of again starting them into growth where the warmth is enough to induce this; when they again flag for want of water apply a little more. This alternate flagging and partial revival of the leaves is the best method that we have found with this and a few other plants to mature the wood, so as to insure a full amount of flower subsequently, as if the leaves are allowed to die off suddenly through water being entirely withheld, the shoots are deficient in solidity to produce

growth that will bloom freely. It is much more conducive to the well-being of this *Clerodendron* and its subsequent flowering to stop growth in the way recommended than to do so by submitting to a lower temperature, as if kept for any length of time much below 60° the plants are liable to perish unless they have been subjected to very cool treatment through the summer.

ANTHURIUMS.—*A. Scherzerianum* does much better when grown in an intermediate temperature than kept in the stove, making larger leaves with the flowers which follow proportionately bigger. The plants will now be completing their growth, and until the leaves are fully matured the soil should be kept quite wet. It is a swamp plant and will never grow so strong as it should unless the material in which the roots are placed is very much wetter than the generality of plants will bear; 48° or 50° in the night with a few degrees higher by day is the right temperature for *A. Scherzerianum* throughout the autumn and winter. The new *A. Andreanum* is now beginning to develop its true character; the first imported plants as they get stronger produce larger flowers, in this keeping on increasing proportionately. It will most likely be found to require a considerably higher temperature than *A. Scherzerianum*; it appears to go on flowering regularly as the leaves are produced and attain their full size. Plenty of moisture and loose open materials, such as are suitable for epiphytal Orchids, answer for it. Its habit in its native country is quite epiphytal, although in a pot it does not develop this character.

APHELANDRAS.—The flowering of that useful autumn kind, *A. cristata*, can be regulated by the way in which it is treated through the summer; where grown comparatively cool it will be in bloom up to the middle of November, at which season its erect spikes of bright orange-red flowers are very effective. In the case of old plants after the blooming is over the shoots should be headed back to within a joint or two of where they were cut in last year, placing them for the winter where they can be kept comparatively dry at the roots. The small growing *A. Roezli* is one of the freest winter-flowering plants we possess, blooming when not more than a few inches high; by keeping a portion of the stock in an intermediate temperature they may be had in flower in succession up to spring.

BOUGAINVILLEAS.—When grown in a warm stove, treatment similar to that advised for the *Clerodendron* answers well for *B. glabra*, which is so manageable that, with the aid of two or three good-sized pot specimens, it may be had in flower for the greater portion of the year, ranging from April to the end of October. It likewise succeeds well when planted out in a low, intermediate heat, little above that of a greenhouse, flowering as a matter of course later in the summer, but when thus subjected to cool treatment it differs much from most other things in rarely blooming anything worth notice if the roots are confined to a pot, keeping on growing through the summer without much disposition to flower. *B. spectabilis* at one time was supposed to be a very difficult plant to flower, only succeeding in a high temperature, where, in addition, its roots could be almost baked with heat when at rest; yet it grows and blooms freely either planted out or accommodated with a large box or tub in a warm greenhouse or conservatory, usually coming in about May or June, and sometimes again in the autumn. Its intensely deep bright pinkish mauve bracts are finer coloured than those of *B. glabra*, but as this plant blooms from the ripe wood the knife must be little used, except after the spring flowering, when the shoots should be so far reduced as to keep it within the requisite bounds. It is a strong grower, covering a large space when it has plenty of roots and also head room. It should now be gradually dried off for the winter, giving very little water for a considerable time.

TUBEROUS-ROOTED SUMMER-FLOWERING STOVE plants.—Such things as *Gloxinias*, *Achimenes*, herbaceous *Gesneras*, and *Gloriosas*, although bearing in many cases a lower temperature

through the winter than might be supposed from the warm countries from which they originate, will not do to be kept too cool, as many to their cost yearly discover when it is too late, through the tubers going off in a damp, mouldy condition. In most cases, as we have before mentioned, the roots keep best in the pots in which they were grown, the soil having been allowed to get quite dry; yet pots with apparently nothing in them beyond the soil which they contain are not slightly objects in plant houses, and it often happens that there is no other place where they can be kept at a suitable temperature. This being so, it is best to put them in paper bags with a good body of dry sand round them, the object of which is to keep the air to a great extent from them; otherwise, if the atmosphere is too dry, they not unusually shrivel up. In a temperature of 55°, or a few degrees above that, they are not likely to take any harm.

CALADIUMS should be similarly treated. The small *C. argyrites* is now by many grown in quantity for the use of the leaves to mix with cut flowers, as well as for general decoration in small pots. Where the stock of it happens to be limited, it will best be increased by now turning the plants out of the soil and repotting, keeping them growing instead of allowing them to remain in a dormant state through the winter. Moderate-sized tubers that have been in a state of semi-rest, if now placed in a brisk heat, will at once commence to grow, and as soon as the young crowns have got two or three leaves, and attained a height of 3 inches or 4 inches, they may be taken off from the parent tuber and placed singly in small pots, keeping them well up to the light. The latter is essential with any plant of a like character to this which has to be so used, for, unless the leaves are of a stocky, robust character, they are useless in the lower temperature to which they will ultimately be subjected.

PROPAGATING.

STOCKS FOR GRAFTING.—During the winter attention must be paid to the preparation of stocks of all kinds for grafting or budding next season, such as trimming off all superfluous branches, and where necessary replanting the stocks. If it is intended to graft under glass, which is the practice generally followed in the case of choice or delicate subjects, the stocks should be potted in as small pots as possible, and, if hardy, plunged out of doors till wanted. In selecting stocks of any kind choose those with clean, healthy growth in preference to such as are stunted, and, as the chances of success are greatest when both stock and scion are nearly related to each other, the object must be to choose those in which that relationship most nearly exists. Thus, in the case of the Coniferae, for the true *Thuja selecta* as a stock the North American *T. occidentalis* and *Biota orientalis* for the *Biotas*. Among these latter it is absolutely necessary to graft one of the forms of the Golden Arbor-vitæ, viz., *sempervirens*, as it roots only with great difficulty. *Picea pectinata* is used as a stock for the Silver Firs, the Norway Spruce for the needle-leaved section of the *Abies*, and *Abies canadensis* for the *Tsuga* group. In selecting stocks for the various species of *Pinus* the selection must always be made of one bearing the same number of leaves in a sheath as the scion; thus graft two-leaved on two-leaved, three on three, and so on. The common Yew does well as a stock for all the kinds of *Taxus*, *Podocarpus*, and *Cephalotaxus*, and seedlings of *Cupressus Lawsoniana* for its many varieties and also for *Cupressus nutkaensis*. For the *Retinosporas*, *obtusata* and *pisifera* from seed are used as stocks.

YOUNG VIGOROUS PLANTS with stems varying from the size of a straw to that of a pencil will be found the most useful for the whole of the above, and when potted they may be shortened somewhat where necessary, as at the time of grafting the heads must not be cut; that must be left until a union has taken place. The common *Euonymus europæus* does well as a stock for all the deciduous species, and on it also the evergreen kinds succeed, but then they are liable to lose a

few leaves during the winter. Most of the slight growing kinds of *Ivies* are grafted on the Irish, but before potting them up remove all underground buds, or suckers will be always troublesome. The *Osmanthus* not only grows well and freely on the Privet, but retains its leaves as well as on its own roots. This latter stock is also used for all the various species of *Ligustrum*, and with it the *Lilacs* readily unite, but do not live so long as when grafted on the common *Lilac*, which is easily raised from seed for that purpose.

MANY CYTISUSES do well on the common *Laburnum*; among others the beautiful pendulous greenhouse species, *Cytisus filipes*, which, grafted as a standard some 2 feet or so high, has a very pleasing effect. Seedlings of *Rhododendron ponticum* are principally used as stocks for the various members of that genus, being in some places grown in very large numbers for that purpose. The single red is the stock employed for the numerous varieties of *Camellia*, and it may be raised either from seeds or cuttings, the latter being principally the method adopted, as seed is seldom readily obtainable. The cuttings are made of the half-ripened wood about 6 inches in length, and succeed best when taken off just at the junction of the new with the old growth. Remove the leaves to the depth of 2 inches, insert the cuttings in well-drained pots of sandy soil, and place them in a close frame till callused, when a little bottom heat will hasten the formation of roots, or a bed may be prepared in the frame, the cuttings inserted thickly therein, and allowed to remain till rooted. Of course this latter method takes a longer time, as rooting does not commence till the following spring. The above include but a few of the plants for which grafting is employed; for instance, the greater number of our fruits are propagated in that way, but as they are principally grafted in the open air, the stocks (as in the case of *Roses* for budding) do not require potting.

ORCHIDS.

MEXICAN HOUSE.—Just a word about fresh imported *Cattleyas* and *Lælias*. We have seen good growers pot them at once in the usual compost after washing well with soapy water, of course. Here we never use any potting material until fresh roots are formed. The pots are merely filled up with clean potsherds. During the last season or two the imported plants have come to hand in capital condition, the leaves green and pseudo-bulbs quite plump. We are not sure whether they are so very much the better for this; we had some *Lælia elegans* and *L. purpurata* which seemed all right, but they have not made such a growth as one would like. The new growths are weak and watery-looking, and none of them are showing flowering sheaths. It may be our bad management, but as we have had the same *Orchids* succeed well with identical treatment years ago, one feels inclined to ask whether it is not the way of bringing them over that is to blame. The *Pleiones* are now going out of bloom, and as soon as the decaying flowers have been removed they may be repotted; indeed, the sooner this is done after flowering is over the better. It is not necessary to repot them every year; if they are done every alternate season it would be enough. They give a greater mass of bloom the year following that on which they have not been divided. Where there is a good stock of plants it is the best plan to repot a half each year. As a rule each strong bulb will produce two. The *Pleiones* succeed well in shallow pans, suspended from the roof or placed on shelves near the glass. Pot in good turfy peat and *Sphagnum*, with some broken charcoal and potsherds to keep the compost open. Any *Orchids* starting into growth should be encouraged by being watered with warmish water. Any *Dendrobates* that may be starting to grow from the base come under this treatment. *Dendrobium glumaceum* may be removed from this house into the East India house, and be watered freely; this species may not be so delicately beautiful as its near relative, *D. filiforme*, but it flowers at a different season of the year, and is so distinct amongst *Orchids* that one cannot fail to

admire it. See that all *Orchids* in this section that are not making their growth are kept only moderately moist; those growing or making roots should receive more.

COOL HOUSE.—The weather hitherto has been rather mild, temperature out-of-doors 40° to 45° at night, and when that is the case we do not trouble about artificial heat. Except a few specimens that seemed to require repotting, most of the collection will have to stand over until after Christmas. At this season *Disas* may be potted. This is a genus of *Orchids* that some really good *Orchid* growers fail to manage. Whether it is the climate or the houses we are not prepared to say. They succeed best in shallow pans or in pots if these are rather more than half full of drainage. Keep the plants free from insect pests, green fly, and thrips. They should also be kept near the glass at this season, and where they get air freely without being exposed to draughts. They seem to succeed best with ordinary Moss on the surface of the compost in preference to *Sphagnum*. That very desirable cool house *Orchid*, *Lycaste Skinneri*, and its numerous beautiful varieties are now showing for bloom. Although this *Orchid* was the first subjected to cool house culture, and might be said to be the originator of the system, it does not like so cool a temperature as the *Odonoglossums*; a mean of 5° higher suits it better. There has been numerous importations of this species lately, and they have established themselves speedily and well. The pure white form is one of the most valued and beautiful of cool *Orchids*. The best time to repot them is when they start into growth in the spring.

KITCHEN GARDEN.

EARTHING Celery forms at present the greater part of our work. Whenever the weather is dry get it well banked up; a sharp frost coming before the final earthing is most detrimental to its well-being. Continue to lift Carrots, Turnips, and Beet, stacking them outside in small round pits; a cartload in each is plenty; cover up first with dry straw, then put on the soil about 6 inches thick. Our earliest sowing of Peas we make about the middle of the month. We find Laxton's William I. to be a hardy and good standard variety. A good site for Peas is a warm south border; we sow them in drills about 4 feet apart, and if the following advice is adhered to, a good crop will be the result. As soon as the plants show themselves above ground cover them over 1 inch thick with coal ashes; this wards off their enemy, the slug; and placing four strings of white worsted along the rows, elevated about 6 inches above the ground, in a great measure keeps off the birds. When the Peas show through the ashes, they should be earthed and rodded immediately. Nothing is so bad for Peas as sharp cutting surface winds in spring, but by adding a few Spruce branches along each side all will be satisfactory. Broad Beans (Old Green Windsor is still one of the best) should also be planted; these brave the winter winds better than Peas; still, if earliness is a consideration, protect them, and they will pay for it.

FRUIT.

VINES.—With the earth and atmosphere saturated with moisture, the present month, at all times unfavourable to the keeping of Grapes, will be found unusually trying; but when all the leaves are off the Vines, steady attention to cleanliness, gentle warmth, and ventilation will carry all the late keeping kinds on to Christmas, when they may be cut, bottled, and the Vines pruned and rested. If not already done, the internal borders in the Lady Downes house may be well covered with loose, dry Bracken for the twofold purpose of keeping down dust and absorbing moisture. Outside borders may also be covered with shutters, to throw off cold rain and snow, from the time the leaves fall until the Grapes are cut, when exposure will again be preferable to getting the roots too dry. Where late Muscats are wanted to keep as long as possible the houses will require

very careful management during the fall of the leaf. Let the temperature decline to 50° in mild weather, and give no more fire heat than is requisite to the maintenance of a dry, cool atmosphere and safety from frost. Remove all plants and evaporating pans, cover the floor with Fern, and dry out or cover up water cisterns to prevent the absorption of moisture by the atmosphere, which must now be dry and buoyant. As thoroughly ripened Muscats are easily caught by the sun, it is a good plan to strain a piece of Nottingham netting or thin canvas across the roof of modern houses to protect the shoulders, and to secure an equable temperature through the night. If any late Hamburgs are still hanging on the Vines in houses which were retarded in the spring, they will now keep better in the Lady Downes house or Grape room, and in order to thoroughly ripen up the wood the house may be subjected to a period of sharp dry firing with plenty of air on fine days.

EARLY VINERIES from which the first crop of fruit is to be gathered in May may be closed at once. If fermenting material is applied to the internal borders, a temperature ranging from 45° to 55° may be maintained without the aid of much fire heat, but in the event of the weather becoming very cold the pipes must be warmed every morning, and the swelling of the buds aided by frequent syringing with warm water. The best material for producing gentle warmth is fresh Oak leaves and short stable manure, thoroughly worked and fermented before it is taken into the house. The outside borders, hitherto exposed to the elements, may be protected with litter or shutters, but no artificial warmth must be applied to them until the buds begin to swell. After the house has been closed for a week or two the temperature may range about 55° with a rise of 5° to 10° on sunny days. Examine the borders, and if the repeated waterings, little and often, previously recommended, have not thoroughly penetrated to and through the drainage, give a thorough soaking with water at a temperature of 90° and cover up immediately with the fermenting material. If the Vines are young they may be slung in a horizontal position, as more time and attention will be needed to secure an even break, while old ones will break equally well if tied up to the wires as soon as they are pruned and dressed and exposed to a few degrees more heat by day; but in all cases from the beginning to the end a low or resting night temperature will be found one of the main features of success in the cultivation of Grapes.

LATE HOUSES in which Grapes are hanging will now require careful management to prevent the fruit from shrivelling under too much fire heat and damping through the want of it. Thin-skinned kinds like the Hamburg will keep best off the Vines in a well-ventilated Grape room from which the light is excluded. Muscats now quite ripe may have just sufficient fire heat to expel damp and to maintain a temperature of 50° to 55° at night. See that the surface roots have sufficient moisture to prevent the berries from shrivelling, and cover the inside borders with dry Fern to check evaporation from the soil and to prevent dust from rising and settling on the berries. In modern houses composed almost entirely of glass, ripe Muscats are liable to change colour and sometimes scald after this season; and as this defect greatly depreciates their value, a few breadths of canvas strained across the roof, while preserving the delicate amber colour of the berries, will prevent fluctuations of temperature and reduce the necessity for applying fire heat. Where Lady Downes and other black kinds remain unfinished, fire heat with plenty of air will still be needed. If heavily cropped, and perfect colour is doubtful, a nice surface watering with tepid liquid on a fine morning will help them, but no time must be lost in applying it, as the foliage will soon be ripe and falling from the Vines.

ORCHARD HOUSE.—We have recently removed all the trees that were repotted from the orchard house to a sheltered situation out of doors, and others which had not become pot-bound have been top-dressed and placed with

them, where they will remain until the winter occupants are taken out in the spring. Birds being destructive when the buds begin to swell, we are obliged to net the whole block, and dry Fern is used for protecting the roots from frost and drought. For some years we have grown trained standard and half-standard Peaches and Nectarines in pots and tubs upon a trellis 16 inches from the roof, where the roots being confined and highly fed, we obtain very heavy crops of fruit greatly superior to that obtained from bushes and pyramids, so much so that we have no hesitation in recommending the system to amateurs and others who wish to grow the cream of the cream, fit to eat or exhibit at a tithe of the expense of an ordinary orchard house. Trees intended for potting should be secured without delay. Meantime have a good supply of dry compost mixed, and clean dry pots crocked ready for use, as the delicate roots of a tree should never become dry, as is too often the case when brought from a distant nursery. To obviate this difficulty, and to economise time, a few maidens should be bought in every year and planted or potted and plunged in a dry, warm border in the garden, where they can be mulched, pinched, and manufactured into perfect pyramids ready for filling up blanks as they occur. Pears, Plums, Cherries, and Apricots lifted, root-shortened, and replanted in new loam every year soon make handsome fruit-bearing trees; but unless the climate is very good, Peaches and Nectarines do best under glass.

PEACHES.—To have May Peaches the house should be ready for closing by the end of this month. If the roots of the trees have the range of internal and external borders it will be necessary to see that the soil is in a nice-growing state quite down to the drainage, while those running outwards will require some kind of covering to protect them from the chilling influence of cold rain and snow. It is not, however, at all imperative that the roots have an external border, as the finest fruit may be grown for a great number of years where the internal space is extremely limited, provided the borders are frequently renovated with fresh maiden loam, top-dressed with good rotted manure, and well fed with a liberal hand throughout the growing season. If the weather is mild no fire-heat will be needed at first, as the trees are easily excited; but a soft, genial atmosphere may be secured by the introduction of fermenting Oak or Beech leaves, to which may be added one-third of fresh stable manure. This will require turning occasionally to liberate moisture, and the trees must be syringed twice a day when fine, care being taken that the second syringing is performed early in the afternoon, as it is not well to have the buds loaded with moisture at nightfall. Let the temperature at the outset range from 40° to 45° at night and 10° higher by day. Open the top and bottom ventilators when the weather is bright and warm, and the bottom ones only when keen, cutting winds will produce a draught. Continue this treatment until the buds show signs of swelling freely, and the first danger, that of dropping, has been overcome. Then coax them along by warming the pipes every morning to increase the day temperature, and shut off the heat when a night temperature of 45° can be maintained without it.

FIGS.—Assuming that the early pot trees are now in position, and ripe Figs are wanted early in May, the third week in this month will be quite early enough to close the house for forcing. In former papers I have stated that I place my pots on firm pedestals and pack them round with fresh maiden turf before forcing is commenced; but, instead of starting with fire heat, a good body of fermenting material is introduced, the moist warmth from which soon penetrates the pots and stimulates the trees into action, and by the time the fruit requires assistance the new turf is a mat of roots, capable of absorbing an unlimited quantity of liquid of the best quality. When treated in this way it rarely happens that any of the fruit drops; and all the roots being fresh and active, Figs of the first size and quality may always be secured from the beginning to the end of the sea-

son. If the balls have become very dry it will be necessary to give repeated supplies of tepid water to bring the soil into a growing state, and to syringe the stems and shoots two or three times a day. When the house has been closed ten days or a fortnight, and the stimulating moisture from the bed is beginning to tell upon the buds, gentle fire heat must be applied to maintain a temperature of 50° to 55° at night and 60° to 65° by day, when a little air may be given to sweeten the atmosphere.

LATE HOUSES from which all the perfect fruit has been gathered may be steadily fired until the leaves are off the trees and the points of the shoots look firm and ripe. They may then be untied from the trellis and drawn down from the glass for safety from frost in severe weather. In wall cases and houses where no fire heat can be applied the shoots may be tied together in small bundles and slightly protected with dry Fern or straw, as it is no unusual thing to see Fig trees in cold structures seriously injured where this precaution is neglected.

MOSES AS GROWN AT GLASGOW.

AN interesting and altogether unusual feature in a garden is a collection of Mosses, chiefly British, such as is to be seen in the Botanic Gardens at Glasgow. In our chase after plants "foreign and rare" we are apt to forget or ignore the riches in the way of vegetation that surround our own homes. In many of our native Mosses one can find quite as much beauty—quite as wonderful a structure and delicacy of texture, as are to be found in some of the choicest Filmy Ferns. Take, for instance, the genus Hypnum, or Feather Moss. What can be more beautiful in the way of a little Fern than *H. dendroides*, a common plant in bogs and moist woods, where it runs about amongst the Grass or amongst other Mosses, and pushes up its miniature tree-like branches? *H. splendens*, *H. proliferum*, and many other of the Feather Mosses may be mentioned as objects of the most delicate beauty. The *Pterogoniums* form a very pretty genus common enough on trees and rocks, but never, or at least seldom, noticed; nor are the *Dicraniums* or Fork Mosses—feathery and soft as swan's-down. Even the "green cushion on the wall" (the *Torulas*) possesses most exquisite beauty. It is only when such little gems are placed before us that we perceive their worth, as must be admitted by all who have seen these Mosses as grown at Glasgow. A house 40 feet long by 10 feet wide, with a path along the centre and a well-darkened glass roof, with a plentiful supply of water, is devoted to Mosses and a collection of Hepaticæ or Liverworts (also very interesting), and in it they appear to thrive well. Instead of brick stages, the walls by the path are made of peat, which is completely covered with a thick cushion of Hypnum tamarixinum, a pretty species resembling closely the new Zealand Feather Moss grown at Kew. Against the wall at the back of the house a rockery is built, on which the Mosses are growing, and also some beautiful patches of the Tunbridge Filmy Fern and the variety *Wilsoni*. There are about 150 species of Mosses grown here, many of them rare in Britain. Here is the rare *Myurium hybridarium*, a species peculiar to Skye, many pretty *Sphagnums*, of which *S. contortum* is the well-known Orchid Moss. Several pretty *Bartramias* and *Hookerias* were also luxuriating under the natural conditions provided in this house. The Liverworts, which in many gardens are great pests, are carefully grown and named at Glasgow, and interest one at once because of their variety and structure. Some of them are large, like *Trichomanes membranaceum*, and almost as pretty; others are very minute; and others, again, are long and narrow. To the microscopist these little Cryptogams are full of interest, and it appears to me after having seen them grown as garden plants that they are capable of being made attractive to the horticulturist. B.

Cocoa-nut matting.—This I find to be extremely valuable in a case in which Ferns have to be grown on a lattice stage immediately over hot-

water pipes. It retains a considerable amount of water and affords a large extent of evaporating surface. It is durable, cleanly, and not at all unsightly. It is of course simply laid on the stage, and the plants are arranged upon it in the usual way. Ferns placed on it grow as they never did in the same position before. I am going to run a length of it directly over the pipes in the Orchid house where the stage arrangement is very much the same as that in the case of the Ferns.—R. I. L.

TREES AND SHRUBS.

THE HORNBEAMS.

THE genus *Carpinus* is widely distributed throughout the temperate regions of the northern hemi-



Carpinus orientalis.

sphere. There are nine species known to botanists, most of them being middle-sized trees. In addition to those mentioned below, figures of which are herewith given, there are four species from Japan, and one from the Himalayan region, which do not yet seem to have found their way to this country; these five are therefore omitted. All are deciduous trees, and everyone is thoroughly deserving of cultivation. The origin of the English name is quaintly explained by Gerard in his



Carpinus americanx.

"Herbal" as follows: "The wood," he says, "in time, waxeth so hard, that the toughness and hardness of it may be rather compared to horn than unto wood; and therefore it was called hornebeam or hardbeam."

CARPINUS BETULUS,* the common Hornbeam, as is the case with so many of our native or widely cultivated trees, exhibits considerable variation in habit, and also in foliage characters. Some of the more striking of these, those which have received

Smith's statement. The Hornbeam Walk in Richmond Park, from Pembroke Lodge towards the Ham Gate, will recur to many southerners as a good instance of the fitness of the Hornbeam for avenues. In the walk in question there are many



Carpinus Betulus. Leaf, catkins, flowers, and fruit.

names in nurseries, &c., and are propagated on account of their distinctive peculiarities, are described below. In a wild state *C. Betulus* occurs in Europe from Gothland southwards, and extends also into West Asia. Although apparently an undoubted native in the southern counties of England, it appears to have no claim to be considered indigenous as far as the northern counties are concerned; it has also been planted wherever it occurs in Ireland.

Few trees bear cutting so well as the Hornbeam, and for this reason, during the reign of the topiarist, it was held in high repute for the formation of the "close alleys," "covert alleys," or the "thick-pleached alleys," frequently mentioned in Shakespeare and in the works of other authors about three centuries ago. In the sixteenth century the topiary art had reached its highest point of development, and was looked upon as the perfection of gardening; the Hornbeam—and indeed almost every other tree—was cut and tortured into every imaginable shape. The "picturesque style," however, soon drove the topiarist and his art out of the field, yet even now places still remain in England where the old and once much-belauded fashion still exists on a large scale—a fact by no means to be deplored from an archaeological point of view. Dense, quaintly-shaped Hornbeam hedges are not unfrequent in the gardens of many old English mansions, and in some old country farmhouses the sixteenth century craze is still perpetuated on a smaller scale. Sir J. E. Smith, in his "English Flora," after enumerating the virtues of the Hornbeam as a hedge plant, gives it as his opinion that "when standing by itself and allowed to take its natural form, the Hornbeam makes a much more handsome tree than most people are aware of." Those who are familiar with the fine specimens which exist at Studley Park and elsewhere will have no hesitation in confirming Sir J. E.

fine trees which afford a thorough and agreeable shade during the summer months.

In any soil or position the Hornbeam will grow readily, except exceedingly dry or too marshy spots. On chalky hillsides it does not grow so freely as on clayey plains. Under the latter conditions, however, the wood is not so good. In mountainous regions the Hornbeam occupies a zone lower than that appropriated by the Beech, rarely ascending more than 1200 yards above sea-level. It is not injured by frost, and in Germany is often seen fringing the edges of the Beech forests along the bottom of the valleys where the Beech would suffer. Scarcely any tree coppices more vigorously or makes more useful pollards on dry grass land.

On account of its great toughness the wood of the Hornbeam is employed in engineering work for cogs in machinery. When subjected to vertical



Leaves of *Carpinus Betulus quercifolia*.

pressure it cannot be completely destroyed; its fibres, instead of breaking off short, double up like threads, a conclusive proof of its flexibility and fitness for service in machinery ("Laslett's Timber and Timber Trees"). According to the same recent authority, the vertical or crushing strain on cubes of 2 inches average 14 844 tons, whilst that on cubes of 1 inch is 3 711 tons. A few years ago an English firm required a large quantity of Horn-

* IDENTIFICATION. — *Carpinus Betulus*, L. London, "Arboretum et Fruticetum Britannicum," vol. iii., p. 2004; Encycl. of Trees and Shrubs, 917. Boswell Syme, "English Botany," vol. viii., p. 176, tab. 1293; Koch, "Dendrologia," zweit. theil., zweit. abtheil., p. 2; Hooker, "Student's Flora of the British Islands," ed. 2, p. 385. *C. Carpinizza*, Host, "Flora Austriaca" ii., p. 636. *C. intermedia*, Wierbickzy in Reichb. Ic. fl. Germ. et Helvet., xxii., fig. 1297.

beam wood for the manufacture of lasts, but failed to procure it in England. They succeeded, however, in obtaining a supply from France, where large quantities of this timber are used for that purpose. It may be interesting to state that in England at any rate lasts are no longer made to any extent by hand, but are rapidly turned in enormous numbers by machinery. In France *sabots* are also made of Hornbeam wood, but the difficulty in working it and its weight render it less valuable for *sabotage* than Beech. For tur-



Branch of *Carpinus Betulus*

nery generally, cabinet making, and also for agricultural implements, &c., this wood is highly valued; in some of the French wine-growing districts, viz., Côte d'Or and Yonne, hoops for the wine barrels are largely made from this tree. It makes the best fuel and it is preferred to every other for apartments, as it lights easily, makes a



Leaves of *Carpinus Betulus incisa*.

bright flame, which burns equally, continues a long time, and gives out abundance of heat. "Its charcoal is highly esteemed, and in France and Switzerland it is preferred to most others, not only for forges and for cooking by, but for making gunpowder, the workmen at the great gunpowder manufactory at Berne rarely using any other. The inner bark, according to Linnæus, is used for dye-

ing yellow. The leaves, when dried in the sun, are used in France as fodder; and when wanted for use in winter, the young branches are cut off in the middle of summer, between the first and second growth, and strewed or spread out in some place which is completely sheltered from the rain to dry, without the tree being in the slightest degree injured by the operation." (Dict. des Eaux et Forêts, art. Charme, as quoted by Loudon.)

It hardly seems necessary to dwell upon the value of the Hornbeam as a hedge or shelter plant. In many nurseries it is largely used for these purposes, the russet-brown leaves remaining on the twigs until displaced by the new growths in spring.

VAR. *INCISA* (Aiton, "Hortus Kewensis," v., 301; *C. asplenifolia*, Hort.; *C. laciniata*, Hort.).—These three names represent two forms, which are, how-



Hornbeams (one with inosculated trunk).

ever, so near each other, that for all practical purposes they are identical. A glance at the accompanying figure will show how distinct and ornamental this variety is.

VAR. *QUERCIFOLIA* (Desf. tabl. de l'ecol. de bot. du Mus. d'hist. nat., 213; *Ostrya quercifolia*, Hort.; *Carpinus heterophylla*, Hort.).—This form, as will be seen by the figure, is thoroughly distinct from the common Hornbeam; it has very much smaller leaves than the type, their



Carpinus viminea (see p. 420).

outline, as implied by the varietal name, resembling that of the foliage of the Oak. It frequently reverts to the type, and, as far as my experience goes, appears to be much less fixed than the variety *incisa*.

VAR. *PURPUREA* (Hort.).—The young leaves of this are brownish red; it is well worth growing for

the pleasing colour effect produced by the young growths in spring. Apart from colour it does not differ from the type.

VAR. *FASTIGIATA* (Hort.).—In this variety the branches are more ascending and the habit altogether more erect; indeed, amongst the Hornbeams this is a counterpart of the fastigiate varieties of the common Oak.

VAR. *VARIEGATA*, *aureo-variegata*, *albo-variegata* (*albo-marmorata*).—These names represent forms differing so slightly from each other, that it is not worth while to notice them separately, or even to treat them as distinct. In no case that I have seen is the variegation at all striking, and, except in tree collections, variegated Hornbeams are hardly worth growing.

CARPINUS ORIENTALIS * (the Oriental Hornbeam) principally differs from our native species in its smaller size, the lesser leaves with downy petioles, and the green, much-lacerated bractlets. It is a native of the south of Europe, whence it extends to the Caucasus, and probably also to China; the *Carpinus Turczaninovi* of Hance scarcely seems to differ, in any material point at any rate, from western examples of *C. orientalis*. According to Loudon, it was introduced to this country by Philip Miller in 1739, and there is no doubt that it is far from common even now. It is, however, well worth growing; the short twiggy branches, densely clothed with dark green leaves, form a thoroughly efficient screen. The plant bears cutting quite as well as the common Hornbeam, and wherever the latter will grow this will also succeed. In that very interesting compilation, "Hortus Collinsonianus," the following memorandum occurs: "The Eastern Hornbeam was raised from seed sent me from Persia, procured by Dr. Mounsey, physician to the Czarina. Received it August 2, 1751, and sowed it directly; next year (1752) the Hornbeam came up, which was the original of all in England. Mr. Gordon soon increased it, and so it came into the gardens of the curious. At the same time, from the same source, were raised a new *Acacia*, a *Quince*, and a *Bermudiana*, the former very different from any in our gardens." This memorandum was probably written from recollection long afterwards, with an error in the dates, and the species was first entered in the catalogue as follows: "Azad, arbor persica *carpinus folio*, Persian Hornbeam, raised from seed, anno 1747; not in England before." It appears, however, from Rand's "Index" that there was a plant of it in the Chelsea Garden in 1739. The name *duinensis* was given by Scopoli, because of his having first found it wild at Duino. As, however, Miller had previously described it under the name *orientalis*, that one is adopted in accordance with the rule of priority, by which must be decided all such questions in nomenclature.

THE AMERICAN HORNBEAM,† also known under the names of Blue Beech, Water Beech, and Iron Wood, although a less tree than our native species, which it resembles a good deal in size of foliage and general aspect, is nevertheless a most desirable one for the park or pleasure ground, on account of the gorgeous tint assumed by the decaying leaves in autumn. Emerson, in his "Trees and Shrubs of Massachusetts," pays a just tribute to this tree from a decorative standpoint. He says "The crimson, scarlet, and orange of its autumnal colours, mingling into a rich purplish red, as seen at a distance, make it rank in splendour almost with the *Tupelo* and the scarlet Oak. It is easily cultivated and should have a

* IDENTIFICATION.—*Carpinus orientalis*, Miller, "Gardener's Dictionary," ed. 6 (1771); La Marche, Dict. i., 107; Watson, "Dendrologia Britannica," ii., tab. 98; Reich, Ic. fl. Germ. et Helvet., xxii., fig. 1298; Tenore, "Flora Neapolitana," v., 264; Loudon, Arb. et Fruticet. Brit., iii., 2014, Encycl. Trees and Shrubs, p. 918; Koch, "Dendrologie," zweite, theil zweite, abtheil., p. 4. *C. duinensis*, Scopoli, "Flora Carniolica," 2 ed., ii., 243, tab. 60; Bertoloni, "Flora Italica," x., 233; Alph. De Candolle in Prodr., xvi. (ii.), 126.

† IDENTIFICATION.—*Carpinus caroliniana*, Walter, "Flora Caroliniana," 236; *C. americana*, Michx. fl. bor. Amer., ii., 201; Michx. f. Hist. des Arbres Forestiers de l'Amerique Septentrionale, iii., 57, tab. 8; Watson, "Dendrologia Britannica," ii., 157; Gray, "Manual of the Botany of the Northern United States," p. 457.

corner in every collection of trees." It has pointed, ovate-oblong, sharply doubly serrate, nearly smooth leaves. The acute bractlets are three-lobed, halberd-shaped, sparingly cut-toothed on one side.

over thickly with cart grease. This was supposed to protect them, and besides gave them a less objectionable appearance. Where the wounds were very conspicuous the grease was coated over

gnaw the bark off our young Peach trees, and a dressing of tar mixture effectively checked this, and has not apparently had the least injurious effect on the health of the trees, nor on the swelling of the stems. Gas tar applied in a heated state would be penetrating, but I do not believe in a serious injury accruing from using it as a cold dressing.—W. I. M.



A full grown Hornbeam in winter.

Professor C. S. Sargent, in his catalogue of the "Forest Trees of North America," gives the distribution, &c., of the American Hornbeam as follows: "Northern Nova Scotia and New Brunswick, through the valley of St. Lawrence and Lower Ottawa Rivers, along the northern shores of Lake Huron to Northern Wisconsin and Minnesota; south to Florida and Eastern Texas. Wood resembling that of *Ostrya* (Hop Hornbeam). At the north generally a shrub or small tree, but becoming, in the Southern Alleghany Mountains, a tree sometimes 50 feet in height, with a trunk 2 feet to 3 feet in diameter." It will almost grow in any soil or exposition in this country.

*CARPINUS VIMINEA** is a rather striking species with long-pointed leaves; the accompanying figure scarcely gives a sufficiently clear representation of their long tail-like prolongations. Judging from the height at which it grows, it would probably prove hardy in this country, and, if so, the distinct aspect and graceful habit of the tree would render it a decided acquisition. It is a moderate sized tree, with thin grey bark and slender drooping warted branches. The blade of the smooth leaves measures from 3 inches to 4 inches in length, the hairy leaf-stalk being about half-an-inch long. It is a native of Himalaya, where it occurs at elevations of from 5000 feet to 7000 feet above sea-level. As in our common Hornbeam, the male catkins appear before the leaves and the female flowers develop in spring at the same time as the leaves. The hard, yellowish white wood—a cubic foot of which weighs 50 lbs.—is used for ordinary building purposes by the natives of Nepal. GEORGE NICHOLSON.

Royal Gardens, Kew.

Dressing for tree wounds.—I had at one time a good deal to do with park trees as well as trees in hedgerows near roads. We were frequently lopping off the lower limbs of both large and small trees, and in every case the wounds were carefully trimmed and then smeared

with powdered soil. The stems of any trees or shrubs we wished to render obnoxious to either rabbits or voles were coated over with the same



Carpinus Betulus. Full grown tree at Chiswick, 45 feet high in 1844.

kind of grease, to which was added gas tar, and very rarely did this fail to have the desired effect. No apparent injury was sustained by the tree from a liberal use of the tar; in fact, I have unhesitatingly employed it in mixture with clay and water on the stems of all kinds of fruit trees to preserve them from hares. Mice commenced to

every tree should be carefully examined, and the dead wood, of which there is sure to be some, removed. If the specimens do not grow vigorously

* A paper read by Mr. W. C. Barry, Mount Hope Nurseries, Rochester, by request before the American Association of Nurserymen, Florists, and Seedsmen, at their annual meeting, at St. Louis, June 20, 1883.

* IDENTIFICATION.—*Carpinus viminea*, Lindl. in Wall. Plant. Asiat. Bar., ii, p. 4, t. 106; D. C. Prodr., xvi, ii, 127. Loudon, "Arboretum et Fruticetum Britannicum," iii, p. 2014; Encycl. of Trees and Shrubs, p. 919. Brandis, "Forest Flora," 492.

enough, give them more nourishment and cut them back severely. These are simple hints regarding their treatment, but nevertheless important, and if suggestions are carried out, success can be recorded in the future where failure has been experienced in the past. The best varieties for general use are as follows: The normal form or type, polymorphum, is a tree of small stature, medium growth, and regular outline, having rather slender branches, and small handsome foliage of a pleasing green colour during the summer, but turning to a rich crimson in the autumn. This species is, I think, destined to become very popular. The variety *sanguineum* is a dwarf tree having rich red foliage, which holds its bright colour till the middle of summer. During the months of June and July a plant of it is a very conspicuous and attractive object upon the lawn. *Atropurpureum* is another variety of moderate growth, having purple leaves, and when planted with the above produces an effective contrast. *Atropurpureum dissectum* has slender branches, which show a strong tendency to droop, and its leaves are delicately cut, resembling Fern leaves, and of a beautiful purple shade. *Japonicum* is another very distinct species of medium growth with large, handsome, bright green leaves, the edges of which are scalloped. It grows more vigorously than polymorphum and its varieties, and bears some resemblance to the red Colchic Maple. There are several other varieties and forms, but these are the most beautiful and useful. Now a suggestion with regard to the manner of planting. As these trees are what are termed slow growers, it takes some time for them to become effective; hence, we advise the planter to arrange them in groups consisting of three or six plants. A very satisfactory effect will thus be quickly realised, and every year the group will become more elegant and attractive. For several years the propagation of these Maples has been conducted on a very limited scale, owing to the difficulty of procuring stocks to graft upon, and the price of plants has consequently been quite high. These obstacles having been removed, we may hope soon to obtain these beautiful dwarf trees at a moderate cost. Two new varieties of the

NORWAY MAPLE

have recently been introduced from Germany, and promise to become important acquisitions. These are *Schwedleri* and *Reichenbachii*. Both have the vigorous, elegant, clean growth for which the type is so justly esteemed. *Schwedleri* has bronzed purple leaves, which appear to the best advantage during the spring time and early summer. As the season advances the leaves change to a duller shade, which is less attractive. But in this respect it differs little from purple-leaved trees generally, as they all lose their richest tints during the hot summer days. *Reichenbachii* Maple is of quite recent introduction, and while its foliage lacks the richness and brilliancy of colour for which *Schwedleri* is noted, its purple shade is more enduring and lasts till late in the season. *Lorbergi*'s cut-leaved Norway Maple is also quite new, but it does not differ enough from the old variety *dissectum* to be of much value; at least such is my opinion of it at present. *Dissectum* is a rare and handsome variety, and has always been scarce, owing to the difficulty which nurserymen experienced in obtaining saleable specimens, its growth being always more or less crooked. *Lorbergi* seems to be a better grower, and as it can be propagated more successfully, it may displace *dissectum*. Among cut-leaved trees both deserve our highest regard, as their leaves are deeply cut and they form elegant specimens. *Woorle's* golden-leaved Sycamore, a recent novelty from Germany, has superb yellow-tinted leaves which render the tree remarkably showy in spring and early summer. Planted with purple-leaved trees the effect is charming. The yellow hue is not of the character which indicates lack of health; on the contrary, it has a richness and depth betokening extreme vigour. Still another interesting form of the Norway is the curled-leaved. The leaves are of the usual size, but the lobes curl and turn inwards in a curious manner, giving to the tree a unique

aspect. This variety must not be confounded with the Eagle's-claw, from which it is very distinct. *Acer tataricum ginnala* is an ornamental variety of the Tartarian Maple, of rather slender yet vigorous growth, rounded, regular form and having small or medium sized foliage. Its health, freedom from insects, hardiness, and handsome appearance combine to make it a desirable addition to the list of small trees. *Acer velutinum* is a species brought to notice recently, but its origin I am unable to give. In general appearance it somewhat resembles the Sycamore, but the foliage is thicker, of a dark green colour, and the petioles are deep red. The impression I have formed after examining a small specimen is that it will prove to be a distinct tree of considerable merit. Amongst

OTHER TREES

Memminger's Horse Chestnut is a comparatively new tree, having showy, pale yellow foliage, suffused or sprinkled with white. This shade, though peculiar, is effective and beautiful, and a well-developed specimen appears to fine advantage, especially in spring. Later on the delicate tints of its leaves fade under the effects of a scorching sun, and then it reverts to the ordinary form of the Horse Chestnut. *Alnus tiliacea* is a noteworthy tree, having the foliage of a Linden and the growth of an Alder; indeed, few would recognise it as an Alder. Its fine pyramidal form and rich glossy, dark green foliage render it an elegant tree. The large, double-flowering Almond, although it has been known to some extent for many years, deserves mention on account of its rarity. As a flowering tree it has few equals. A specimen about five years old is now in bloom in our grounds, and I cannot refrain from expressing my surprise that so valuable a tree should be so neglected. Every branchlet becomes literally covered with flowers of a delicate pink shade and perfectly double, like small Roses. The double red, double pink, and double white flowering Peaches are exceedingly showy and ornamental, and wherever seen elicit expressions of the highest admiration. How are we to account for their absence even in fine collections? Is it necessary to call them novelties in order to ensure their recognition? At the present time I do not know any subjects more worthy of our attention, and I strongly urge their propagation and dissemination. *Cerasus japonica rosea pendula*, a Weeping Cherry from Japan, lately introduced, is destined to wide-spread popularity. Grafted standard high, its slender branches droop like those of the Kilmarnock Willow, and form a symmetrical head which is sure to please admirers of this class of trees. As the Kilmarnock Willow has become pretty generally disseminated, this introduction has enough merit to be ranked with it, and no doubt public appreciation will be shown in its behalf, and a large demand created for it. *Cercidiphyllum japonicum* is a distinct tree introduced lately from Northern Japan, where it is said to attain a large size. It is pyramidal in form, of vigorous growth, but slender and compact; foliage small, heart-shaped, and somewhat like that of the Judas tree. Specimens have stood out uninjured in our grounds for three years, and we have no doubts as to its hardiness. Its propagation is not easy, hence this promising addition will be rare for some time to come. Variegated-leaved Tulip tree.—We have in this variety similarity of likeness in all respects to the normal form except in the leaves, which are bordered with yellow, the effect of which is most pleasing. The young plants of it which we have seen promise to grow in beauty as they acquire age, and a large well-grown specimen will without doubt prove a most interesting object to lovers of rare and curious trees. *Phellodendron amurense*, or Chinese Cork tree, comes from Manchuria, where it is said to attain the height of 60 feet. In general appearance and rapidity of growth it resembles the *Ailanthus*. Some authorities claim that it is destined to take the place of the *Ailanthus*, being possessed of all the valuable characteristics of that tree without any of its objectionable features. *Quercus concordia*, or Golden Oak, is a variety of the English, which will undoubtedly prove to be a great

favourite with planters as soon as it becomes better known. It is a rapid, vigorous grower, and its leaves are of a rich golden yellow colour, even from the time they appear in spring; and they increase in richness as the season advances, assuming their most charming tints late in the summer and fall. The colour is exceedingly grateful to the eye, and is so enduring, that a specimen in perfection makes an impression which it is not easy to forget. Among golden-leaved trees there is certainly not another which can compare with it, particularly in autumn, and when planted near a purple-leaved tree the effect is grand. The fastigiate Birch is still a rare tree, although it was disseminated some time ago. It has the upright habit of growth and spiry, compact form peculiar to the Lombardy Poplar; hence it is quite unlike any other Birch. It will be found useful to give variety to a landscape, and can be employed where the Poplar could not, owing to the size which the latter attains. A real gem among Magnolias is *Halleana* or *stellata*, which, though it was brought some years ago from Japan, is rarely seen. The Chinese Magnolias, usually cultivated, are distinguished for their size and stately appearance, and are great favourites with the public on account of their remarkable flowers. *Halleana* is quite different from the other varieties, being of a dwarf habit of growth and forming a symmetrical bush. Its blooms appear very early in spring, before those of any other Magnolia, a fact which tends to give additional value to the plant for spring decoration. For the margins of groups or borders it will be found extremely useful, and it is sure to gain numerous admirers wherever it is disseminated. *Van Geert's* golden-leaved Poplar has showy yellow foliage, which renders it a highly effective tree in groups. For a long time we questioned the value of this variety, but its bright and enduring shade makes it conspicuous, and we think it merits attention. The purple Myrtle-leaved Elm is a new variety of medium size, having small Myrtle-like leaves of a dark purple colour. The foliage is pretty and the colour permanent. It has not been my good fortune yet to see large specimens, but, judging from small plants, I think we have in this novelty an addition of high merit. The colour of the leaves is very much darker and more lasting than that of the old variety *campestris purpurea*. There are several other new and very promising kinds of Elms with variegated foliage, but I will defer a consideration of them until they have been better tested. A very well defined and curious variety of the English Elm is that called *monumentalis*. Its habit of growth is erect, compact, and its form conical, resembling, as its name implies, a monument. It grows slowly, and can be employed in small grounds advantageously. *Ulmus Wredei aurea* is a golden-leaved Elm, which bids fair to become very valuable. The leaves have a rich, warm yellow tint, which is permanent, and consequently a fine specimen arrests attention and commands admiration.

SHRUBS.

The common red Dogwood is much esteemed by planters for winter decoration, on account of its dark red or crimson-coloured bark. The variety to which I now draw attention is called *sibirica*, and its bark is of a bright red colour. In the depth of winter the bark is brightest, and a single plant or several together form a most interesting feature in a garden. In the summer its beauty is also apparent, for the foliage is of a pleasing green colour and the white flowers which it produces in spring are followed with purple fruit. This is not by any means a new shrub; nevertheless it is rarely found. Its merits have been withheld from the public long enough, and I trust it will soon receive the recognition to which it is justly entitled. Shrubs of this character are doubly valuable, being ornamental and effective both in summer and in winter. The crimson and red branches of these two varieties when placed in contrast produce a very pleasing result. *Cornus sanguinea elegantissima*.—In this we have a new claimant for public favour. Its origin I cannot give, but when in Europe ten years ago I

found it in one of the nurseries, and was much impressed with its beauty and value. Fancy a red Dogwood with handsomely variegated leaves, or rather having its leaves broadly edged with silvery white. *Cornus mascula variegata* has long been held in high regard on account of its distinctly variegated foliage. In some particulars this new variety of *sanguinea* will surpass it. The variegation is brighter and the shrub more rapid and less formal in its growth; hence it can be made use of in a greater variety of ways. As a new shrub of high promise it will certainly receive a great deal of attention. *Prunus Pissardi*, or purple-leaved Plum, is a novelty sent out from Paris last year. Its leaves are purple, the colour is permanent, and I think this new plant will prove to be an acquisition. A pure white *Weigela* of good habit of growth has long been sought after. During the last few years several so-called white varieties have been ushered into notice, but the flowers nearly always turned out to be blush and frequently rose-coloured. *Hortensis nivea*, the old variety which bears pure white flowers, and which is comparatively well known to nurserymen and florists, has not been disseminated, being extremely difficult to propagate. Its habit of growth also is quite unsatisfactory. Hence *candida*, which is a strong upright grower and an abundant producer of pure white flowers, will at once be pronounced a desideratum. It has the additional merit of being a perpetual bloomer, flowers being upon the plants nearly all summer. Nurserymen will have no difficulty in obtaining a stock, as it can be easily propagated. Other new *Weigelas* which appear to be very promising are *Lavalléei*, a variety with reddish purple flowers, the darkest of any. Its habit, however, is loose and spreading. *Edouard Andre*, a later introduction, bears flowers of a very dark shade, and is a better grower. *P. Duchartre* produces flowers of a clear amaranth shade, which contrasts finely with the yellowish foliage of the plant. *Hendersoni* bears medium-sized flowers of a red colour. Both of these have a good habit and are free bloomers. *Spiraea crataegifolia* is not a new variety, but still quite rare. It resembles the well known lance-leaved in colour, size, and form of the flower, but differs from it in foliage, and it has the valuable characteristic of being more hardy. I consider *lanceolata* a grand shrub, and in localities where it is hardy it comes out in spring, loaded with pure white blooms, and a large plant resembles a mass of snow, affording a striking contrast with the profusion of green which prevails at that season. But it often happens that much of the flowering wood becomes injured; hence an equally fine variety possessing greater hardiness will be an acquisition. I think we shall realise the improved form in *crataegifolia*. While on this subject, I should not fail to refer to another improved variety of *lanceolata*, which has given much satisfaction. It is called *lanceolata robusta*, which appears to be more vigorous hardier, and its flowers are larger. *Spiraea Van Houttei* is another form distinguished for its hardiness. There is another addition to the family of *Spiraeas*. It appears to be closely allied to the type *callosa*, and, like that species, does not grow large, but forms a symmetrical bush and yields an abundance of flowers all summer. Its regular shape and small habit of growth will make it useful for borders of groups, and for planting singly on lawns of small extent. The golden *Syringa* is a most charming golden-leaved shrub. When planted alone or associated with other shrubs in a group, its bright and delicately tinted leaves create a pleasing effect. We now come to the consideration of one of the most important acquisitions made recently—*Xanthoceras sorbifolia*, this being the name of the new aspirant. It comes from Mongolia, or the centre of China, where it was found by the Abbé David, and brought to Paris about 1868 by a Frenchman named Pichou. It is of medium size, forming a shrub or small tree not exceeding 10 feet to 12 feet high. Its leaves resemble somewhat those of the Mountain Ash, and its flowers are five-petalled, white, and reddish copper coloured at the base and disposed in racemes. They appear in the months of April and May about the time when the leaves are

usually developed. The flowers are succeeded by fruit.

Ivy under trees.—This will succeed where Grass refuses to grow, but it ought to be kept on the ground; although it looks well creeping up trees and draping them with its elegant verdure, it will ultimately prove a deadly enemy to them. Ivy will take possession of any tree, and in some cases if allowed its own way will in time kill it. Now that we know the cause of the evil, we strip the Ivy from most trees annually, and it is surprising how those freed from it two or three years ago have regained their health.—CAMBRIAN.

The Hop Hornbeam (*Ostrya virginica*).—IN THE GARDEN (p. 231) a pretty illustration is given of a branch of this tree which, so far as my observation goes, is most truthful. It is evidently a very scarce tree, for it is very seldom seen. The only specimen I know of in this neighbourhood is at Batt's Park, Taunton, the residence of Mr. W. S. Gibbs. In the pleasure grounds at this place there is a fine specimen of it. The trunk is about 7 feet high, and as the top has had plenty of room to grow, it is well proportioned. From the appearance of the scales in autumn I should say that it never ripens seeds in this country.—J. C. C.

Seaside trees and shrubs.—To Mr. Webster's list of these (p. 374) permit me to make the following addition, viz., *Balm of Gilead* Fir (*Abies balsamifera*), cut-leaved and Fern-leaved Beech, variegated Maple, various *Crataegus*, *Cedrus atlantica* and *Deodara*, *Cryptomeria elegans* and *japonica*, *Juniperus tripartita* and *virginiana*, *Libocedrus decurrens*, *Picea nobilis*, *Nordmanniana* and *Pinsapo*, *Pinus Cembra*, *Retinospora obtusa* and *pisifera*, *Taxodium sempervirens*, *Thuja Craigiana* and *Lobbi*, *Thujopsis borealis*, *Cotoneaster acuminata*, *Forsythia suspensa*, and *Phillyreas* in variety.—W. M.

Sweet Bays luxuriate near the sea coast in South Hants, and it is not uncommon to find them well covered with berries on the approach of winter, but to see them literally bending under them as they are this year is indeed rare. I find old trees to be the most prolific seed bearers. Some old stunted specimens in this locality are quite pictures of fruitfulness. Where the Sweet Bay thrives out of doors it forms an excellent hedge plant, its perfumed foliage being highly ornamental at all seasons of the year.—J. G., *Hants*.

SHORT NOTES.—TREES AND SHRUBS.

5086.—Teak.—Allow me to say that Teak wood can be painted like any other wood.—H. A. D.

Rhododendrons.—These, we learn from Knaphill, are very full of bud this autumn. For years so good a promise of blossom has not been seen.

Cotoneaster berries.—Are the berries of *Cotoneaster Simonsi* and *Pyracantha* poisonous to children?—W. J. B. BORN.

* We should say certainly not poisonous. We cannot at the moment call to mind any shrub or tree belonging to the *Rosaceæ* which is poisonous.—ED.

Arbutus tree.—Lady Parker sends us flowering sprays of this from her garden at Stawell House, Richmond. Occasionally it is killed to the ground about London, and therefore not so often met with as doubtless it otherwise would be.

Menziesias.—These, both white and purple, are now beautifully in bloom in Mr. Anthony Waterer's nursery at Knaphill. In the peat soil of that district these Irish Heaths bloom profusely, and have a cheerful appearance at this dull time of the year.

Tulip tree seed.—There are three large Tulip trees here; one of them blooms profusely as a rule every year, and the flowers are very pretty and interesting. They expand in June and July, and in September and October the tree is covered with seed-pods. The latter are rough, coriaceous in shape, and each contains a number of seed about the size of Radish seeds.—J. MUIR, *Margam*.

The Pear-shaped Service.—Among interesting trees to be found in the grounds at Claremont is a good specimen of the Pear-shaped Service, carrying a heavy crop of fruit. It is shut in by numerous Oaks, Planes, &c., on different sides, and consequently its form is not good. It is, however, a fine specimen of this variety, being rather over 60 feet high, and 7 feet 6 inches in girth at 2 feet from the ground.—E. B.

NOTES FROM HECKFIELD.

Grapes cracking.—As there is not forthcoming any other note on this subject, I may be allowed to have a word in reply to the notes that have appeared in response to my invitation at page 129. It will be remembered that in my first communication I had half a notion that peculiarity of soil, or, in other words, that soils of certain districts possessed a property that suited the Madresfield Court, and hence there was no cracking. I may now say that such an idea was purely theoretical, yet honest, as being founded on observation of the well-doing of this Grape in instances which I named. I am not confirmed in this opinion by a solitary correspondent, but I do not intend, without further enquiry, to give up the idea on that account, but mean to have overwhelming proofs to the contrary ere the notion has orders to quit. Meanwhile I thank all who have given us a record of their opinions, despite which there is a good deal of haziness still to be cleared before some of us can confidently undertake to finish off without cracking this in every other respect first-class Grape. The extremes in the state of the borders given by Mr. Crump (p. 191) clearly show that, in his case at all events, cracking is not caused by a dry or wet state of the soil, and his notes as to skin contraction, which are also confirmed by Mr. Sheppard on the same page, are very suggestive, and, taken in conjunction with the latter's experiment of watering in dry weather to keep the border continuously moist, that there might be no check to growth, open out a wide and encouraging line for enquiry and experiment, which I need hardly say will be tested here. I am glad of confirmation in my idea as to atmospheric moisture being the cause of some part of the mischief. Mr. Simpson at page 159 half-heartedly supports this opinion, and in about the same degree upholds Messrs. Crump and Sheppard's opinions as to contraction of skins, either through dryness of roots or atmosphere. At present my own opinion is most strongly in accord with that of Mr. Allsop at page 191, which is that excessive atmospheric vapours are the greatest cause of the mischief. Another year or two's practice will perhaps enable us to solve the difficulty satisfactorily.

English-raised Grapes.—I am glad that Mr. Westcott (p. 383) has come to the rescue of Lady Downes, so summarily dismissed by "J. S. W." at page 347. As an admirer and cultivator of this Grape, it was my intention to have written in defence of it, and my being forestalled by Mr. Westcott shall not hinder me from recording my conviction that, without exception, Lady Downes is the finest late Grape yet in commerce. I make this statement advisedly, and after years of experience in growing all other English varieties of late Grapes, and I say and believe that no late Grape can touch it either in quality, quantity, free bearing, or easy culture. Lady Downes, he says, is the worst Grape to spoil ("spoil" is a misprint for "spot," as will be seen by "J. S. W.'s" correction elsewhere—ED.) that is grown. In what respect does he mean this to apply? Is it in regard to "scalding," to which it certainly is very liable, but which is easily prevented? Is it in regard to quality? Then, thorough maturity, by early starting and autumnal firing, produces that? Is it in regard to keeping properties? No, it surely cannot be that, seeing that it can be well preserved till April and May, and, indeed, on several occasions we have had it in fine condition till June.

Dividing and re-arranging herbaceous plants.—In previous years necessity has compelled us to postpone this work to a later period of the year, and consequently some kinds suffered by being disturbed after growth had commenced, and others being quite dead down, the rightful position as to height could not be decided with certainty, and so we made the resolve that this season nothing should hinder us from an early start at this kind of work. The tall *Delphiniums*, *Helianthus*, *Asters*, *Phloxes*, and, indeed, all tall growers, as also rapid and spreading growers, can be given positions at the

back of borders or in centres of beds, and the spreading kinds all the space they are likely to need for full development, an approximate judgment being formed by the height and spread of the decaying stems. This is an obvious reason for doing such work now, not to mention the importance of moving the plants before new root action has commenced, and the hardly less advantage of earlier neatness, through being able to remove the decaying stems, and of forking the ground between the plants. Every year as the best varieties can be increased by division and other modes of propagation, worthless or inferior kinds should be weeded out, and in this way the collection will soon be brought to the uppermost point of quality. With this aim we have just discarded barrow loads of the commoner Asters, variegated Grasses, and inferior kinds in general. The ground is being as deeply dug and manured between the plants that are left on it as is possible without injury; then the vacancies will be filled in by the plants obtained by division, and the whole mulched with Cocoa fibre, principally on the ground of neatness, but also by reason of its protecting properties, a quality needed more particularly for the plants that have been recently moved.

W. WILDSMITH.

BOOKS.

FLOWERS AND THEIR PEDIGREES.*

THIS is a very remarkable book, in which our author tells us that every one of our English plants and weeds has a long and eventful story of its own. In the days before the illuminating doctrine of evolution had been preached all we could say about them was that they possessed such-and-such a shape and size and colour; and if we had been asked why they were not rounder, or bigger, or bluer than they actually were, we could have given no sufficient reason except that they were made so. But since the great principle of descent with modification has reduced the science of life from chaos to rational order we are able to do much more than that. . . . As a rule traces of all the various stages through which every species has passed are still visibly imprinted upon the very face of existing forms, and one only requires a little care and ingenuity, a little use of comparison and analogy to unravel by their own aid the story of their own remoter pedigree. This is the method which has been followed in the papers that deal with the various modifications of the Daisy, of the Grasses, of the Lilies, of the Strawberry, and of the whole Rose family. . . . In short, these little essays deal first with the evolution of certain plant types in general, and secondly with their presence as naturalised citizens of our own restricted petty, insular commonwealth. This, in brief, is Mr. Allen's programme, and the result is a cleverly written book, and one of considerable interest, since his speculations are highly suggestive, even if not so definitely instructive as we could wish them to be. Following out the

EVOLUTIONARY LINE of speculative argument, we are asked to believe that Strawberries have been derived from dry-fruited Potentillas, that our cultivated wheat ranks by descent as a degenerate and degraded Lily, and that all the Rose family has been evolved not from any existing Potentillas, but from primitive types of which the Potentillas are now the nearest existing representatives in our flora. Mr. Allen takes us backward a step or two in his reasoning and leaves us there, and if, for the sake of argument, we grant that Strawberries really are highly developed Potentillas, we are still left in the dark as to the origin of the assumed type from which the primæval Potentilla itself was derived. Granted that all life came from the protoplasmic vitality found in deep sea ooze, we are still left to wonder how primæval life first came there. In a word, interesting as speculative botany may be, and undoubtedly is, we shall be more likely to make real headway by

actual observation and direct experiment on the plan laid down by the "father of evolution"—Darwin himself. For, after all, speculation may or may not be true. When everyone was aghast at the assumption that man was only a sort of smooth-skinned, tailless ape, a well-known American humourist said he quite believed it, only it had always puzzled him as to where the original ape came from. And so speculation merely leaves us far out in the chartless obscurity of boundless infinity.

Speaking of colour, Mr. Allen tells us that "as flowers advance in type they pass from yellow, which is the lowest colour, through white, pink, red, and lilac to purple and blue, which are the highest; and when through any special cause they begin to retrogress, they pass backward through the same stages in inverse order." All this and much more indeed Mr. Allen explains to us, but why insects should prefer white flowers to yellow ones, or blue to red is not so easy of explanation. It is not yet an absolute certainty that insects can see colour at all. It is easy enough to say that flowers have assumed all these colour changes in order to be benefited by insect visits—that is to say have displayed flaunting petals as a sign that honeyed refreshment may be had within; but this after all teaches us but a little bit of a great subject. Colour is yet, broadly speaking, an unexplained mystery. If flowers and fruit were the only things in the world painted by Nature, the whole thing would be simplified; as it is, however, the hectic flush of a dying leaf is often as brilliant in its way as the opening blossom. Again, as a matter of fact, we have "shells from the ocean and gems from the mine" which are quite as daintily coloured as are the flowers; and when we hear the modern seers of colour beauty expatiating about flowers, we long for an able interpretation of the whole great colour mystery. In a word, while we believe that varied colour is in the long run of some service to the animate part of creation, we still wish to know why hidden rock and gem, shell and coral, should be so lavishly tinted as they undoubtedly are. When Mr. Allen (p. 9) classes insects and country bumpkins together as being seemingly about parallel in taste, he should not have forgotten the molluscous animals who, sluggish as they may be, have instinct enough to make tasteful homes for themselves as well as pearls for our millionaire brides. Besides, both Burns and Clare were country bumpkins. As to colour, we shall ask Mr. Allen whether first of all flowers were not green before they became yellow. In support of this view we have still many green blossoms. Nearly all flowers are green in the early bud stage, and we have still more which open out green and then fade from pure white to yellow as they decay; but why do the white Daffodils open yellowish and end in becoming nearly white? Our own opinion is that all flowers were originally green before they became yellow, and even yet we have many green blossoms, as those of Ivy, Aucuba, and some Tobaccos, while Rhododendron Dalhousiae and the Angraecums among Orchids open out their blossoms quite green, and then change to white, eventually dying off suffused with a yellow hue. It is curious to note, however, *en passant*, that while nearly all biologists agree that floral colour changes have been in the main brought about by insects, no one has thought it worth his while to explain how it was that Coleus, Caladium, Anacochilus, and hosts of other plants have such brilliantly tinted foliage. Why should the abortive flowers of the common Hydrangea have such an extensive scale of colour, ranging from green, through white, pink, and deep rose to a clear bluish lilac tint? Or, again, why should some tubers become highly coloured even underground? Those of Potatoes vary from yellow to pink, rose, and purple; some, indeed, are nearly black. The tubers of *Tropæolum tuberosum* are yellow, painted with purple, while those of *Ullucus* are bright red or crimson. Surely

TUBEROUS ROOTS are not thus made attractive in order that they may be eaten. Mr. Allen's method of reasoning does not convince us, and

differs from that of Darwin and most other evolutionists in being helped forward by mere assertion—simple "guesses at truth," which may or may not be true, rather than by experiment. Scarcely a solitary experiment is even so much as quoted in support of the author's theories, and no cultivator, much less a lawyer, would for a moment accept the author's unsupported evidence as Gospel truth. At the same time an author who boldly attempts to explain matters connected with vegetation, which many of us believe to be now utterly unexplainable, deserves credit for a certain amount of courage; but as a method of ordinary research into the workings of Nature, Mr. Allen's plan is not likely to give us the best results. Let us have imagination by all means; give us assertion also; but before Mr. Allen tries to make us believe that wheat is a degenerate or degraded Lily, or that Strawberries are ennobled white-flowered Potentillas, he must have recourse to direct experiment in some way or other and give us facts in support of his assertions. No true argument can ever be supported by observations on the superficial appearance of plants, which are most deceptive, and such resemblances are, as we know, often intended to conceal relationships rather than to reveal them. If the author can by culture or hybridism produce Strawberries from Potentillas, or give us better wheat than we have already by degrading the Lily, we shall take back all we have said against his line of argument; but as matters now stand we absolutely refuse to believe in him as a prophet, or that he is the Elisha on whom the mantle of Darwin has fallen. At the same time, although we object to the author's method, the work itself as a book is well worth reading. Indeed, not to have read it will be an actual loss to any student of botany or of Nature, either wholly or in part. F. W. B.

GARDEN DESTROYERS.

NEW INSECT PEST.

THE insect mentioned by me in "Treatment of Crotons," pp. 268 and 269, Oct. 6, 1883, and of which "J. H., Sussex," seeks further information is certainly not red spider. When troubled with this insect, I watched it closely for weeks together and tried various remedies, but could not succeed in exterminating it till I resorted to the system that we have invariably followed since that time, of keeping a small bag of soot in the water tank from which the supplies were drawn for syringing and watering purposes. Into a tank holding about 200 gallons of water we put about 2 quarts of soot tied in a bag. After using the soot water a few weeks we found the insect in question to be disappearing, and the Crotons to be making headway as regards the development of young foliage such as they had not done for a long time previously. With us the insect just alluded to attacked the growing foliage, not that which was perfected, causing all the young leaves on some shoots to drop off, even to the smallest leaf that was scarcely discernible, the point of the shoot becoming, as it were, blind and having a rusty appearance. When first attacked, the leaves seemed to thicken rather than develop in a natural manner; after that they fell off in showers when the plant was sharply shaken. The same insect was troublesome in the case of a large Stephanotis, affecting it in a similar manner, the young leaves turning yellow and dropping off, even to the points of the shoots. Young freshly planted Vines were also attacked by it; the injured foliage partook of a rusty hue, eventually dropped off, and the points of the shoots became blind. The insect which committed these depredations was smaller than the red spider, and moved about far more rapidly. Without a magnifying glass it was scarcely discernible. After using the "soot" remedy on the Vines, they quickly regained their former healthy condition; the next season (1879) but very few leaves were affected, and these were soon cleared by means of extra applications of the syringe. Now and then we find a point of the growth of a Croton or two

*"Flowers and their Pedigrees." By Grant Allen. Pp. 286. Illustrated. London: Longmans, Green & Co. 1883.

attacked where the plant escaped the soot water, but we do not fear the pest now. We keep to this remedy constantly, believing prevention to be better than cure. I have heard other cultivators complain of the same insect being troublesome in the case of newly planted Vines. After the second season it does not appear to gain a foothold. It did not do so at any rate in our case. In using the soot, care should be taken to procure it as pure as possible, and from chimneys that are not connected with furnaces in which coke is burnt or any other deleterious combustible.

J. HUDSON.

Grubs and weeds.—At this time of year, when much garden ground is necessarily lying idle, every care should be taken that it is not harbouring insects, which it is sure to do if weeds and the remains of the last crop are allowed to cover it. Many insects, such as wireworms, may be kept alive by feeding on them until the ground is recropped, when they are sure to attack, the new crop when it is least in a condition to bear it. Now if the ground had been properly cleaned, the insects in it must have starved or moved to other quarters; in either case the new crop would not be injured by them. It is a common practice in trenching ground to dig in all weeds, &c. This, no doubt, is useful if they are buried so deep that they are sure to die; but some weeds have a wonderful amount of vitality, and if carelessly dug in, suffer little, and may still support insect life. It is safer to pull them up and burn them. When digging, a sharp look-out should be kept for chrysalides and grubs, many of which will be killed, however, if the trenching be properly done, as they may mostly be found within a few inches of the surface, and if buried at the bottom of a trench, will be killed. There is no better method of preventing an attack by the grubs of the Gooseberry sawfly than removing the earth from under the bushes to a depth of 3 inches and replacing it with fresh soil, as the chrysalides of these grubs are found in the ground under the bushes.—G. S. S.

GARDEN IN THE HOUSE.

Evergreen branches indoor.—How much may be done with the foliage of hardy trees and shrubs in the way of indoor or room decoration can only be realised by those who have tried it; the fact is, dwellers in rural districts are so surrounded with luxuriant foliage at all times and seasons, that they seldom think of bringing anything so common indoors except at Christmas time. But in towns where people are not so happily situated any bit of evergreen is prized, and I have frequently seen results surpassing all studied combinations made by simply taking good-sized branches of any kind of evergreen tree or shrub, such as the Laurel, Bay, Laurustinus, Ivy, Conifers, &c., and dropping them into good-sized vases, either all of one kind or mixed. Large pieces of the common Ivy covered with bloom, and later on with black shining berries, are very ornamental, and for garnishing or fringing large trumpet vases I have found long shoots of the common Bramble to be very effective; the leaves put on rich tints of autumnal colouring that deepen as the winter advances. The feathery plumes of the Pampas Grass look well indoors, and so do the seed-pods of the Gladwin (*Iris foetidissima*), while berry-bearing shrubs are useful as regards giving colour to mixed decoration. Without, therefore, any assistance from exotic vegetation, one can have indoor rooms cheerfully decorated, even in the dark days of winter.—J. GROOM, *Gosport*.

Wild fruits.—How is it that wild fruits are not more used than they are for decorative purposes instead of flowers, or to associate with them, for what can be more effective or beautiful than many of them are? and how suitable they would be at this season for the embellishment of rooms and dinner tables, associated with some of the branches, clothed with lovely tinted leaves that are so rich and abundant on almost every deciduous tree and shrub at this time. For epergnes

or vases with tall stems, there are the two kinds of Ampelopsis, with their fiery foliage, and plenty of variegated Ivies which might be used to hang down, and for the centre part there are no end of things that bear berries which are bright in colour and elegant in form and appearance. Among these, the hips of the Sweet Brier may be named, bushes of which this year are all aglow with them, and the branches quite borne down by the weight of their load. These are of great use, and, by way of contrast, a few sprigs of Blackberry come in well; then there is the Traveller's Joy, *Clematis Vitalba*, with its bearded heads of seeds that are always such an ornament during the later months of the year. *Cotoneasters*, *Pyrus*, and the many kinds of *Cratægus* all afford bright berries, and the Laurels just now are a sight, with their long racemes of fruit. As a relief to these and the others, dried heads of ornamental Grasses mix well, and if placed together lightly, may be made to form a group quite unequalled for beauty.—S. D.

ORCHIDS.

ORCHID NOTES.

THE October number of the "Orchid Album" contains a coloured plate of *Cypripedium melanophthalmum*, concerning which the editor remarks "that it is a pretty plant," and that is about as much as can be said for it. It is evidently a *C. venustum* cross and allied to *C. politum*, a coloured plate of which was published last year with one of *C. chloroneurum*. To one acquainted with the many fine hybrid forms of *Cypripedium* raised in Messrs. Veitch's nursery it does not seem worth while to devote three coloured plates to varieties of *C. venustum*. The editor further remarks that the stems "are long and firm, which makes them valuable for cutting purposes." As much as this may be said of all this class of Orchids. They last long in good condition, and those that flower in winter are even more useful than those that bloom in summer. *Masdevallia Harryana miniata* (plate 110) is evidently a distinct and fine form of that species. The flowers are described as "scarlet-vermilion, with a bright yellow eye." This fine species has been flowered in Mr. Lee's collection at Downside, where Orchids of this class are remarkably well grown. The system of culture adopted is to "diffuse a great deal of moisture about the house during summer, and the soil they are growing in is kept very moist." *Odontoglossum elegans* (plate 111) represents presumably a form of *O. cirrhosum*. The pseudo-bulbs and shape of the flowers are both of that species, but the latter are spotted and blotched as in *O. Halli*. It is figured from Mr. Pollett's collection at Bickley, and no doubt requires cool treatment. The nomenclature of Orchids again crops up here. The editor remarks that "This particular plant has been distinguished as Pollett's variety, an unwieldy form of naming, which we prefer not to adopt." *Cattleya Skinneri alba* (plate 112) represents a charming form of this species. The flowers are snow white, with the exception of a sulphur colour and slight stain of rose on the exterior part of the base of the lip. It is stated to "require more warmth than most *Cattleyas*. When growth is finished in autumn, very little water should be given, and during winter just sufficient to keep the stems plump." Many growers fancy that *Cattleya Skinneri* and its varieties require cool treatment, but I grew them most successfully in a house in which the temperature was rather over 60° than under that point during the winter months. The main point in the culture of this, as indeed in that of most *Cattleyas*, is keeping them moderately dry while at rest and watering freely when they are forming roots.

J. DOUGLAS.

Dove plant.—No plant is easier to bloom than this. I have never failed in blooming for the past seven years. "J. S.'s" plant (p. 400) having made large bulbs, has now only to be

rested until the end of February. It will not require water more than once a month. In a *Cattleya* or intermediate house, about the time stated, the young growth will be seen pushing, when the plant should be repotted. In his case the material used for this is of little consequence. His plant having made large bulbs, he cannot do better than stick to the bridge that has carried him over, large bulbs being the key to a good bloom. I myself use peat, Sphagnum, leaf soil, and silver sand, though I have bloomed it in loam; I, however, prefer the compost just named, as being less likely to get sour. The spikes push up from the young growths when only a few inches high—growth and spike growing together apace. The usual time of blooming is July and August. I have several times had thirty-five flowers on a spike.—A. G. CATT, *Silverdale Lodge, Sydenham*.

Paphinia grandis.—A drawing of this handsome Orchid has been sent to us by W. Williams, Sugnall, Eccleshall. *P. grandis* may be best described as a magnified *P. cristata*, being similar in growth and with flowers of the same form and colour, but twice their size. The drawing represents a fine specimen in a suspended pan, and having two pendulous spikes produced from the base of the bulbs. The colour is a rich reddish brown with a conspicuous white crest on the labellum.

5084.—**Cypripedium insigne**, placed as described (p. 401) in a cold frame during the summer, should for some weeks have been in a house or pit with a little warmth. If the plants have been well attended to during the time they have been in the cold frame and are strong and healthy, they should now be full of flower—either open or fast approaching that condition. This *Cypripedium* should never be kept dry in the way in which Orchids that need a lengthened period of rest require. During the season of growth and onwards as the flowers appear until after the blooming is over, the soil should be well supplied with water; afterwards until growth is about to begin give less water, but never let the roots get so dry as to cause the leaves to shrink.—T. B.

Odontoglossum vexillarium.—To see the small-flowered forms of *vexillarium* in flower in October and November is usual, and we do not feel surprised when we notice them; but to see the large, bold-flowered *Frontino* varieties in bloom now is uncommon, and I do not remember having come across them in bloom in the autumn before. At Fernside, Bickley, Mr. Pollett grows *O. vexillarium* certainly up to an unusual standard of excellence. I noticed this spring the fine condition of the plants, and now in November a good sprinkling of them is in flower or bud. In its native country this Orchid flowers, like *Roezli* and many others, twice a year, and to gain this point here certainly indicates the unusual amount of vigour and health which the plants possess.—F. SANDER.

SHORT NOTES.—ORCHIDS.

Phalæopsis Sanderiana.—I bought some plants of this at a sale this spring, paying a good price for them, but am much disappointed at finding that, instead of *Sander's Phalæopsis*, I have got *P. rosea*. I suppose the most careful collector cannot avoid mixing plants in some cases; still, in that of rare plants no pains should be spared to prevent mixtures of this kind.—B.

Oncidium bracteatum.—A good plant of this rare *Oncidium* is now in flower in the Orchid house at Kew. It bears over a dozen spikes, upwards of 2 feet long, and is ornamented with hundreds of yellow flowers spotted with brown. The scabrous peduncles and great spatheous bracts are a peculiar characteristic of this species, whilst in the beauty and grace of the flowers it possesses claims superior to those of most Orchids, especially as they are produced so freely and remain on the plant so long.—B.

Cattleya labiata.—At Birdhill, near Clonmel, the autumn-flowering variety of this *Cattleya* was in bloom the other day. The flowers were 7 inches across, of the richest lilac-purple, shading to soft rose, while the tints and wavy markings of the expanded labellum defy word painting. The plant is a memento, kept by Mr. Gough, of his old friend, Mr. Bain, formerly of the College Botanic Gardens, Dublin, and has now two spikes bearing eight magnificent blooms. The scent is perceptible on entering the house. An expert has valued this specimen as worth at least 50 guineas.—W. J. MURPHY.

Vanda cœrulea.—A spike carrying thirteen flowers of a remarkably fine variety of this lovely Orchid has been sent to us by Mr. Denny from Sir W. Marriott's garden, The Down House, Blandford. We have seen much finer varieties as regards the size of the flowers and the breadth of the sepals, but the colour is uncommonly rich, being a violet-blue exquisitely tessellated with pale lavender. There is a wide difference between the washy coloured forms one often sees of this Orchid and such a richly coloured kind as that in question. Mr. Denny draws our attention to a singular fusion of two flowers on the spike he has sent. It occurs at its termination, and has a singular appearance.

JERSEY FRUIT SHOW.

THE fruit show of the horticultural department of the Royal Jersey Agricultural and Horticultural Society, which took place at St. Heliers on the 17th ult., gives us an opportunity to record the sizes and weights of a few of the most popular Pears grown in that island. There was upwards of 800 entries, and after the destructive storm which swept over the island in September, denuding many of the trees of all their best fruit, the display was astonishing to look upon as a whole, and it was only when we came to examine closely and weigh the Chaumontels, Belle de Jerseys, Doyenné du Comice, &c., that we could discover there really was a falling off in size. Miscellaneous fruits were fairly good, including Grapes, Melons, and Tomatoes. The largest prize winners were Messrs. De Faye, Robin, Bashford, Gosset, Langlois, Henry, De Guelle, Maret, and Neil.

The Pears above alluded to were Ann Audusson, 10 oz., 4 inches long, $3\frac{1}{2}$ inches diameter. A nice looking Pear, said to be a good bearer, either as a standard or against a wall. Ripe in October and November. Belle de Jersey (Uvedale's St. Germain): This is about the finest and handsomest of baking Pears, and has been exhibited in Jersey up to $3\frac{1}{2}$ lbs. On the present occasion a fair specimen just turned the scales at 30 oz., measuring $8\frac{1}{2}$ inches long, $4\frac{1}{2}$ inches diameter, the best 25 fruit weighing $32\frac{1}{2}$ lbs. Will keep till April. Bergamotte Espere: An uneven shaped Pear, good quality. Tree hardy and good bearer. 8 oz., 3 inches by 3 inches. Ripe from December to February. Beurré d'Aremberg: This is the Glou Morceau of English gardens and of Hogg's Manual. It is a splendid fruit, but the tree is so tender that it requires the protection of a wall to bring its fruit to the highest perfection even in these islands. A fair specimen weighed $13\frac{1}{2}$ oz., and measured $4\frac{1}{2}$ inches in length and $3\frac{1}{2}$ inches in diameter. Ripe in November and December. Beurré Bachelier: A very handsome fruit of good quality. Tree hardy and a good bearer. $15\frac{1}{2}$ oz., $4\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches in diameter. Ripe in November and December. Beurré Diel: This is a favourite Pear in these islands, as elsewhere. The tree is a good cropper, either as a standard, bush, or trained against a wall. From the latter position the finest exhibition fruit is obtained. Fair specimen, 16 oz., 5 inches long, 4 inches in diameter. Ripe in November and December. Beurré Clairgeau: A very handsome Pear of second quality, usually comes very large, but was not shown in good form this season, weighing only 15 oz., and measuring $4\frac{1}{2}$ inches in length, and $3\frac{1}{2}$ inches in diameter. Ripe in November. Beurré Rance: Rather uneven in shape and size. 8 oz., 4 inches long, 3 inches diameter. Ripe November and December. Beurré Six: Smooth green Pear of first quality. 9 oz., 4 inches long, 3 inches diameter. Ripe in November and December. Beurré Noisette, Duc de Nemours (Leroy): A specimen of this shown weighed 9 oz., $3\frac{1}{2}$ inches long, 3 inches diameter. Beurré de Fais: 8 oz., $3\frac{1}{2}$ inches long, 3 inches diameter. We are unable to identify this with the Beurré Defays of Leroy, the Doyenné de Fays of the same author, or the Doyenné Defais of Hogg. The specimen does not answer the description of either to our satisfaction. Beurré Superfin: Beautifully even-shaped, handsome Pear, of good quality. Tree

a good bearer. $12\frac{1}{2}$ oz., 4 inches long, $3\frac{1}{2}$ inches diameter. Besides Veterans (Leroy): A fine Pear of even shape, 12 oz., 4 inches long, $3\frac{1}{2}$ inches diameter. Tree said to be excellent bearer, quality second rate. Ripe in November, and might be kept till March. Brown Beurré, Beurré Gris (Leroy): A good dessert Pear. Tree a good bearer. Specimen shown 9 oz., $4\frac{1}{2}$ inches long, 3 inches diameter. Ripe in October. Broompark: Small fruit of very excellent quality and tree a great bearer. 7 oz., 3 inches long, $3\frac{1}{2}$ inches diameter. Ripe in November. Calebasse Grosse (Hogg), Van Maren (Leroy): This is a very distinct Pear, very long in proportion to its diameter, and completely covered with a dull brown russet. Specimen shown weighed 22 oz., 8 inches long, $4\frac{1}{2}$ inches diameter. It is of second-rate quality. Ripe in October and November. Catillac (Pound Pear): A fine, large, round baking Pear. Tree a good bearer. The best twenty-five fruit weighed 25 lbs., one good specimen $22\frac{1}{2}$ oz., and measured 5 inches long, $4\frac{1}{2}$ inches diameter. Will keep till April. Crasanne, Bergamotte Crasane (Leroy): Typical fruit of this sort is round, flattened at the stalk and eye, but they vary very much when grown under different conditions. $9\frac{1}{2}$ oz., $3\frac{1}{2}$ inches by $3\frac{1}{2}$ inches. Ripe in November and December. Doyenné du Comice: This sort produced the handsomest lot of fruit in the show; it is rapidly rising in public estimation and is likely to supersede the Chaumontel, as it has all the good qualities of that sort, and is a much handsomer fruit. The tree is hardy, but the finest fruit are obtained from wall trees. A good specimen weighed 17 oz., and measured $4\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches in diameter. Ripe in November and December. De Tongre: A very showy high coloured fruit, of fair quality, golden yellow with bronze red on the sunny side. 15 oz., $5\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches in diameter. Ripe in October. Doyenné Boussoch: A very handsome Pear of fair quality, of even outline, full and round about the eye, pale yellow in colour, with golden russet around the eye, and grey russet about the stalk. 12 oz., 4 inches long, $3\frac{1}{2}$ inches in diameter. Ripe in October. The fruit exhibited does not answer Leroy's outline figure. Doyenné Sterckmans (Leroy), Beurré Sterckmans (Hogg): 10 oz., 4 inches long, $3\frac{1}{2}$ inches in diameter. Ripe in December. Doyenné Siene: 8 oz., $3\frac{1}{2}$ inches long, 3 inches diameter. The Pear shown under this name seems to answer the description of Leroy's Doyenné Sieulle, which is described to be variable in quality and oftener second than first-rate.

Other Pears were—Duchesse d'Angoulême: The tree of this very popular sort is hardy and a good bearer as a standard or bush, nevertheless the finest fruit is obtained from wall trees. A fair specimen of this weighed 18 oz and measured $1\frac{1}{2}$ inches long and $4\frac{1}{2}$ inches diameter. Ripe in November. Duchesse de Bordeaux: A handsome medium size Pear of good quality. 10 oz., $3\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches diameter. Tree is said to be a good and constant bearer. Fruit begins to ripen in December, and will keep for two or three months. Easter Beurré (Hogg) Doyenné d'Hiver (Leroy): This was shown under the name of Bergamotte Pentecôte, one of its numerous synonyms, specimen shown, 13 oz., $3\frac{1}{2}$ inches long and $3\frac{1}{2}$ inches diameter. A well known Pear of the very first quality, will keep till April, though often ripe enough to use in January. Forelle (Trout Pear): A very distinct sort of good quality. Tree hardy and good bearer. Specimen shown 9 oz., $4\frac{1}{2}$ inches long, 3 inches diameter. Fit for use from October to January. Gilgil (Hogg), Gilles-à-Gilles (Leroy): A very fine nearly round fruit, almost completely covered with a greyish brown russet; it is a very late keeper. 14 oz., 4 in. by 4 in. Stewing. Graslin: Rather small. 9 oz., $3\frac{1}{2}$ by 3 inches. Tree strong, hardy, and a good bearer, fruit of good quality. Ripe in November. General Tottleben (Leroy): A large handsome sort of good quality ripe in October. Specimen weighed $17\frac{1}{2}$ oz., and measured $5\frac{1}{2}$ inches long by $3\frac{1}{2}$ inches in diameter. Jules d'Airolles: A small highly-coloured fruit of good quality. 6 oz., 4 inches long, $2\frac{1}{2}$ in. diameter. Ripe in October and November. Jean van Ghiers: We have been unable to find

any record of this sort. The Jean de Witte, of Leroy, comes nearest in name and description to any we can find. The specimen exhibited weighed 8 oz., and measured $3\frac{1}{2}$ inches long, 3 inches diameter. It is a very handsome fruit, deep yellow, patched with russet. King Edward: A very large Pear, second quality, as a dessert fruit, first-rate cooking. Fair specimen 20 oz., $5\frac{1}{2}$ inches long, $4\frac{1}{2}$ inches diameter. Ripe in October. Louise Bonne of Jersey: The specimen of this popular sort exhibited was not of fair size, 8 oz. only, and measuring 4 inches long, 3 inches diameter. Ripe in October. Lucie Audusson: A fine Pear of good quality, rather new. Specimen exhibited 12 oz., measuring 5 inches by $3\frac{1}{2}$ inches. Marie Louise: This Pear come to great perfection in these islands. The tree grows remarkably strong as a bush or pyramid, and bears well. The specimens exhibited were remarkably handsome, weighing 13 oz., and measuring 5 inches long, $3\frac{1}{2}$ diameter. Matthew's Eliza, Bergamotte Eliza Matthews, of Leroy's, and is said also to be the same as Groom's Princess Royal (Hogg), the description of which it answers. 8 oz., 3 inches by 3 inches. Ripe in December to January. Maréchal de Cour (Leroy), Conseiller de la Cour (Hogg): Fine fruit of fairly good quality. Tree hardy and a good cropper. $14\frac{1}{2}$ oz., 5 inches by 4 inches. Ripe in October. Nouveau Poiteau: Very handsome fruit of the first quality. Tree strong and a remarkably good bearer. Specimen exhibited, 13 oz., measuring 5 inches long and $3\frac{1}{2}$ inches diameter. Ripe in November. Passe Colmar: A medium-sized fruit of first-rate quality. Specimen exhibited weighed 8 oz., and measured $3\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches in diameter. Ripe in November and December. St. Germain: This old sort was not exhibited in good form, if true, but we have some doubt of its being the St. Germain of Miller, Lindley, and Hogg, or the St. Germain d'Hiver of Leroy. The best specimen exhibited just turned the scales at 8 oz., $3\frac{1}{2}$ inches long, 3 inches diameter. Ripe in November. Soldat Laboureur: This, we believe, is the same as the Beurré d'Aremberg of English gardens, a smallish pale yellow russet Pear of first-rate quality. The tree is a good bearer. Specimen, 8 oz., $3\frac{1}{2}$ inches long, 3 inches diameter. Ripe in October and November. Triomphe de Jodoigne: A fine large Pear, rather second-rate quality. Weight $15\frac{1}{2}$ oz., $4\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches diameter. Ripe November to January. Urbaniste: Fruit of good quality. 6 oz., $3\frac{1}{2}$ inches by 3 inches. This is small for the sort if true. Ripe in October. Van Mons Leon Leclerc: A truly handsome Pear as shown. $15\frac{1}{2}$ oz., $4\frac{1}{2}$ inches by 4 inches. Ripe from October to December. Winter Nelis: This high quality Pear does not seem to come to great perfection in these islands; in fact, this seems to be the case with all hard, dense-fleshed fruit of both Apples and Pears. There is something in the climate or soil that does not suit them, while with the softer, lighter fleshed fruit of both species it is the reverse; they grow to great size and perfection. The specimen of this fine variety weighed $4\frac{1}{2}$ oz., $2\frac{1}{2}$ inches by $2\frac{1}{2}$ inches. Ripe from November to January. Zephirin Gregoire: Small fruit, good quality. Tree good bearer, 6 oz., $2\frac{1}{2}$ inches long, 3 inches diameter. Ripe in October.—*Jersey Gardener.*

Centaurea candidissima.—Plants of this from autumn-struck cuttings have a decided advantage over seedlings when the end of May is at hand, and as some little difficulty is experienced in many places in striking them, a hint on the treatment pursued by me may be useful. Select $2\frac{1}{2}$ -inch or 3-inch pots, and mix leaf soil and road sand together in equal proportions taken from the open air. It is necessary to be particular in this latter respect, as the compost when prepared should be moist, something like that of ordinary garden soil during the autumn months. The cuttings may be gently broken from the plants, all the trimming necessary being to make the base of each fairly even. They may be inserted firmly one in each pot, and placed in a frame (on an ash bottom) under a north wall. The lights may be left off except in the case of rain, when they

must be well tilted, and no water should be given for some time; indeed, they will hardly require water until roots make their appearance, *i.e.*, if care was taken to have the soil sufficiently moist when the cuttings were inserted. If the above details are followed they will not flag, and hardly one will be lost; they will throw roots all round the pot by the end of October, when if extra size is required, they can be shifted into 5-inch pots. It may seem somewhat late in the year to write on this subject, but as the treatment required is not unlike that used for the Calceolaria, I fancy cuttings might yet be put in, where there were early failures.—E. B.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

- Nov. 12-13-14.—Lambeth Chrysanthemum Show.
 12-13.—Stoke Newington Chrysanthemum Show.
 13.—South Kensington: Meeting of the Fruit and Floral Committees of Royal Horticultural Society.
 13.—Putney Chrysanthemum Show.
 13-14.—Southampton Fruit and Chrysanthemum Show.
 Brighton Chrysanthemum Show.
 Teddington Chrysanthemum Show.
 14.—Royal Aquarium, Westminster (Borough of Hackney), Chrysanthemum Show.
 Bromley Chrysanthemum Show.
 Tooting Chrysanthemum Show.
 Dartford Chrysanthemum Show.
 14-15.—Bath Chrysanthemum Show.
 Croydon Autumn Show.
 15.—Staines Chrysanthemum Show.
 15-16.—Kingston Chrysanthemum Show.

Ficus repens.—A plant of this creeping Fig in one of the houses in Mr. Bird's garden at Eynham Lodge, Shepherd's Bush, is bearing no fewer than thirteen fruits this season. In November last we gave an illustration in THE GARDEN of one of the fruits from this same plant. It has borne fruit for some few years past, and the crop gets heavier every year; last season it bore but six.

The Fire Thorn, as *Crataegus Pyracantha* is popularly called, is uncommonly fine at Chiswick this year. A large tree, covering several square yards of an east wall in the Horticultural Gardens, is now highly attractive, being profusely laden with clusters of brilliant red berries. The *Pyracantha* ought to be more often planted for autumn effect than it is; there is no other shrub to compare with it at this season.

Vitis amurensis.—Of this Vine, a native of the Amur River, some enormous leaves have been sent to us by the Rev. H. J. Ellacombe from his garden at Clyst St. George, Topsham. Of these the largest measures 13 inches in length by 11½ inches in breadth. They are of thick texture, with prominent veins on the under surface. These leaves when decaying assume a lovely colour, varying from an intense crimson to a bright red intermingled with various shades of yellow. Mr. Ellacombe also sends leaves of the Claret Vine, which measure some 5 inches across, and are of a deep crimson-red. The leaves of both these Vines were gathered from the open air, where they must indeed create a striking effect. An excellent companion for these two Vines is the *Vitis Labrusca*, noticed last week.

Woods and forests.—The report of the Commissioners of Woods and Forests for the year 1882-83 has just been published. The nett annual sum arising from the whole Crown property in the hands of the Commissioners and paid by the department into the Exchequer increased from £252,000 in 1852 to £410,000 in 1877, but it has since fallen to £380,000 in consequence of the severe agricultural depression, which rendered it necessary to make considerable allowances to many of the Crown tenants out of the rents payable by them, and also to permit some of the rents to remain unpaid for various periods. The Windsor parks and woods maintained as part of the domain attached to Windsor Castle, consisting of some 14,000 acres, yielded a revenue of £5232 9s. 2d., as against a total expenditure of £25,138 6s. 6d.; but inasmuch as that property, like the royal parks in London, is largely used by the public for purposes of recreation, the receipts and expenditure in respect of it cannot be looked upon as a

matter solely of profit and loss. During the last seven years nearly £146,000 has been expended by the Crown in under-drainage and in other works of permanent improvement. During the year the Commissioners sold to Her Majesty the reversion to the estate of Claremont for the sum of £74,100. The Commissioners have also let the site of the old Colosseum in the Regent's Park for the term of about eighty years at a rent of £79 per annum.

The Indian forest administration.—Dr. Schlich, Inspector-General of Forests in India, has recently furnished two reports on the work of his department. From these we gather that the forests of British Burmah are the most valuable, but there has been a very gratifying increase in value all round, amounting to as much as 50 per cent. in the receipts and 25 per cent. in the surplus between the years 1881-2. The Forest Department now contributes to the revenue of India more than twice what it did ten years ago. The work of demarcation of forest reservation has been carried on successfully in spite of very strong popular opposition, but this feeling is gradually wearing off. A similarly satisfactory result has been attained in the Melghat Forest in Berar. Taken altogether, these reports present a very gratifying account of the work of this department.

Public park for Lewisham.—A meeting was held the other evening in Lewisham "to consider the desirability of acquiring the southern slopes of the Hilly Fields for the purpose of a public park and recreation ground for the inhabitants of Lewisham, Deptford, New Cross, and Brockley." The Rev. R. R. Bristow presided, and read a letter from Canon Legge, the vicar of Lewisham, assuring the meeting that the movement has his heartiest sympathy, and explaining that the land which they wished to acquire was glebe land, and had been let by the Ecclesiastical Commissioners for building purposes. If the builder who had taken a lease of the land consented to its transfer, the Commissioners would undoubtedly require the full value of it, as they had to deal with trust property in the most strictly business-like manner, and this, he feared, would mean a considerable amount of money. A resolution in favour of the project was heartily adopted. It was stated that the land was some 50 acres in extent, and it was necessary that steps should be taken to acquire it at once, or it would soon be covered with bricks and mortar. Mr. A. Dickson, secretary to the Kent Waterworks Company, said at the outside the expense would not be more than £50,000, and Mr. Richardson, representative on the Metropolitan Board, thought there would be no difficulty in getting that body to contribute one-half the cost.

ACCORDING to the recently issued report of the French Tax Commissioners, there are at present in France no fewer than 1,925,175 landed proprietors who cultivate their own vineyards and produce their own wine. As the total number of landowners in France is 8,450,000, it will be seen that nearly one-fourth of these are proprietors of vineyards.

Spurious fruit flavours.—Much great and useful work is being performed at the laboratory of the Municipality of Paris in the way of exposing the multifarious forms of food adulteration. M. Girard, the director, remarks that the skill and ingenuity displayed by fraudulent inventors would suffice to make their fortunes a dozen times over in any honest capacity. The chemical knowledge applied to the concoction of spurious foods and drinks is of a very high order, the latest thing being the manufacture of Gooseberry jelly entirely from seaweed, there not being a particle of Gooseberry in it. It is coloured with fuchsine or some similar material, and the flavour is given by a compound of 5 parts acetic ether, 4 parts tartaric acid, 1 part benzoic acid, 1 of succinic acid, 1 of aldehyde and cantharidic acid. M. Girard gives also the composition of nine other chemical compounds for imitating the flavours of Strawberry, Pine-apple, Melon, Apple, Pear, Cherry, Peach, Apricot, and Plum. Unfortunately, too, in the coarser and commoner forms of adulteration quite as much activity is displayed. Flour is exposed to damp, so as to make it weigh heavier, the result being that the gluten is altered and rendered less fit for bread-making and more liable to mould. Mineral products are often mixed with flour, such as lead, copper, zinc, sulphate of lime, and chalk. Of thirty-one specimens of flour examined at the laboratory, only thirteen were found to be pure; a sample which came from Rotterdam contained as much as 30 per cent. of plaster, while another held 20 per cent. of sulphate of barytes.

HORTICULTURAL EXHIBITIONS.

IF "T. B." will read the correspondence on this subject again, he will, I think, see that it did not relate to the moral character of judges, but to committees, management, and the system of judging. Since, however, he has given the subject the complexion he does, I have no hesitation in saying that judges, whether guilty of favouritism or not, do lay themselves open to suspicion at times. Not only do judges, who should know better, habitually, and contrary to rules, mix with exhibitors while staging their exhibits, but I could name those who are often indiscreet enough to become the guests of exhibitors previous to the exhibition, learn all about their purposes, and even be conveyed to the show in the exhibitor's vehicle. Judges have no business to know whose produce they are judging. It is all very well to say that a judge for his own credit will be careful in his awards: that is not the point. In this, as in other things, the motto should be, "Lead us not into temptation." There would then be less cause for suspicion. Notwithstanding what "T. B." says to the contrary, things do occur at flower shows in awarding prizes that will not bear looking into. It is but a few weeks since that the judging at a certain noted show in the north was of such a character as to provoke the censure of nearly every right-minded person there who could form an opinion. Judges are neither wiser nor more honest than other people. "T. B.'s" two friends, who helped a neighbour who was late to set up his plants, could hardly, I think, under the circumstances escape from such an act of courtesy, and one wonders at "T. B." dwelling on it with such circumstantiality. One thing is clear: "T. B.," who, "with the other judges, was in the building waiting the completion of the arrangements," had no business to be there, and this admission fully bears out what I have said on that point. PEREGRINE.

Books (H. T.).—An announcement will appear prior to publishing the book you mention.

Seedling Dahlias (W. G.).—The flowers you send belong neither to the single nor double class; they are certainly not Cactus Dahlias, of which there is one only—the original Juarez—truly belonging to that type.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received. In all cases where the numbers of the specimens sent are not mentioned, it must be inferred that the fruits to which they were attached are either local sorts, and therefore unknown at Chiswick, or that they are not in a fit condition for naming.

Names of fruits.—Dr. Wallace.—27, Cox's Orange Pippin; 26, King of the Pippins.—H. L. E.—2, Farleigh Pippin; 3, Fearn's Pippin (small); 4, Court Pendu Plat.—S. K.—1, Uvedale St. Germain; 2, Marie Louise; 3, not known.—C. G.—Local variety.—R. H. G.—1, not known; 2 and 4, Passe Colmar; 3, Beurre Diel.—F. W. Dunstan.—2, Wyking; 4, Beauty of Kent; 6, Old Nonpareil; 7, Farleigh Pippin; others not known.—D. T.—Beurre Rance. The names of fruit sent by others will be given next week.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—A. P. H.—*Leptosiphon densiflorus*.—S. K.—*Odontoglossum grande* (yellow), *Lelia Perrini*.—Delta.—*Othonna crassifolia*.—H. Truelove.—Next week.—Mrs. H. of LL.—The Ivy is a variety of the Hedera Helix, but we think that the colouration of the leaf is due either to a peculiar soil or exposure. We should like to see it in the spring.—J. S.—1, *Deodia dives*; 2, *Pteris tremula*; 3, *Polypodium squamosum*; 4, *Microlepia hirta*.—J. Harkness.—1, *Passiflora kermesina*; 2, *P. princeps*, a variety of *P. racemosa*.—Devonshire.—We cannot undertake to name varieties of Zonal Pelargoniums. Send them to some specialist, such as Mr. Cannell, Swanley.—J. W. K.—*Veronica spicata*.

CATALOGUES RECEIVED.

A. E. Campbell's (Gourcock) Descriptive List of Choice Hybrid Gladioli.
 Little & Ballantyne's (Carlisle) Forest, Ornamental, Fruit, and other Trees and Shrubs.

BOOKS RECEIVED.

Culture of Vegetables and Flowers from Seeds and Roots, by Sutton & Sons, Reading.
Woods, Forests, and Estates of Perthshire, by T. Hunter, Perth.
English Botany (No. 86), third edition, by Dr. Boswell Syme.

No. 626. SATURDAY, Nov. 17, 1883. Vol. XXIV.

This is an Art
Which does mean Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

STRAWBERRY CULTURE FOR MARKET.

STRAWBERRY growing for market is extending at a rapid rate in South Hampshire; indeed, for some miles around Botley and Fareham Station the Strawberry has well-nigh supplanted other crops. Large farms on which only a few years ago Corn and root crops were grown are now converted into Strawberry gardens, and extensive tracts of waste common land on which Furze or Brambles, for which Hampshire is noted, only grew have been broken up, enclosed with hedges or fences, and produce crops of luscious fruit. The quantity sent by rail from Botley Station this season was 569 tons 11 cwt., that from Fareham Station 246 tons 12 cwt., making a total from these two stations alone of 816 tons 3 cwt. Strawberries are also cultivated near other stations in this locality in smaller quantities, and very large quantities are disposed of locally to shop-keepers and to hawkers, who during the Strawberry season have their barrows loaded with fine fruit in every street in south-coast towns, the prices being so low in London that it did not pay to send it there. Very fine fruit could be purchased here at ninepence per gallon. It was computed by those well versed in such matters that over 1000 tons were grown within a few miles radius of Botley Station. The earliest gatherings from this locality usually realise high prices, as the soil being naturally light and warm, the crops mature early, especially where the land slopes well to the south. These are sent to London in punnets; in fact, in seasons in which the crop is light, the majority of the finest fruit is sent up in this manner. But this year the price for Strawberries in punnets was high only for a very short time; they then averaged 2s. 6d. per gallon, but as soon as the crop came in from later localities the price dropped to 1s. per gallon, and for some time even lower than that. Growers do not look on such an unusually fine crop as we had this year as an unmixed good, as the profits do not equal those secured on an average crop with prices ranging higher, the expenses of gathering, marketing, &c., leaving but little balance in the hands of the grower.

THE CULTIVATION of such extensive tracts afford employment for large numbers of labourers, for there is always something to do in a Strawberry garden. Before planting can be done with advantage the land must be thoroughly cleaned and deeply cultivated. A good depth of light friable soil, into which the roots can strike down freely, is the best antidote against drought; and although land hereabouts is very stony and naturally poor, it is surprising how healthy and vigorous the plants keep and what crops they bear. Strawberries on stiff soil could not produce better results than do these tracts of well-nigh barren Heath land. A gravelly subsoil suits the Strawberry well. The soil about here is what may be termed a sandy loam, with in some cases a great deal of stone mixed with it; but in nearly all there is a large proportion of sand. The routine of culture may be briefly described as follows, viz.:—

PREPARATION OF THE SOIL.—This is usually effected by trenching two spits deep, but in most of the land utilised for Strawberries there is not sufficient depth of mould to allow of the bottom spit being brought to the top; it is usually too stony; it is therefore merely broken up, and the top spit placed over it; on a large scale it is deeply ploughed several times. All Couch Grass, Docks, and other deep-rooting weeds are picked out by hand and burnt, for if the soil contains any living pieces of these noxious weeds it is impos-

sible to eradicate them after the Strawberries are planted without greatly damaging the crop.

PLANTING is usually done in autumn, August, September, and October being the best months. If frost, however, keeps off many are planted later, and during February and March great quantities are planted, and really good crops of fine fruit are gathered the first season provided the plants are strong. The usual mode of planting is by means of large dibbers; good large holes are made, and the roots are put well down, so that they reach the firm soil at the bottom; the plants are thus nearly buried, the crown just protruding through the soil. The rows are usually from 2 feet to 2½ feet apart, but for some of the large-leaved kinds as much as 3 feet is given, large leaves and large fruit usually going together.

MANURING is, as a rule, not done heavily before planting; it is put on as a winter dressing after the plants get established and lightly forked in between the rows, but care is taken never to loosen the soil around the crowns of the plants. I may add that one of the greatest objections to burying manure under the plants is that it encourages worms, and the land being infested with moles, they are sure to upheave the soil when searching after them. Unless the land is very poor, the young plants usually grow quite strongly enough the first season, but after they have borne a crop of fruit, a top-dressing to encourage the surface feeding roots is of great service; stable or farmyard manure is that mostly employed. As soon as the spring sunshine begins to exert its influence, and the weeds begin to grow, hoeing is commenced and carried on vigorously on all favourable occasions, keeping the land scrupulously clean being of the highest importance. Where the soil is loosened near the crowns of the plants in cleaning the beds, it is again trodden as firmly as possible, and this is repeated whenever it is necessary to disturb the soil, and in April the beds are mulched. The mulching performs a double service; it not only keeps weeds down and minimises evaporation, but also keeps the fruit clean. Where it is possible to procure it, stable litter or the bedding of horses is unquestionably the best mulching material; it contains valuable nutriment that when washed down to the roots by spring showers greatly invigorates the plants when sending up their flower-spikes. But as sufficient quantities cannot be procured by many growers, clean oat or barley straw is substituted, and the best of it is again collected after the crop is gathered and built up like a rick to keep it dry and serviceable for a second year. It costs about £3 per ton.

GATHERING the crop is performed by men, women, and children; in the height of the season all hands procurable are pressed into the service. The earliest and finest fruit is packed, as I have said, in punnets, the picking being done at so much per dozen punnets; the latter are then packed in large boxes or hampers and sent off by rail to salesmen. In some seasons very remunerative prices are realised; a crop of from 3 tons to 5 tons per acre when prices are high gives a large profit to the growers, nearly £100 per acre being realised in this way in some years. But when the crop is over the average it does not pay to send any but the earliest fruit to London, as the long railway journey swallows up too much of the profits. This year from one farthing to a halfpenny per punnet was all that many growers cleared for punnets of very fine fruit, and from this, rent, rates, labour, &c., have to be deducted. When prices are low punnets are put aside, and the fruit is gathered and sold by measure or weight for preserving.

THE VARIETIES grown by market gardeners are not numerous, Sir Joseph Paxton being more largely grown than all other sorts put together. Its fruit is very fine, large, and highly coloured, and the plants have a strong constitution, and soon come into a bearing state. The fruit, too, is firm, and stands a good deal of rough usage. If one speaks to market growers about the superiority of flavour of the British Queen race of

Strawberries, the reply is that they are useless for their purpose. Marguerite is a very fine Strawberry, and is grown in considerable quantities, and some of the late fruiting kinds are largely grown, notably Eleanor, the Kimberley, and Elton Pine, but, like all other fruits, market cultivators find selections answer their purpose better than collections.

AFTER GATHERING the crop, all runners not required for future plantations are cut clean off and the soil hoed between the rows, but the old foliage is retained as far as possible. The length of time during which Strawberry beds remain remunerative depends a good deal on the nature of the soil. If good strong plants are put out early in the season or during August and September, a crop of fine fruit is usually secured the first season after planting; in the second season there will probably be a very heavy crop, and if well looked after the third and fourth year good crops may be secured. As soon, however, as they begin to fail the plants are ploughed up or dug in, and the land is cropped with some other garden or field crop for a time, so as to give it a rest, and again prepare it for Strawberries.

JAMES GROOM.

Gosport, Hants.

VAGARIES OF PEARS.

ALTHOUGH the Pear crop this year has been a thin one, the fruit is of better quality than it usually is—at least I find it so here. We have two or three sorts quite rich and luscious in flavour which have for several seasons past been of very indifferent quality. The behaviour of Thompson's, for instance, is quite remarkable. It invariably bears well, but for the past six years the fruit has not been fit to eat. It never ripened thoroughly, and was always hard and gritty; this season, although somewhat gritty, it is very good in flavour, and it is fit for use earlier than usual—a bit of experience not new in regard to Pears, for I find it most difficult to fix the ripening time of some sorts. In the case of Louise Bonne of Jersey, soil evidently influences it a good deal as regards quality; our heavy soil and rich borders certainly do not suit it. In our case it has won for itself the character of the soapy Pear, its flesh being peculiarly soft and flat in flavour. Huyshe's Victoria promises to be good this season; it shows no symptoms of shrivelling; when thoroughly ripe, which is sometimes at the end of November and sometimes in January, it is much liked, but it is not every year alike good, being sometimes gritty. Glou Moreau we never depend on except for culinary purposes; it is seldom in a condition fit for dessert, being always more or less gritty; this season, however, it promises to be better in quality than I have known it ever to be before. Autumn Bergamot is a delicious little Pear that with us is always good; it is a mid-season melting Pear, with a fine rich aroma; the tree is not so vigorous as one would like it to be, but it is a pretty constant bearer. Althorpe Crassane is rather below medium size. It has a pea-green skin, and is excellent in flavour; it invariably ripens at the end of November. Josephine de Malines produces fruit of medium size, but, unlike the last named kind, it is not a regular cropper, a circumstance to be regretted, as in other respects it is quite satisfactory, except that it sometimes ripens in December, its reputed season being March and April. It is a melting Pear, with a rich flavour, in that respect being unsurpassed by any that ripen at the same time. Beurré d'Amanlis is an inconstant bearer, but when obtained its fruit is remarkable for its large size and fine flavour. Sometimes it ripens with us at the end of September; this year it was fully a month later. Brockworth Park varies a good deal in its season of ripening; it has before now ripened with us at the end of October, but this year the few fruits which we have had of it were ripe in the middle of September. It is a variety not much wanted where Williams' Bon Chrétien and Beurré d'Amanlis are grown. Ne Plus Meuris is a very disappointing sort with us; although the tree bears fairly well, we do not get any fruit from it fit to send to table

above once in three years. Just at the time when it should begin to ripen it shrivels up. When well ripened it is a high-class fruit as regards flavour, although only of medium size. All points considered, our best Pears are Marie Louise and Winter Nelis. These do not vary much in their time of ripening, and they are generally excellent. All our Pears to which these remarks have reference are grown on walls with east, south, and west aspects. J. C. C.

FRUIT BUSHES IN WINTER.

WHEN fruit bushes are bearing abundantly and maturing their crops they never fail to command attention, but when the leaves have fallen and there is nothing attractive about them they are frequently neglected. It is not unusual to see them neither pruned nor manured until long after the time when these operations ought to have been done, and in many cases they receive no attention whatever during the winter, which in reality is the only season in which they can be improved. Pruning is most essential to high cultivation, and so is a proper condition of the soil. Many bushes will bear heavily without attention year after year, but at the same time they are degenerating, and to recruit them is a tedious task. The most satisfactory way is to see to their wants every winter. To prune and manure a quarter of Gooseberries and Currants consumes no great amount of time. Pruning should have the first attention, and it may be gone on with at once. As a rule all our bushes are pruned in November, but no harm will follow their being pruned in December or even up to the end of February. Work of all kinds is, however, generally pressing then, and therefore we always try to have our pruning done early. I need not describe minutely the details of the process; it should mainly consist in thinning out and shortening back the shoots. Gooseberries do well on what may be termed the spur system of pruning, and so do Red and White Currants; but black Currants should only have the most barren of their branches cut away. Raspberries should have all the shoots which have been bearing fruit cut away, and young canes should be allowed to take their place. In pruning bushes the branches should all be left about the same distance apart. Crowding above everything must be avoided. Half-dead branches and shoots almost void of young fresh bloom buds should always give place to young fruitful branches, and by giving due attention to this no bush need ever be allowed to become scraggy and unfruitful. Besides pruning, the opportunity should always be taken during winter to give manure to the bushes where it is wanted. Where the soil is in fairly good order manure will not be required every year, but at the same time the ground must never be allowed to get into a poor state, as nothing will compensate for this or make the bushes bear heavy crops of full-sized fruit. In manuring Gooseberries and Currants the best way is to spread a good coating of farmyard manure over the surface of the soil and fork it lightly in. Too many of the roots should not be disturbed, but it should be put within their reach. Raspberries are not improved by forking, but a top-dressing of manure does them much good. CAMBRIAN.

Best late Grapes.—Mr. Wildsmith says no late Grape can touch Lady Downes in "quality or quantity" among other good points. Now, I emphatically assert that the Muscat of Alexandria beats Lady Downes in both clean and away; at least I am informed by numbers of those who eat Grapes habitually at dessert that they would not touch the one while they could get the other; and I call a late Grape one which can be had in good condition up to the new year or February. I have cut good late black Hamburgs in January and early in February, and Muscats as late when the demand was not so great, and I have known many others do the same. When I went to Hatfield to study the limekiln business under Mr. Bennet, I saw there, on rails, either in February or March, one of the finest lots of Muscats

I ever saw, and I came back with less faith in the kiln than ever, but with my belief in the good qualities of the Muscat strengthened in the same ratio. If I could have a black and white house of late Grapes, the Muscat of Alexandria would be one. I can only account for Mr. Wildsmith's setting up the Lady Downes so high on the supposition that he does not consider the Muscat a late Grape.—J. S.

Grapes cracking.—Mr. Wildsmith (p. 422) is hardly just when he implies that I steered a safe course between him and Mr. Crump as regards this subject, and he reverses the actual state of the case when he speaks of the doubtful "support" I accorded him; indeed, I was under the impression that it was Messrs. Wildsmith and Crump who were supporting me, for it is now about five years since I wrote an article in another paper expressing exactly the same views as Mr. Wildsmith, viz., that it was external atmospheric causes and not moisture at the root which caused cracking, and to that view I have held ever since, and only reiterated it at page 159, though perhaps Mr. Wildsmith did not know it. What the exact external atmospheric agencies are, however, I am no more sure than your correspondents appear to be; but one new circumstance I venture to record, and that is, that according to all I have seen of the Madresfield Court Grape it is always the best coloured and firmest fleshed examples that crack worst, and I therefore regard cracking as—in one sense—indicating the best culture. Generally speaking, your correspondents are now abreast of the position taken up by me at the outset, and, as I said before, I trust Mr. Wildsmith will be able to discover more. To confess the truth, while entirely discrediting the moisture-at-the-root theory and believing the causes of cracking to come more from without than from within, I am unable to tell what the actual outside cause is, and there we all seem to be.—J. S. W.

English-raised Grapes.—Mr. Westcott (p. 383) speaks in high praise of Foster's Seedling, but where its merits lie I have not yet discovered. Its flavour is poor, like that of all the Sweetwater section, and to ripen it must hang a long time, or the skins of the berries are green and the juice void of sugar. I unfortunately had it in two houses, but I have got rid of it from the one, and hope soon to do so from the other, as I am running up a cane of a different kind. The fact is we have no really good white Grapes except the Muscat, and anyone who could succeed in raising one equal to the Black Hamburg would be doing horticulture a service. The Golden Hamburg has almost fallen out of cultivation. As to Lady Downes, it is a useful Grape for keeping, but were it not for that desirable quality, few would grow it, for to do it well and finish the berries up so that they will hang, it must have a long season, and be treated in every way as one would a Muscat. If the good old West's St. Peter's were managed in the same way, it would beat it; but, unfortunately, these new comers have ousted others superior to them simply because they have been brought more under public notice, and not from any particular merits which they possess. The Alicante is a noble-looking Grape, and if it only had more quality it would be perfect, as, like the Black Hamburg, it requires little or no heat beyond what an ordinary summer affords, and always puts on colour and ripens well.—S. D.

Strawberries in November.—I send you two Strawberries picked from the open ground. They are of the Black Prince kind. All the plants which I have of this sort (about a hundred) are loaded with fruit and blossom as much as there were in the summer. I am afraid that the frost of last night (the 12th inst.) will prevent any more ripening.—W. L. BANKS, *Hendrevaelod, near Conway.*

Figs dropping.—Will the Figs left on a tree at the end of the season survive the winter and mature next year?—A SUBSCRIBER.

* No; any larger than good sized Peas will drop off as soon as growth begins next year, and even fruit of this size is not always to be depended on; only that which is just perceptible at the uppermost parts of the shoots will hold on, and not even these unless the wood be well ripened. The latter is a point of greater importance in the case of the Fig than in that of any other fruit, and to its neglect is attributable the failure so frequently met with in the first crop of fruit.—W.

FLOWER GARDEN.

FLOWERS USEFUL FOR CUTTING.

IT is a general complaint amongst owners of gardens that they cannot get flowers enough for cutting. They cannot get much from the flower garden bedded out in the orthodox style, for carpet beds and sub-tropical plants yield nothing, and the ordinary flowering plants but little that is suitable for vases or bouquets; the ever-increasing demand for cut flowers can therefore be but inadequately met, even in large gardens, unless hardy plants are grown specially for the purpose. The best plan is to have a portion of the stock set apart for cutting—plants which one knows will yield a good succession of bloom.

ROSES come so naturally to the front, that they must be first on the list. They have no rivals as regards the length of time during which they continue in bloom, and their suitability for button-hole and other bouquets causes them to be prized whenever procurable. There is no need for giving here cultural directions as regards the Rose, for they ought to be well understood by all readers of THE GARDEN. The only thing for those who are desirous of having plenty of cut flowers, and more especially of buds, is to ignore the finest exhibition Roses and select from those of which mention is seldom made, especially the Moss, the Chinas, and the Teas; some Hybrid Perpetuals, too, that are not faultless when expanded, such as General Jacqueminot, are beautiful in a half expanded form.

CARNATIONS, Cloves, and Picotees are in their season scarcely inferior to Roses; their exquisite perfume and long keeping properties make them of the highest value for the bouquetist, and of late years what are unusually termed border Carnations—those simply grown for their own natural beauty—are much more sought after than formerly. The old crimson Clove and the new white continuous flowering Mrs. Sinkins are now grown as extensively as bedding Pelargoniums, and if propagated at various seasons of the year, there is no difficulty in getting a succession of bloom from them. I have at present a quantity of the old crimson Clove in bloom and in bud in the open air; in fact, looking more like July than November.

PENTSTEMONS and PHLOXES of the taller growing kinds are first-rate for filling vases and for other indoor floral decorations where bold spikes of flowers are required. They will grow in any fairly good garden soil and do well in rows about 2 feet apart. Seedling Pentstemons from a good strain may be relied on to produce most beautiful spotted and marked Foxglove-like flowers. In this locality they stand the winters well, but in northern counties a supply of young plants should be sheltered by glass in case of the old plants being injured. Planted out in beds of good soil in April, they will flower out of doors until frost stops them.

PYRETHRUMS and DELPHINIUMS.—Of these the former have been so much improved of late years that it is difficult to realise them as the descendants of the Pyrethrums of only a few years ago. Their colours are distinct and well varied and the blooms of faultless shape, with good, long foot-stalks. The Delphiniums yield striking flowers for floral decoration, and the scarcity of really good blue blossoms renders them all the more valuable; roots of them should be planted at once in any good garden soil, and if the earliest spikes of such kinds as *D. formosum* are cut directly they expand, a succession of smaller flowering shoots will push up from the root. It is allowing them to form seed that makes their flowering season short lived.

PEONIES of both the herbaceous and tree varieties furnish grand flowers for bold arrangements; they are plants of easy culture; the roots should be planted now when they are dormant. The herbaceous kinds have large roots, like those of Rhubarb, and the crowns are already showing signs of growth; if left until spring they do not make nearly such good plants as if got in during autumn. The tree varieties called Moutans have

very beautiful flowers, in soft shades of colour; they start into growth very early in spring, and therefore a little shelter from late spring frost is advisable, an attention which they well repay.

LILIES of various sorts, and especially the hardy white *Lilium candidum*, are especially valuable in a cut state; their spikes look well placed in vases entire, and single blooms make effective subjects for church decoration. I find that by planting the bulbs amongst fruit bushes where they get partial shelter and shade the season of flowering is prolonged. Lilies like an open, porous soil. In this locality nearly all the hardier kinds flourish in our naturally light soil without any special preparation, while the varieties of *lancifolium*, *auratum*, and others that are usually grown in pots under glass do well planted out in sheltered positions where the wind cannot get a full sweep of them, or they are liable to get snapped off at the base.

AQUILEGIAS are plants of the easiest possible culture, and their blooms are excellent when cut. Planted at this time of the year in any ordinary good garden soil in beds about 2 feet apart, they will send up a succession of beautiful flowers for a length of time.

MARGUERITES, or Paris Daisies, are now so extensively grown that but few gardens are without them. They are of the easiest culture; either sow seed of them or propagate them from cuttings early in March, and plant them out in good rich soil in April or early in May; thus treated, they will flower continuously until sharp frost cuts off all out-door flowers. They withstand a good deal of rough weather, and yield plenty of flowers after tender summer flowering plants are cleared off. *Campanula persicifolia alba* is also an excellent plant for filling the cut-flower basket. It grows freely in any soil. If the roots are parted at once plenty of flower-stems will be forthcoming next year.

WALLFLOWERS AND STOCKS are both so fragrant and suitable for cutting, that every one should grow them for that purpose. Both the single and double Wallflowers are equally good, but the old double yellow and red are getting scarce. They should be propagated by means of cuttings put in under hand-glasses in the latter part of summer. The clear yellow and blood-red single kinds, of which there are many selections, should be sown in February for flowering next spring, and some sown as soon as the seed is ripe and planted out early in spring will usually flower freely in autumn. I have a quantity at present in full bloom, a small bunch of which will perfume a whole house with a scent scarcely inferior to that of Violets. Stocks of the dwarf branching kind which are especially valuable, should be sown in pans or boxes, and transplanted where they are to flower as soon as they are large enough to handle. Gladioli and Dahlias, the latter both single and double, are very valuable in a cut state, the single Dahlias that are so easily raised from seed having quite eclipsed the double kinds, but the small Pomponé varieties must not be overlooked. They look well when cut. Gladioli, too, with their stately spikes of varied colours are amongst the most gorgeous of hardy flowers. They succeed admirably amongst *Rhododendrons* in beds of light, porous soil. The shelter of the shrubs suits them perfectly. Good bulbs may also be planted in beds in the reserve garden, where they will yield fine spikes for cutting.

SWEET PEAS, treated as annuals or, better still, as biennials, are amongst the best of plants for yielding a continuous supply of cut blooms. If sowing them in autumn has not yet had a trial, I would recommend them to be sown at once. Sow rather thinly in a sheltered spot, and as soon as they peep through the soil, cover them with coal ashes; put some bushy stakes to them, and keep their flowers gathered closely, as seed-pods soon bring their flowering season to a close. Irises of various sorts are also very beautiful both in form and colour. They should be planted at once in any fairly good soil.

TRITOMA UVARIA and SPIRÆAS are both useful, especially the latter for supplying cut bloom,

In the case of the *Tritoma* divide the clumps now, and give the roots a little protection in the event of severe frosts, when plenty of good spikes of flower will be the result. As to the *Spiræas*, their feathery plumes are very graceful. *S. Filipendula*, *S. palmata*, *S. japonica*, and *S. Aruncus* are all well worth a place in gardens, their foliage being almost equal to that of Ferns for garnishing.

DAFFODILS, JONQUILS, LILY OF THE VALLEY, and many other bulbs should be grown in quantity for the sake of their flowers. When once planted in good soil they last for many years and increase rapidly. Anemones, both spring and autumn flowering, are likewise indispensable, the beautiful *A. japonica* being still in fine flower out of doors.

CHRYSANTHEMUMS have but few rivals at this time of the year; they make decidedly finer plants out of doors than with their roots cramped in pots. The best plan to guard against early frost is to grow them in positions where some shelter can be placed over them, as the beauty and purity of the whites and the delicate shades of other colours are soon marred by frost and heavy rains. I find cuttings struck in March and planted out in May make very fine bushes without any of that attention which plants in pots require. If some can be lifted and replanted in cool orchard houses they will bear the transfer if done carefully without any danger or scarcely showing signs of having been removed. Any elaborate thinning of buds is not required in the case of plants grown for cutting.

CHRISTMAS ROSES, from their blooming in mid-winter, should not be forgotten. Good clumps of them planted in sheltered positions yield pearly white buds that should be gathered before they expand, as they open perfectly well in water, and are of better colour than when left to expand on the plant. If planted in open or exposed positions a hand-glass or cloche should be placed over them as soon as the flowers show themselves above ground. *H. niger maximus* is one of the best in a cut state. The above really good plants anyone can grow, and they will be sure to yield plenty of flowers for cutting.

JAMES GROOM.

Gosport, Hants.

NEW FRENCH HYBRID GLADIOLI.

HAVING again grown during the current year the set of eight hybrids sent out last autumn by M. Victor Lemoine, of Nancy, as the result of his cross-fertilisation between the species *G. purpureo-auratus* and one of the forms of *G. gandavensis*, and having succeeded in blooming seven out of the eight, as well as two similar hybrids received from M. J. B. A. Deleuil, of Marseilles, I am induced to hope that some brief notes, made while each variety was at its best in my garden, as to the respective and comparative merits of each, may not be without interest to those of your readers who admire these beautiful and easily grown ornaments of our autumn garden, and may also be some guide to those who think of acquiring some of them for next year's bloom, as to which to choose and which to avoid if they do not purchase the entire set. M. Lemoine's eight varieties were planted in the open ground on November 7, 1882, and were named as follows:—

ENFANT DE NANCY, which opened its first flower on August 11, is a comparatively low growing variety, with medium sized flowers of deep crimson, with rich velvety markings of a deeper hue on the lower petals.

CLEOPATRE commenced to bloom on August 14, and is a fine vigorous grower, with handsome well-formed flowers of a delicate shade of rosy salmon colour, with rich crimson blotch, margined with a pale sulphur band on lower petals.

CHRISTOFE COLOMBE commenced to bloom on August 17, is a tall, vigorous grower, with branching flower-stem and medium sized flowers of a dull salmon-pink, chiefly remarkable for a bright golden streak on a deep crimson blotch. One of the least desirable of the set,

INCENDIE commenced to bloom on August 24 and has fine, well opened flowers of a pleasing shade of cherry red, with lighter centre and deep crimson velvety lower petals, with slight vein of gold in centre of each. A most beautiful variety.

VICTOR HUGO commenced to bloom August 26, and is a fine, tall, vigorous-growing variety, with the largest and most fully opened flowers of any of this family I have seen. The colour is a pleasing light cerise, shading to white towards the centre, with a deep crimson blotch surrounded by a clear primrose border on the lower petals. An exceedingly handsome and effective variety, quite the best of the set.

MARS opened the first flower on Sept. 2; it is a medium-sized flower of a clear rosy purple shade of colour, distinctly marked on the lower petals with a blotch of a deeper shade of rose colour on a white ground.

OBELISQUE commenced to bloom on Sept. 10, and is a medium-sized flower of a deep shade of rosy purple with distinctly marked carmine blotch on the lower petals, and a primrose lip. A very beautiful variety.

STANLEY did not bloom, so I shall have to describe it with next year's lot, which I hope to receive from Nancy in a day or two, and which again consists of eight varieties, which it is to be hoped are, if possible, still more beautiful than those above described, but Victor Hugo will be hard to beat as I consider it quite as fine as any of M. Souchet's hybrids of *gandavensis*.

M. Deleuil's two varieties are as follows:—

CELUS commenced to bloom on August 1, and is a handsome, large, well-opened flower of a rosy crimson shade, distinctly marked with a deeper crimson blotch, clearly margined with a band of primrose-yellow.

ZELIE commenced to bloom on August 18, and is a comparatively low-growing variety, with medium sized flowers of a lovely shade of purplish rose colour, with deep rosy crimson blotch edged with creamy white on the lower petals; an exceedingly pleasing variety, and one of the freest increasers of them all, a small bulb having sent up no less than four stems each of which will make a new bulb and three of which bloomed this year.

Belgrove, Queenstown. W. E. GUMBLETON.

Clove Carnations.—I would like to know whether Mr. Muir's plants which bloomed so long are of the old dark variety or not, and whether the one set of plants gave the long succession of sixteen or seventeen weeks' flowering (see p. 396), or whether he had relays of younger plants planted in different aspects. My experience of the old Clove has been quite different from his. It belongs to the border type of Carnations, and, like them, is pretty soon over. Being a strong grower and furnishing plenty of Grass, it is generally layered, and if the earliest layers are left around the old stools, they will doubtless flower, and in that way prolong the blooming season. It is probable that the plants in question may have been thus treated. For continuous blooming, your readers should try the Tree sorts, good strong seedlings, or even cuttings, of which will either flower, or make the attempt, until frosts cut the buds off.—J. KNIGHT, *The Oaks, Epsom*.

** In reference to the above, Mr. Muir writes as follows: Our stock is that of the true old Clove Carnation, with blooms of the deepest crimson, perfectly double, and in size averaging 3 inches across. One set of plants blooms all the season. Those in question were layered in August, left out all winter, and transplanted in April into good soil. The young plants are generally planted in clusters of four or five, and one of these may bloom before the others in the same group, but they do not undergo any special preparation in order to make them bloom sixteen or seventeen weeks in succession, as they naturally do so. The above number of weeks during which the plants were in bloom is quite within the mark, as, apart from having them open in June, we cut some

lovely flowers on the 1st of November. Old plants left uncared for bloom equally well. I know of no other Carnation of equal beauty and sweetness which will bloom so long and well, and grow so freely with so little care as this. As in the case of many other beautiful and valuable hardy plants, "time and trouble" should never be mentioned in connection with their culture. As to time, any one could layer fifty of these Carnations in an hour, and the operation of transplanting in spring could be done in another hour. Where this mode of culture is practised, the lot might be staked in another hour. Therefore, in reality three or four months' bloom might be secured at the expense of three hours' work; and where old plants are left undisturbed, even less time than that would satisfy all their requirements during twelve months. Our only regret is that we cannot have their deliciously-scented blooms always.

Oxalis lutea.—I do not think that this is much grown; I never came across it nor see mention made of it. It is probably of too weedy a character to be a favourite with many, but it certainly has charms which should entitle it to some consideration. The flowers are bright yellow, and produce quite a striking effect in the full sun, especially in the case of a mass of them a yard or so square. Once established, it seeds so abundantly that it is sure to come up freely every year and at varying times, so that there is always a patch in bloom through the summer and autumn.—J. C. B.

Tropæolum compactum Lustrous.—I saw a whole bed of a variety exactly like this, as far as I can recollect, in the gardens of Mr. Pochin, at Bodnant, North Wales. It originated, I believe, in the gardens of Mr. Barlow at Stakehill, and was named T. Barlowi. T. speciosum was also flowering freely, and another bed of T. polyphyllum, with long wreaths of its yellow flowers, was a sight long to be remembered; it was early in September. The rather moist climate of North Wales is well adapted for the growth and flowering of these Tropæolums. A bed of T. Barlowi and T. polyphyllum should be in every garden.—J. DOUGLAS.

SHORT NOTES.—FLOWER.

Harrison's Musk.—Last May we planted a good deal of this in the flower garden, and it bloomed freely and looked exceedingly well from then until September, but it is quite gone now. It is useless as an autumn flower.—J. Muir, Margam, Talbach.

Cactus Dahlia (Juareri).—I have to-day (November 6) cut some excellent blooms from this Dahlia, quite as large and equal in colour to any which the same plants have produced this season. The intensity of the colour of this variety makes it a favourite with everybody.—J. C. C.

Scilla campanulata alba.—Those who may be adding to their collection of hardy bulbs and have not this Squill should make special note of it. It is a plant for every garden, thriving in almost any soil and increasing with great freedom. It is one of the best of hardy flowers for cutting, and should be much grown where many flowers are required for indoor decoration.—J. C. B.

Martynia fragrans.—Well grown, this sweet scented annual is one of the most satisfactory plants for a greenhouse or for conservatory decoration that can be grown, and it should certainly be more largely cultivated than it now is. The seed should be sown from March to June, pushing the plants along freely in frames during their earlier stages of growth, and afterwards removing them to a sunny position in the open.—J. C. B.

How to improve Columbines.—Thinking to obtain something good in the way of hardy Columbines, I crossed a very fine, pure white form of A. vulgaris with A. cœrulea, and also with A. glandulosa, but the result was a failure. I had about 200 plants, and when they flowered they were all alike, as crosses of this flower usually are, but all were spoiled, and nearly the whole of the hybrids have gone to the rubbish heap. I shall be anxious to hear the result of Mr. Wolley Dod's efforts in this direction.—J. DOUGLAS.

Birds and Echeverias.—During both this and last summer sparrows quite destroyed the beauty of E. metallica by pecking holes in the leaves and disfiguring the outside of them. I could not think at first what did it, but I watched, and five or six at a time would come to them and peck away as if they enjoyed such work. Although there were plenty of E. secunda glauca, they would not touch them. Has anyone found them to do so in other places?—J. C. F.

HEATING SMALL GREENHOUSES.

AT this season everyone who has a greenhouse, and who wishes to look after his plants for the winter, either furberishes up his present apparatus or looks around for another, and amongst the many that are in the market he may well remain undecided. In the first place the amount of heat obtained from any apparatus depends on the consumption of fuel. Unless a certain amount of fire is present, only a small amount of heat can be had. Thus, with oil stoves, a burner giving a flame 2 inches wide and 1 inch high will not give off half the heat that a 4-inch burner will, and yet some assert that a 2-inch burner will heat a moderately large glass house. The same applies to gas, an instance of which let us quote. One maker produces a ventilating stove which has a row of fifteen simple gas-jets, and is calculated to heat from about 700 to 1000 cubic feet of space; while another firm maintains that its stove gives off more heat from one fish-tail burner than the other does with its fifteen jets. Such assertions are valueless, because where heat is not generated it cannot be radiated from any apparatus. Heat also as a constant rule always ascends, and if—as in an oil stove—it is generated and radiated at one fixed point, it ascends directly to the roof and is lost, simply slipping out between the laps of the glass. For this reason alone hot-water pipes are to be preferred to simple stoves, as they diffuse the heat over a greater space, but in no case will the heat given off be more than that generated by the combustion of the fuel. The heat from the fuel is better utilised in a slow combustion boiler than in one where there is a quick draught, for while in the former it is possible to extract about 90 per cent. of the heat generated, with the latter from 50 per cent. to 75 per cent. is about the most that can be had. In the case of many small houses in which bedding stock is kept through the winter,

OIL STOVES are used, and these will keep out frost if in only small places where the cubical capacity is not more than from 500 feet to 750 feet of space. The makes of stoves suitable for the purpose are numerous, and vary in price from 6s. 6d. to £3, but perhaps the most useful is Rippin-gille's Reliance, a large size of which costs about 30s. Simpler forms of stoves, such as are sold generally by most ironmongers, are useful, and, save that they are of tin instead of iron, may be used instead of the Reliance. Of course they must be had with sufficiently wide wicks to give off enough heat for the space to be warmed, and should have a flat iron or tin plate suspended about 3 inches or 4 inches above them to deflect the ascending heat, and cause it to be diffused through the space to be warmed as much as possible. Far before these simple stoves, however, are the

MINERAL OIL HOT-WATER APPARATUS, vended by most large lamp stores. Hooper & Co.'s Repellent is a fair example of this style of heating apparatus. It consists of a coil of zinc pipes connected with a boiler heated by a lamp. Poore & Co., Cheapside, and Christy & Co., Fenchurch Street, also make and sell good apparatus; and as the heat is largely taken up by the water and diffused over a wide space, the heat of the house is kept more regular, and less waste occurs. Another good form of oil stove is the

CONDENSING AND RADIATING OIL STOVES, of which Gillingham's Radiator, Ritchie's Lux Calor, and Clark's Syphon are examples, the heat being conserved in a horizontal cylinder in the first case, and in vertical cylinders in the next two; the products of combustion are condensed, and save carbonic acid prevented from escaping in a gaseous form. Of course these are more expensive than simple stoves, and at the same time they keep the air purer, and may be used in dwelling rooms if necessary. Next come

FUEL STOVES, which cannot be recommended, as they give off heat which is liable to fluctuate greatly in its intensity, for while it may not exceed 150° Fahr. at one time, in less than an hour it may be at 400° Fahr., or possibly more. The Tortoise and other lined slow combustion stoves of a like form are best, and with regular

care will give as good results as any stove made if we except George's Calorigen for fuel, which in intelligent hands is excellent. It warms the air, and, if necessary, can be arranged to admit pure warmed air from the outside of the building to be heated. For giving off a regular supply of warmed pure air this stove can hardly be surpassed amongst fuel stoves, while among

THE GAS STOVES arranged for heating buildings with pure air, it holds a foremost place. Fletcher's ventilating gas stove and the plain ventilating gas stove are also good, as fresh air is admitted from the outside and passing through the stove is admitted in a warm state, while all the products of combustion are taken outside the building. Asbestos fires and open gas fires are not to be thought of where there are plants, as the fumes and gases produced are sure to find their way among the plants. There are gas stoves without flues which answer fairly well, as all the products of combustion are condensed into liquid form, except the carbonic acid, which, being heavier than the atmosphere, falls to the ground, and is carried off readily by any current of air which circulates there. The Lux Calor, Clark's Syphon, and Gillingham's Radiator are of this class, and perform their work well, giving a good return for the gas burned; but at the same time, where gas is from any cause used, gas boilers outside the house are the best, as the hot-water pipes do not convey any of the deleterious fumes of the gas inside the space to be heated. Fletcher's Warrington boiler is good, as is also Poore & Co.'s, and in the same list comes Pendleton's and the Thames Bank Iron Company's, all of which are good to heat up to about 50 feet of 4-inch pipe in a proper manner. Gas-heating apparatus, however, needs a considerable amount of fixing, and much care is necessary with it, owing to the varying pressure of the gas, and practically some

HOT-WATER APPARATUS to burn solid fuel is preferable to gas. Wagstaff's, the Thames Bank, and other cylindrical independent boilers of fair size are very useful for heating small houses requiring up to 400 feet of 4-inch pipe, as the whole apparatus can be put up as a tenant's fixture and taken away at will. Of course the price is not so low as that of portable stoves, which are advertised at from 50s. and upwards, but the results are certain, and where the owner of the boiler has only a short term as regards his house, they answer all purposes, burning from eight to fifteen hours without attention, and keeping the pipes hot for the whole time. In the case of freehold or long leasehold property, boilers fixed in brickwork are the most economical, and upright conical forms give good results with a minimum of labour; saddle boilers of a fair size also give good results, burning up, as they do, all kinds of rubbish. However, the choice of a boiler should be left to the hot-water fitter, who will only recommend the use of that which is best suited to the place, and to the length

PIPES, which should be commensurate with the space to be heated. For general use in the houses of amateurs, 40 feet length of 4-inch pipes should be allowed for every thousand feet of cubical capacity, or where the house is much exposed and badly glazed even 50 feet will not be too much, as great waste is sure to occur in such places, and the pipes may not always be kept at a regular heat. Besides, the larger the amount of pipe per thousand feet of cubical capacity, the less firing will be used, as the whole of the heat possible can then be extracted unless the pipes exceed the capacity of the boiler, in which case, of course, a dead loss would be the result. Four square feet of boiler exposed to the direct action of the fire, and having about 100 square inches of firebar area, will heat 200 feet of 4-inch pipe or a correspondingly longer length of less size, and this will easily give some idea of the size of boiler necessary for the length of pipe used. Pipes should always rise about half an inch in every 9 feet to the highest point, and should be carried their whole length without dips, as such would cause a stoppage in the circulation of the water. Hot

water ascends by specific gravity, being lighter bulk for bulk than cold, and when it reaches as high as it can, it stops, unless, indeed, the high pressure system is adopted, and this, besides being unsuitable for horticultural purposes, is dangerous unless in the hands of experienced persons. For small establishments nothing beats the low pressure system of heating, and unless where waste steam or high pressure hot water has to be utilised, the latter should not be thought of, as, besides being dangerous, special wrought iron pipes have to be used in connection with it, and these are several times the price of the cast pipes used in the low pressure system. In all plans of heating, the

FUEL is of great importance; for general purposes nothing is better than hard burnt coke broken to sizes to suit the boiler or stove; the smaller the apparatus, the smaller the fuel needed. Thus with an upright boiler which has a fire space of about 8 inches in diameter by 15 inches or 16 inches high, and which is intended to be used on the slow combustion principle, the coke should be no larger than walnuts and free from dust, while with larger boilers on the same principle it should be no larger than hen's eggs. Many fuel stoves without boilers also need small fuel, and cannot be kept alight with any other. The same remarks also apply where anthracite or other non-bituminous coal is used. This being unlikely to cake together, and burning better than coke in many kinds of stoves, is worth the extra price charged for it, but in no case should bituminous coal be used, as it runs or cakes together, and causes the fire to die out, and often when it is most wanted. In all flues dampers should be used to regulate the draught and to economise fuel, as it is sheer loss to have the fire rushing up the chimney. Thorough combustion should take place in the furnace, and no smoke should pass away, as smoke is simply unconsumed fuel, and to have much of it is a waste of money. Have close fire doors to the boiler, a damper in the chimney, and a properly set boiler, and the best return for the money expended on fuel may confidently be expected; whereas an open fire front, a clear chimney, and a badly set boiler will waste both heat and money, and a large percentage of soot will issue from the top of the chimney to pollute the air and poison the plants around. Of course, the chimney will be swept from time to time to prevent the soot choking the draught, and for this purpose a soot door should be provided. The old brick flues used in former days are now nearly obsolete, but are sometimes used where fuel is very cheap, but as they cost as much as hot-water apparatus, and are not so easily managed, they cannot really be recommended.

Walton-on-Thames.

WALTER J. MAY.

TREES AND SHRUBS.

ARAUCARIAS AND OTHER CONIFERS.

MR. BAINES writes despondingly as to the future of *Araucaria imbricata* in this country, but does he not hit the right nail on the head when he says that as both it, the *Deodar*, and the *Wellingtonia* have in general been planted without any regard to situation, and as if tree planting were a new art altogether? When the exceptional beauty of these Conifers was brought into notice, and as soon as they became cheap enough, they were planted in every imaginable position, good or bad, and, as a rule, they were placed in the most exposed spot in the pleasure grounds just where they were deprived of that shelter which to them means life and health, and the absence of which entails sooner or later either sudden death or premature decrepitude. What wonder, then, that we see so many wretched looking specimens. It would, indeed, be curious if trees, which of their nature fear the exposure to icy winds, should succeed under the conditions so frequently accorded them. We have seen, for instance, a group of two or three *Deodars* placed in the middle of a park or some such place where they were exposed to the full blast of the cold north and east winds.

For a time they have struggled on, never, however, making good, free growth, developing eventually into miserable abortions, the mere caricatures of what this extremely graceful-growing Conifer is naturally. This is perhaps an extreme case, but something similar will probably have been remarked by many of your readers. The choicest and most delicate Conifers are placed in positions which are only fitted for the hardest and most enduring of our native trees. Mr. Webster remarks that in the case of *Araucaria imbricata* the nature of the soil is but a secondary consideration; that it will thrive in quite poor soils if the drainage is good; and to a certain extent I believe this to be true. A tree will live healthily for a number of years in poverty-stricken ground, and if the owner is content with an ordinary-sized specimen, he may put the question of nourishment on one side, but for the formation of large, handsome trees, plenty of good food is indispensable. The size and beauty of the

DROPMORE CONIFERS has often been cited, but if I am rightly informed, their fine proportions have been bought at the expense of a considerable amount of labour. There was in the first place a thorough preparation of the soil, for each tree perpetual vigour being maintained by means of timely top-dressings of good soil, tons of mould having been placed over the roots of many of the largest specimens. There can be no doubt that what has been done at Dropmore can be done elsewhere, but the question naturally arises, Is it worth while to expend this large amount of labour on hardy evergreens when others can be had to flourish without it? We have our native evergreens, such as the *Holly*, the *Yew*; we have such robust, much-enduring trees as the *Norway Spruce* and the *Scotch Fir*. Why, then, not employ them to the exclusion of such as demand our fostering care? The answer to this would seem to be that these very reliable subjects should hold the first place, and that it would be wiser to plant them more extensively than has hitherto been the case, at the same time reserving a place for more tender kinds which, by their exceptional beauty and distinctness, may not and never will be banished from our gardens.

THE *ARAUCARIA*, the *Wellingtonia*, the *Deodar* have each and all such exceptional claims to our notice in these respects, as to put all thoughts of rejecting them altogether out of the question. But instead of considering them as suitable for any soil and position, and demanding no more care than trees generally, it should be constantly borne in mind that only in a few places are to be found all the conditions natural to them. Instead of dotting these Conifers about in the indiscriminate manner so often practised, would it not be better to plant a few wisely and carefully attend to them afterwards? Two or three good specimens will do more to beautify a garden than a host of half-starved, unthrifty trees can ever do. And after all the care in time to come is by no means great; it is simply when anything like waning vigour is noted, to add a good surface dressing of some suitable compost. In many places the old soil from the potting bench carefully stored up would suffice to meet the needs of all the trees requiring this attention on the place. As to the labour, by taking one or two trees every year and doing the work at a period when time was of least value, it would hardly be felt. As a rule, time and labour bestowed on outdoor trees and shrubs are grudgingly given, and it must be owned that in many instances there is much excuse for this, seeing how great is the demand which the kitchen garden and glasshouses make upon the gardener's time. Still, with a little management a few days now and then might be spared for such work. Taking all things into consideration, I think we have but

LITTLE ROOM to COMPLAIN of the way in which coniferous trees generally behave in this country. The fault really lies in our having formed anticipations concerning them which could never well be realised. How can we expect natives of the *Chilian hills*, of the slopes of the *Himalayas*, or of the *Californian forests* to grow with us as they

do at home? It is not only one, but many conditions which too often fail them in English gardens, and we ought to be thankful that they will thrive as they do with us. Even in the moderate dimensions they attain they add a picturesque element of beauty to our gardens which is almost entirely denied to those of many other countries. How thankful would the owners of gardens in most parts of Germany and Switzerland be could they only enjoy the richness of verdure and variation of tint that we are able to do in the winter season. The winter aspect of a German garden forms a striking contrast to a well-stocked English one at that season, and to my way of thinking the greater variety of flowering trees and shrubs does not fully compensate for the nakedness and want of warmth and variety which characterise so many Continental gardens during the winter months. Only those who have passed some winters in a country where the *Laurel* and the *Aucuba* are greenhouse plants can appreciate the warm, cheerful aspect and the exuberant verdure of an English garden where coniferous and evergreen trees are freely used. Mr. Baines says that *Araucaria imbricata* seldom can be depended on to attain a greater height than 40 feet, and I think a healthy tree of that size a noble addition to any garden. We grumble because many of our finest conifers do not thrive as they do in their native wilds, forgetting how much they give us as it is, and with a little more care and judgment they would do us even greater service.

J. C. B.

PLANTS IN FLOWER.

Dipladenias.—Plants of these have been blooming with us since May, and even now they are showy. The flowers are not so large or the colours so bright as they were in summer, but I find them to be very useful for indoor decoration. I have them all intermixed, both seedlings which we have raised and established plants, on the roof of a small house, which they quite cover, and have a very striking effect. *D. amabilis* has produced twenty pairs of seed-pods, but I do not allow many of them to swell, as I find that they weaken the plants.—J. GIBSON, *Brentrey House, Westbury-on-Trym*.

Euphorbia punicea.—In the stove at Glasnevin a plant of this rare arborescent Spurge Wort is bearing a crop of its remarkably rich crimson bracts, which in shape resemble those of the well-known *E. splendens*. The habit of the plant is perhaps rather too leggy to suit the stickler for handsome specimens, but the colour of the bracts makes up for all other failings which this plant may possess. It is an erect growing plant with bare stems, bearing at the top a whorl of green spatulate leaves. When in flower the leaves at the base of the floral whorl fall away. The bracts retain their brilliant colour and remain on the plant for several weeks.

Rubus roesæfolius fl.-pl.—A dwarf white Rose that flowers throughout the winter would serve to convey a good idea of this plant, for, seen in the shape of a little bush profusely laden with flowers, it certainly at first glance seems to bear more affinity to the Rose than to the Bramble. It is dwarf in growth, and, though branching but little, throws up suckers freely and soon forms a bushy mass, which, in the temperature of a warm greenhouse, flowers throughout the winter. Where cut blooms are required it is very useful, as a few plants will yield a great number, while in pots the pretty pinnate light green foliage and double white blossoms have a fine appearance. This Bramble is almost if not quite hardy, but is seen to the best advantage when treated as a greenhouse plant. Its propagation is easy; young shoots of it strike readily in spring if put in a gentle heat and kept close until rooted. The principal insect pests to guard against are red spider, which frequently attack it when in the close atmosphere of the propagating case, and, unless checked, play sad havoc with the plants during their earlier stages. This

Bramble should be potted in spring after the flowering season is over, and kept in a greenhouse temperature till all danger from frost is past; after that it may be plunged out of doors, and may remain there till autumnal rains set in, when it must be at once moved under cover. A moderately loamy soil suits this Bramble perfectly, and while pretty little plants of it can be grown even in 4-inch or 5-inch pots, those about 6 inches in diameter are for general purposes the most useful. This *Rubus* is also known by the name of *R. fruticosus coronarius*.

Iris stylosa.—Miss Jekyll, writing from Munstead, Godalming, says, "The first flower of *Iris stylosa* was out on the 9th; this is the earliest I have yet had it." Mr. Kingsmill, of Eastcott, Pinner, has sent us a fine bloom of this beautiful Algerian *Iris*, which first opened with him on the 11th instant. This *Iris* is a plant that seems to be almost unknown, but how welcome are its fine mauve blooms in the dreary November garden.

Chinese Rice Paper Plant.—At the last meeting of the Royal Botanic Society, Regent's Park, the secretary called attention to a large specimen of this plant now in flower in the conservatory, and to the very flourishing condition of the Mangrove trees presented to the Gardens by the Duke of Buckingham, vice-president. For many years past they had endeavoured to cultivate them, but without success, the plants invariably dying after a year or two. At the suggestion of the Duke of Buckingham these plants are now watered with sea water, the change proving most beneficial.

Salvia Pitcheri.—We have this *Salvia* now beautifully in bloom. *S. Betheli*, *S. Hoveyi*, and *S. rutilans* are all grand flowering plants which no one who has a conservatory or greenhouse ought to be without. Planted out in a border during summer and potted in September is the kind of treatment which produces the best plants. *S. Pitcheri* is now a mass of lovely blue, every shoot being furnished with a flower-spike. It is the best blue autumn-flowering plant with which I am acquainted. I have also *Salvia Brunati*, *S. Mons. Issanchou*, and *S. leucantha*, and they, too, are worthy of attention. They look well associated with early *Chrysanthemums*.—WM. RICHARDSON, *Bessborough, Piltown, Ireland*.

Stigmaphyllon ciliatum.—We saw this climbing plant in bloom the other day in the conservatory at Chatsworth, and thought it an uncommonly pretty plant for adorning the roof or supporting pillars of a stove or warm greenhouse. It has long, trailing, slender shoots, heart-shaped leaves, beset with hairs at the edges and purplish beneath. The flowers, about a couple of inches across, are in shape like those of *Clarkia*, but of a bright chrome yellow. As it habitually flowers at this season, it is particularly valuable, and is, moreover, of simple culture if allowed plenty of room and kept free from insects. It is not a common plant, but is procurable at the best nurseries.

Senecio speciosus.—One of the most showy objects at the present time (November 5) in a mixed border of herbaceous plants is this *Senecio*, which has been continuously in flower for these last three months, and still bears a great number of unexpanded blossoms which will continue to open till cut off by frost. The seeds were sown in spring and placed in a greenhouse where they soon germinated, and when the young plants were large enough to handle they were potted off. By the middle of May they were planted out and soon commenced to flower, but the colour of the blooms was a sort of washed-out lilac. Those partly expanded were purplish magenta, but a few hours of sunshine sufficed to reduce them to the same dull hue of the others, and little if any improvement was seen during the hot weather. When autumn set in the flowers retained their bright colouring long after they were fully expanded, and were then very useful in a cut state, as they keep good a long time in water. As a summer-flowering plant with me this *Senecio* is of little value, as besides its dull-coloured flowers,

the Groundsel-like heads of seeds, which are produced so freely, give it at best a weedy look. Moreover, it often dies off in an unaccountable way, many of our plants dying when full of flower; but still, those that remained are now very pretty. This *Senecio* can be kept throughout the winter in a greenhouse, but the most satisfactory way is to treat it as an annual. Seeds can be obtained in great numbers, but they do not retain their germinating power well beyond the following spring.

Cestrum aurantiacum.—The flowering of this plant when grown into a large specimen and treated liberally is almost continuous from May, to November. In the greenhouse (No. 4) at Kew a large plant of it planted in the border and trained up a stake reaching from the ground to the roof, is literally covered with large pendent racemes of sweet-scented yellow flowers. Grown thus, this plant is one of the best of conservatory plants, especially for flowering late in the year. At Chiswick large quantities of this *Cestrum* are growing in 6-inch pots, and bear a rich crop of flowers. These plants have been grown on all the season from cuttings struck in spring, and more useful subjects for decorative work than plants thus treated we have not seen for some time.

Cuphea jorullensis.—This is one of the handsomest of the *Cupheas*. Grown in the greenhouse it forms a useful pot plant, and flowers freely in the autumn, but it shows itself to best advantage as a summer border plant, as it forms a shapely specimen, and in favourable weather produces an abundance of flowers, which last some time when cut and placed in water. It is a Willow-leaved species, with stout, reddish branches, and flowers about 1½ inch long, tube-shaped, and resembling both in colour and form *Correa cardinalis*. The flowers are borne from the axils of the leaves on the upper portion of the stems. *C. jorullensis*, or, as it should be called, *C. micropetala*, was introduced from Mexico about twenty years ago. Plants of it in flower may be seen both in the borders and greenhouse at Kew.

Luculia gratissima.—Several large specimens of this grand plant covered with huge bouquets of rose-tinted, deliciously scented flowers may now be seen at Kew. It is only in this shape that its best qualities are displayed, although the small pot specimens to be seen in some of the London nurseries are also useful and beautiful at this time of year. Although introduced from the Nepal hills some forty years ago, *L. gratissima* is not extensively grown, owing, no doubt, partly to its meanness in a young state and to the difficulty experienced in its propagation. The latter difficulty is easily overcome by importing seeds, which are produced in abundance by wild specimens in North India, and now we believe procurable. Planted out and well treated, this plant bears cymes of flowers at least 1 foot across and at the end of even the smallest shoots.

Tupa Feuilli.—In the Glasnevin Botanic Gardens several large clumps of this handsome *Lobeliad* are covered with flowers, and are particularly attractive. The plant is not uncommon in gardens, but generally only in the shape of isolated specimens; whereas in Glasnevin and also in the university gardens at Dublin, large groups or colonies nestling under a warm hedge or at the foot of a bank are scattered here and there with capital effect. As is the case with most of our border plants with a spicate inflorescence, neither this *Tupa* nor the closely allied *Lobelia fulgens* and its varieties are seen to advantage unless they are grown in good sized groups; and in truth not only do such plants look better in that form, but they seem to thrive better when planted in this way. I suppose protection in very cold weather would be required by this plant in this country; perhaps in the extreme south a covering of light litter or dead leaves might, however, prove sufficient in an ordinary winter. Taken up and wintered in a cool frame entails a certain amount of labour, and, moreover, weakens the plants con-

siderably. It certainly would be worth while trying deep planting in a sandy soil, and a covering of leaves during winter in preference to lifting, for when once well established, as at Glasnevin, the display of bloom which it makes late in autumn is very fine indeed.

Bomarea oligantha.—This is perhaps the most useful of all the introduced *Bomareas*; it flowers most freely the whole summer through, and that on the shortest and weakest of shoots, as compared with the coarser growing kinds. For covering pillars or training on a trellis this plant is very well adapted. Plants of it have been flowering since last May in the succulent house at Kew, and are still bearing several bunches of their yellow and red blossoms. We may here mention that a few days ago we saw flowers of the true *B. Jacquesiana* borne by a plant purchased for B. Carderi, with which it would appear to have got confounded. The latter species is much the finer of the two. It is easily distinguished by its almost round leaves, much larger flowers, and the compactness of its inflorescence, which in *B. Jacquesiana* is very sparse. The colour of the flowers is precisely the same in both plants.

Epiphyllum form at the present the greatest attraction in the large conservatory at Chatsworth. Here, Mr. Speed grows them in large quantities, and in all shapes and sizes, from the dwarf-spreading plant to umbrella-shaped standards, all profusely laden with bloom. The range of colour, too, is remarkable, there being every shade from pale pink and salmon to the intensest crimson, and some possess a purplish lustre which heightens their beauty. All the plants are grown in a group by themselves in a light part of the house, and the effect they produce is very brilliant. The *Epiphyllum* evidently receives a deal of attention at Chatsworth, and certainly such a showy and most persistent flowering plant well deserves it. They are rather gone out of fashion of late years, but it will be difficult to find fitting substitutes for them.

Dimorphanthus juglandifolius.—Under this name Mr. Gumbleton has sent us a specimen of what we take to be an uncommonly handsome shrub distinct from any we have hitherto seen, and, we presume, very rare. It is said to be deciduous and to be slow in growth, only increasing about an inch in a year. It has flowered for the first time at Belgrove this season. The flowers are small and inconspicuous, produced in umbels arranged on long, slender branching spikes. The leaves are the most remarkable part of the plant. They are pinnate, and some 2½ inches in length. The leaflets are arranged in twos and fours at intervals of about 6 inches along the leaf-stalk. Each leaflet is about 6 inches in length and about half as broad, bright green above, glaucous white beneath. We should like to know more about this shrub, such as its hardiness and native country.

Celsia Arcturus.—At the meeting at South Kensington on Tuesday last Mr. Hudson, of Gunnersbury House gardens, showed a specimen of this pretty and somewhat uncommon plant, and which was much admired for its elegant growth and bright colour. The plant is of dwarf habit and with sage-green foliage. It produces several slender flower-stems, each about a foot in height, and wreathed for about half their length with bright yellow blooms about the size of a florin. A well grown and flowered plant, such as Mr. Hudson shows, makes a highly attractive object and is particularly valuable for the greenhouse at this season. It deserves to be more widely known than it is. The plant in question was shown under the name of *C. cretica*, which, however, is a much stouter growing plant, and somewhat harder than *C. Arcturus*. The true *C. cretica* was figured in *THE GARDEN*, Vol. XXII., p. 314.

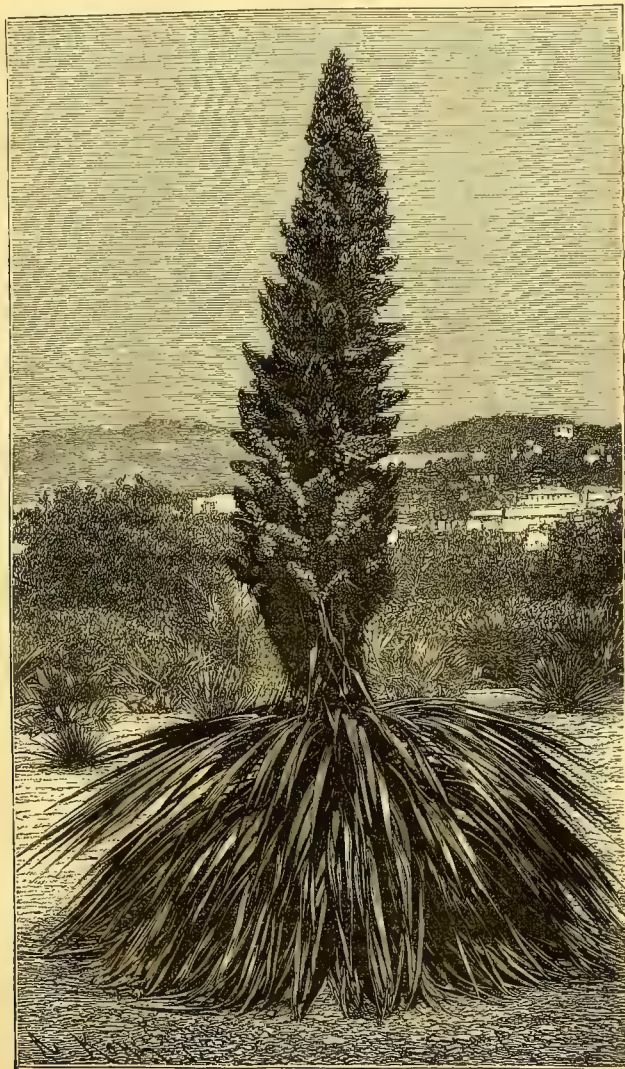
THE Americans would appear to fear the results of eating green Apples—on the part of their young folk at least. We find the following note in an American paper: "The early Apple cometh and the undertaker hummeth, and his face is lighted up with joys; and he calculates that colic, with its twinges diabolic, will double up and spifficate the boys."

INDOOR GARDEN.

DASYLIRION LONGIFOLIUM.

AMONGST the numerous specimens of sub-tropical plants which adorn the Riviera is this *Dasyliirion*, a fine example of which bloomed last summer in the lovely valley of Hyères. It was raised from seed imported from Central America about fifteen years ago. Its flower-stem attained the height of 11 feet, two-thirds of which consisted of inflorescence, and the latter measured about 6½ feet at

injuring some of them, however carefully the work may be done. The proper time in which to re-pot is as soon as the stems die down; the bulbs should then be turned out, and if in a crowded state, into which the lancifolium section soon get, they should be shaken from the old soil and divided. This may be done by simply pulling the mass apart in halves or quarters, according to the sized pots in which they are to be placed, or the bulbs may be separated and the small ones picked out, the latter being the better plan, as the strong flowering sizes can then be



Dasyliirion longifolium in flower at Hyères.

its greatest circumference. The flowers individually are small and creamy white in colour. As will be seen, this gigantic flower-stem rises from a dense tuft of gracefully reclining leaves, each leaf being about 50 inches long and 2 inches wide. Though in England *Dasyliirions*, like most of their kindred, are invaluable for corridor vases in plant houses, they never attain the proportions of the specimen here illustrated, which stands unique amid surroundings of the most picturesque description.

J. MURISON.

The potting of Lilies is, in many cases, deferred till much too late, as when left till after the turn of the year the new roots are forming, and it is impossible then to disturb the bulbs or ball of earth they are in without breaking or

potted together and fine specimens made of them. In preparing the bulbs, many leave the stumps of the old stems in the crowns, but I like to pull them out, as they are apt to induce the bulbs to decay, and as they may be detached easily by giving them a pull, the best way is to remove them. Bulbs not crowded or irregular should not be disturbed beyond reducing the ball and clearing away the crown portion, but potted in a mass in pots a size or so larger than those in which they were before. As Lilies require abundant supplies of water, it is important that they have efficient drainage. The kind of mixture most suitable for their growth is fibry peat and loam, in about equal parts, to which should be added a good sprinkling of sharp clean sand. In placing the bulbs in their pots, it is always advisable to keep them well down, so as

to admit of 3 inches or 4 inches of soil being put about the crowns when the pots are finally filled. In this the young stems root, and the food obtained in that way is a great help in forming and producing the flowers. As to size of pots, nothing is gained by giving too much room, especially in the case of *L. auratum*, single bulbs of which send up strong stems and flower well in a very small body of soil. The lancifolium varieties look best when grown in numbers of from three to ten in a pot, the larger quantity requiring a pot a foot or 15 inches across; for the smaller, one of 7 inches or 10 inches is quite large enough. If the soil is moderately moist, as it should be, when used for potting Lilies, no water will be required till they begin to grow, as they need but little while they are without tops and have few roots, which are formed slowly during the next month or two, and as the plants do not need light for some time they may be set in any outhouse or shed, or stowed away in any cold frame.—S. D.

SPHÆROGYNES.

THESE handsome *Melastomads* are remarkably distinct plants, especially *S. latifolia*, which is much the finest and most desirable species to cultivate. In appearance it is like *Cyanophyllum magnificum*, but its leaves, although not nearly so large as those of the *Cyanophyllum*, are more beautiful; the colour of the upper surface is a shade of olive-green, shining like velvet; their beauty is much heightened by the singular corrugation which extends in a complete network over the whole leaf, imparting to the plant a particularly handsome and unique character. Besides *S. latifolia* there are two or three other kinds in cultivation—*S. ferruginea*, *S. imperialis*, and *S. cinnamomea*; the latter comes from Costa Rica, *S. imperialis* from Peru, and the two first-named from South America. All are alike as to their cultural requirements, wanting a high temperature to grow them well. They are easily increased and are free growers, thriving in either loam or peat, the latter to be preferred where it can be had of good quality. They can be propagated at any time of the year when cuttings in a half-ripened condition are obtainable; these may consist of the top leading shoot taken off with about three joints, or of side shoots such as are produced by a plant that has had its head removed, say in April. By the beginning of June it will have pushed out side shoots; if these, when big enough, are taken off at a joint and put singly into 3-inch or 4-inch pots filled with sandy peat, the surface all sand, kept moist, shaded, and close under a propagating glass in a temperature of 70° or 75°, they will root sufficiently in three weeks or a month to bear the glass being dispensed with. After this keep them where they will get a fair quantity of light in a house or pit where the atmosphere is moderately humid, giving some air in the daytime, and shading always when the sun's rays come on them. They should now have heat in the night time similar to that in which they were struck, with 80° or 85° in the day. They are free rooting plants, and by the middle of August will require moving into pots 6 inches or 7 inches in diameter, using soil with plenty of vegetable fibre in it, and a moderate quantity of sand and some rotten manure. They should be syringed once daily all through the growing season, getting the water well to the undersides of the leaves, so as to prevent the lodgment of thrips or red spider. Reduce the temperature in the autumn, and leave off shading, regulating the admission of air in accordance with the state of the weather. The night temperature during the winter should not be under 60° or 65°, from which it ought to be gradually increased from the end of February through the spring until it reaches the point advised for last summer. In March move the plants into 12-inch or 13-inch pots, using soil similar to that for last potting. Treat as to shading, air, and atmospheric moisture as in the last season, and give plenty of water to the roots as these fill the soil. If large specimens are not required, liquid manure will sustain them through the season in the pots

they now occupy, but if the intention is to grow the plants as large as possible, they will by mid-summer require 15-inch or 16-inch pots. After this they will reach a handsome size, and only want a continuance of the treatment so far advised. The only form of growth which shows these *Sphærogynes* to advantage is keeping to a single stem, and they are only attractive so long as they retain their lower leaves in good condition; consequently when these are getting shabby, the plants should be headed down, after which keep them warm, the stools will soon break, when most of the soil can be shaken away, putting them into pots that will admit the roots with some new soil, treating afterwards as recommended in their younger state. It is well to keep a succession of young plants to take the place of the old ones, which can then be dispensed with as their foliage gets into bad condition, but where large examples are required the headed-down specimens will make the finest, forming larger leaves near the bottom than cuttings will.

INSECTS.—All the insect pests that affect stove plants will live on *Sphærogynes*, especially scale and mealy bug, from which they should always be kept quite clear, as the formation of their leaves gives harbour to the insects, and makes it difficult to remove them without injuring the foliage, which is impatient of sponging unless great care is exercised. T. B.

FITTONIAS.

THESE are evergreen herbaceous plants of dwarf habit, with compact foliage covered with a beautiful variegated netted venation, that stands out prominently from the ground colour of the leaves, which in some of the kinds is bright green, in others of a dark reddish brown hue. The plants have succulent stems that root freely as they spread on the surface into any loose or earthy matter within their reach; for this reason they are most useful for clothing the surface of stages and inside borders of warm plant houses, to effect which nothing further is required than to prepare a few inches of the top with loose material, such as a mixture of loam or peat with a little leaf-mould and plenty of sand to keep it open; this should be done in spring just as growth commences, after which the young plants should be transferred to the spaces prepared for them; they may consist of crowns with three or four joints each that have been struck in the ordinary way, which they may readily be by putting them a few inches apart in large pans filled with sand, kept moist and close for a week or two. *Fittonias* are very useful for filling

HANGING BASKETS, or for covering the surface, both top and bottom, of baskets containing other plants, as they will root and thrive in the Moss that is generally used for lining the baskets if this is only kept moist, for it is well to observe that they require a continually moist medium for their roots. They also look well grown in large pans and allowed to hang over the sides, covering the whole with a dense growth of their exceedingly pretty leaves. So free is their growth, that they will thrive in places where there is much less light than most plants will succeed with. When they get too high or at all straggling, they may be cut in, which will cause them to break out again, or the space may be filled with fresh plants. All the *Fittonias* succeed best in a warm, moist atmosphere such as will answer for most warm stove plants, with shade when the weather is sunny.

SPECIES.—The following are deserving of cultivation: *F. argyroneura*, ground colour pale green, profusely netted with silvery white nerves, a native of Peru. *F. rubro-nervia*, medium-sized oval leaves, beautifully veined with reddish pink, a charming species, from Peru. *F. Verschaffeltii*, leaves larger than in the preceding, and the veining a little lighter coloured; Brazil. *F. gigantea*, a strong growing plant; the leaves of which are dark green, prettily veined with red; flowers yellow; from Ecuador.

INSECTS.—*Fittonias* are easily kept free from the smaller insects that affect plants in heat by constant syringing, in which way the water they require can in a great measure be given. If mealy bug attacks them, syringe freely with tepid water and sponge the leaves afterwards.

T. BAINES.

HERBACEOUS CALCEOLARIAS.

THE cooler the quarters which these plants have during winter the more satisfactorily will they flower. The cool, damp air of a pit or frame, with a bed of soil on which to set them, are just the conditions that suit them. Under such treatment they continue to make vigorous growth all winter. We place our stock of plants in a cold pit about the end of September, and there they remain until they come into flower. If we can just keep frost out that is all we want, and in order to do this external coverings are resorted to sufficiently early to make the plants safe. The lights are covered every night with a single mat after the beginning of November to keep them secure from sudden frost; at other times two mats are used, and in severe weather a layer of rough hay is laid on the mats, and another mat is put on the top of that to keep the wind from blowing the hay about. Plants intended to make specimens should be put into the pots in which they are to flower not later than the middle of December. They require a fair amount of pot room, but it is seldom that pots more than 9 inches or 10 inches in diameter are used for them. For conservatory decoration 8-inch pots are sufficiently large, and in most cases a few in 6-inch pots will be found useful. *Calceolarias* dislike too much water at the roots, especially during the dull winter months; therefore watering must be done with care, and only those that require it should have any; those likely to stand a couple of days without the leaves flagging should be passed by. Plants that get more water than the roots can appropriate invariably look yellow all through the winter months. Our plants are given weak manure water as often as they want any, and this treatment is continued until they are taken into the conservatory. Thorough drainage is an essential condition as regards their well-being; quite one-fourth the depth of the pots should be occupied with drainage. On the top of the crocks should be put a layer of rough loam to keep the fine soil from getting down into the drainage and thus impede the course of the surplus water. A thoroughly substantial soil is of primary importance; one part good rotten farm-yard manure and three parts fibrous loam, with the addition of some coarse grit or sand, is the right sort of compost for them, and when potting the collar of the plants should be placed rather above the surface than under it, as when potted low and there is any accumulation of damp the plants are liable to die off suddenly in consequence. J. C. C.

COCHLIOSTEMA JACOBIANUM.

IN this valuable introduction from Ecuador we have not only a plant of distinct and stately appearance, but also one which possesses remarkable beauty. It resembles a *Bromeliad* with a very short stem. Its leaves grow to a length of over 3 feet, and they are 7 inches broad at the widest part. They are arranged somewhat closely in a tuft-like form, springing from the short stem, which gives the plant the appearance of a huge *Tillandsia*. They are spreading, slightly recurved, and of a somewhat pale green colour, their appearance being much enhanced by the beauty of the large spikes of flowers which are produced freely from their axils. A strong specimen will continue blooming, more or less, for three or four months in succession. The flowers may be described as a bluish violet, and are borne upon smooth, stout pink stalks, from 12 inches to 18 inches in length, and as thick as a person's finger. These are furnished with pale pink bracts from 3 inches to 4 inches in length by 2 inches in breadth, which, contrasted with the flowers, produce a charming effect, altogether different from anything else. It usually commences bloom-

ing in spring, the particular time of course being influenced by the condition of the plant and the temperature in which it is grown. In addition to its fine appearance it possesses the good properties of not being difficult to manage, and it can be placed in a conservatory when in bloom during the summer months without sustaining injury therefrom, when care is taken not to allow it to stand in a draught or too near where air is admitted; at the same time with this, as with most other stove subjects, under such conditions it does not make much growth, and consequently must not receive too much water; for although it delights in plenty of moisture when in active growth in a moderately high temperature, when there is little root development going on, a too wet condition of the soil is calculated to endanger its health. For a considerable time after its introduction its high price, owing to the slow rate of its increase, kept many from growing it, but now that it is cheaper it ought to find a place in even the most choice collections. It has an agreeable, but not overpowerful perfume. It may be

PROPAGATED by means of suckers, which are produced near the base of the plants; these, when sufficiently strong, may be taken off in the spring, stripping off a few of the under leaves, and placed singly in pots proportionate to their size in soil consisting of half sand and loam; they will soon root in a temperature of 70° kept moderately, but not too close. When sufficiently rooted, the young plants should be gradually exposed to the full air of the house, giving them plenty of light, but not direct sunshine. They should, however, by no means be shaded by other plants, for if so they will never make enough roots to support a vigorous head of leaves, without which the plant cannot be seen in its best condition. When the pots are moderately filled with roots shift into others 7 inches or 8 inches in diameter. It will succeed in a mixture of two-thirds good yellow turfy loam and one of fibrous peat, to which a liberal admixture of sand, broken crocks, or charcoal should be added, and a little chopped *Sphagnum*. Drain the pots well; if filled with crocks to one-fifth of their depth, it will not be too much, as, in common with other things of a kindred nature, it cannot bear stagnant moisture in the soil. The temperature during summer may be kept at 70° by night, giving air in the day when it rises by sun heat to 80°, and closing in the afternoon whilst the sun is up, sprinkling overhead at the same time with the syringe. As autumn advances give more air and less shade, discontinue syringing, and reduce the temperature, keeping it through the winter at about 60° in the night and 5° higher during the day, giving considerably less water to the soil. Increase the heat 5° at the beginning of March, and when growth has fairly commenced shift the plants into pots 4 inches larger than those they now occupy, using soil in a more lumpy state than before. In re-potting do not disturb the roots more than can be avoided, merely removing the drainage material from the bottom of the balls. As the weather gets warmer raise the night temperature to 70°, with a proportionate increase by day, air and shade being attended to as required, and again syringing overhead when the house is closed in the afternoons. Under such conditions the plants will grow apace, and when the roots have got a good hold of the soil they must be liberally supplied with water. Most probably a few spikes of flowers will make their appearance this season, but these are of secondary importance, as the aim of the cultivator should be to grow the plants to as large a size as possible during the summer. No attempt should therefore be made to move them from the stove when in bloom during the present season. About July they ought to have

ANOTHER SHIFT, this time putting them in 15-inch or 16-inch pots, with, as before, plenty of drainage and similar soil. Give less water for two or three weeks until the roots begin to penetrate the new material, after which treat in every way as in the early part of the summer. As autumn advances again reduce the temperature and dispense, as before, with the use of the syringe

and shading; also maintain a drier condition of the atmosphere, wintering them as previously. In spring again increase the temperature, and give additional water, with shade as required. If all has gone well, and the plants have made the progress which they ought to have done, they will begin to push up their flower-spikes about the beginning of May, producing from a dozen to a dozen and a half at or near the same time. It will be better not to move them to cooler quarters until midsummer, as whilst the spring growth is somewhat tender and the nights cold they will be liable to suffer in a way of which there will be no danger later on in the season; the successional flowers which they will produce will render them an acceptable addition to the conservatory, where they may remain up to the end of August, placing them again in the stove before the weather gets cool. Winter as before, and in the spring, before growth has commenced, turn them out of their pots and work away as much of the soil from the upper portion of the ball as can be done without injuring the roots to any extent; regulate the drainage and add new soil, putting the plants back into the pots out of which they were turned, unless there is a desire to grow them on to a very large size, in which case they may be shifted into others 2 inches larger. Treat during the summer as in the preceding one, but this season give them a little weak, clear manure water once a week; this will compensate for the less additional root-room which they have received. Their autumn and winter management should be the same as before, in spring removing some of the old soil and giving fresh material in its place, again assisting them with manure water. When suckers are made they should, as they get large enough, be removed and struck, as already recommended; these will take the place of the older plants when they get shabby in appearance.

INSECTS.—The character of the leaves of this *Cochliostema* and the continuous use of the syringe during the growing season keep down, as a rule, the smaller kinds of insects that affect the occupants of the stove; but if scale makes its appearance it is easily removed by sponging, and mealy bug can be washed off by syringing with tepid water. T. BAINES.

APHELANDRAS.

THESE are seldom seen in a satisfactory condition in gardens, their general appearance being that of a naked stem a foot or so high with a few leaves on the top; even then, however, they are bright and cheerful when in flower, more especially at this dull season—the time indeed when they flower more freely than at others, though their blooms are frequently produced throughout the year. Their general colour is a shade of orange or scarlet, though there is one (*A. chamissoniana*) with yellow flowers. Their foliage, too, is very pretty. *A. Leopoldi*, *aurantiaca*, and *fascinator* have the veins of the leaves beautifully marked with silver, while in *A. nitens* the leaves are very dark green on the upper side and purplish below; in *A. chamissoniana* they are more lanceolate in shape than the others, with a central band of white breaking up into spots and freckles which sometimes overspread the greater part of the leaf. They strike without difficulty, and if the flowers are already formed when the cutting is taken they open without any check, and therefore plants but a few inches high may sometimes be seen carrying a good spike of blossom. This circumstance may be taken advantage of to produce dwarfier, and thereby more attractive, plants than those usually met with; the tops may be taken from any plants that are too long and put in as cuttings, when they soon root. When struck they should be potted into 4 inch or 5-inch pots, and kept in a light position, but where the atmosphere is moist and genial, otherwise the foliage will turn yellow. If the propagation is done early in the summer many of them will be now from 6 inches to a foot high, with fine clean foliage down to the base and crowned by a dense spike of flowers either expanded or approaching that condition. The sorts commonly grown include *Leopoldi*, *cristata*, *auran-*

tiaca, *nitens*, *Roezli*, *fascinator*, and *chamissoniana*, also known as *A. punctata*. Ordinary stove treatment suits them perfectly, for they are in no way very particular as to soil provided it is of a moderately loamy quality, and insect pests but rarely trouble them. The flowers are by no means suitable for cutting, but little dwarf plants are very useful for decorative purposes in many ways. ALPHA.

5079.—**Allamandas.**—In addition to the yellow-flowered kinds of *Allamanda*, of which *A. nobilis*, *A. grandiflora*, *A. Hendersoni*, and *A. Chelsoni* are the best, there is *A. violacea*, that made its appearance over twenty years ago, but it is a worthless plant, a very shy bloomer, and the colour is exceptionally ugly, very different from what its name would imply. So different is it in this respect from any flower I ever saw as to make it difficult to describe; but dirty white, with just enough purple to give a washed-out, faded appearance, is nearer than anything else that occurs to me.—T. B.

Allamandas in bottom heat.—Mr. Muir states (p. 391) that “those who get up *Allamandas* for exhibition generally plunge them in bottom heat in order to get a large quantity of bloom out at one time, but such treatment is not conducive to long flowering.” My experience is quite the opposite of what is here stated regarding the prolongation of the blooming of this plant, and I think that nothing is more conducive to its well-being than bottom heat. It can be got earlier into flower, and with a supply of liquid manure at hand it is a simple matter to keep it going till the new year, at which time it is practicable to keep it on the dry side, in order to get it pruned and started off for another season's growth. In the gardens, Cameron House, Dumbarton, in 1874, we had an *Allamanda Hendersoni* in a 12-inch pot which covered the roof of a span-roofed plant stove some 40 feet in length. This plant was plunged in bottom heat in the centre of the house, trained up a pillar till it reached the wires, and then allowed to ramble right and left, and instead of producing “dozens of blooms in one week,” it produced hundreds, and was a sight one was not apt to forget. We also exhibited an *Allamanda Schottii* trained upon a balloon trellis about 3 ft. in diameter, with over sixty expanded blooms upon it the same year. Those who wish to grow *Allamandas* well should give them a rich, open compost to grow in, plunge them in bottom-heat in a plant stove, and allow them to ramble along the roof, where they can get plenty of light and air and not too much moisture; moisture and shade are two evils to guard against. Under this treatment *Allamandas* succeed best.—J. R. D. P.

SHORT NOTES.—INDOOR.

Solanums of the *Capsicastrum* type are amongst the most useful and easiest grown berry-bearing plants for Christmas decorations. They should now be grown in a genial atmosphere and in abundance of light in order to ensure the full development and proper coloration of the berries.—CAMBERIAN.

Chrysanthemums in bloom.—A cool dry atmosphere and a steady supply of moisture at the roots will induce *Chrysanthemum* blooms to remain much longer in perfection than when kept in a humid atmosphere and changeable temperature, and with the soil about the roots varying from dryness to saturation.—CAMBERIAN.

Staphylea colchica.—A few plants of this early flowering shrub should be procured for forcing. It will be found to force more easily and in less time than most other hardy shrubs used for forcing; and as it produces clusters of pure white blossoms, it forms a good companion for the well known *Deutzia gracilis*, which is always in great demand during the early spring months.—W. C.

Erica melanthera.—This, when of good size, is a capital plant for autumn flowering. We have it nearly 4 feet high and well proportioned, and though the flowers are not striking, they are produced in such abundance as to be effective *en masse*. I have heard it called the half mourning plant, and the name is not inappropriate, seeing that the predominating colours are black and white.—J. C. C.

Lapageria alba.—The purity of colour and the time during which the blooms of this plant last in a cut state render them almost indispensable in many choice floral decorations. A grower here has been realising 3s. per doz. for good blooms in Covent Garden—a very fair price for the summer season when growers are so plentiful. Later on they will be worth double that amount.—J. C. B.

KITCHEN GARDEN.

NEW SPECIES OF POTATO.

THE discovery of a new esculent having so much affinity to the “noble tuber” as to merit the name of Potato, is a fact which I have no doubt will have much interest for readers of THE GARDEN generally. The native place of this tuberous-rooted *Solanum*, named after its discoverer, S. Ohroudi, is the little uninhabited island of Goritti, situated at the mouth of the river La Plata. The flora of this island is of a limited character, being composed mainly of *Chenopodiums*, *Grasses*, a *Solanum* or two, and *Sedges*. The soil is sandy. Strangely enough, the most diligent search failed to discover more than one root of this *Solanum*; but, luckily, the tubers were brought safely to Brest, and delivered into the care of M. Blanchard, gardener at the Seamen's Hospital of that town. This is what M. Blanchard has to say on the matter in the *Revue Horticole*: “From the time it came into my hands I have cultivated, or rather left this plant in the same place, and for the simple reason that it was impossible to destroy it. Every year, at the end of June or beginning of July, I took up the produce. Notwithstanding all the pains taken in lifting there remained enough in the soil to ensure a crop the following year.” Here it should be explained that this new *Solanum* has three sets of creeping stems, one of which runs near the surface and throws up at intervals young growths, which flower almost as soon as they appear. Another strikes deeply into the soil and produces tubers, whilst others take a path midway between these two and content themselves with producing an enormous quantity of almost microscopical bulblets, which when detached effectually guarantee the plant against extermination. M. Blanchard adds: “I believe it would be easy, simply by means of good culture, to improve this plant. Already there is a great improvement in the size of the tubers compared with those received from M. Ohroudi. The latter were no larger than a nut, whilst some of those grown by me are as large as a small hen's egg and good in flavour, having a Chestnuty taste accompanied by a slight amount of bitterness. We have used them both boiled and baked, but they are best baked. The tubers are perfectly hardy, having passed the winter of 1881 in the open ground, and I may add that up to the present the haulm has shown no trace of disease.” As illustrating

THE PRODUCTIVENESS of this Potato and the persistency with which it establishes itself, M. Blanchard states that, having placed the original tubers under glass, and finding that they did not thrive, he planted them out. The crop consisted of six tubers, which were lifted and stored for the winter. In the spring, says M. Blanchard, we saw that the space occupied by them was dotted with young plants. The six tubers taken up were planted amongst them and nothing more was done until July, when half a gallon of tubers were lifted. In September the ground was again swarming with young plants, covering about 2 square yards. We planted nothing, and lifted the following year $1\frac{3}{4}$ gallons of tubers. That year we tried to root it out, but next September there was again a crop of young plants, covering $6\frac{1}{2}$ square yards of soil, and we lifted a crop consisting of about 21 lbs. weight. Whether this esculent is likely to prove of service one cannot say without trying it, but a Potato which is said to be of fair quality, and

which will yield a crop year after year without culture must, one would think, be an acquisition. If not suitable for table use it may possibly prove useful for cattle. I fear it will

NOT BE QUITE HARDY with us. The climate of Brest, where M. Blanchard's experiments were conducted, is well known to be very mild. Brest occupies a position to the north of France, analogous to that which some parts of Devonshire hold with regard to the south of England; and although sharp frosts are sometimes experienced, they are not so injurious as further inland. Many plants requiring shelter at Paris are hardy at Brest. Perhaps, as M. Carrière suggests in the periodical just referred to, the crossing of this new Potato with our own might result in the production of a new race of a hardier and altogether more enduring character than that which we now possess; at any rate it might be well to try the experiment. The habit of this Potato is very dwarf; it is said not to exceed 1 foot in height, but it is very vigorous and excessively bushy, and the general appearance of the plant is that of the common Potato.

J. C. B.

WINTER TREATMENT OF VEGETABLES.

NEVER, perhaps, have these been more abundant or better than they have been this summer and autumn; even Scarlet Runners, Peas, Tomatoes, and similar tender things can still be had from the open. The latter part of October was not only fine, but very warm and still, and November, so far, is of much the same character. We cannot expect this state of things to continue long, however, and those who would prolong the delicacies just named must be ready to protect or gather them when frost comes. The best way of managing with Tomatoes is to cut all the most forward and lay them on dry, airy shelves in a warm house or room, where they will ripen and finish colouring, and though not so good as those obtained earlier in the season, they are passable, and come in well for kitchen use. French Beans or Scarlet Runners will keep a long time now if picked and laid between dry Cabbage leaves in boxes, or buried in moist sand, which washes off them readily when wanted if placed in a sieve under a pump.

CAULIFLOWERS may be preserved in many ways, a good plan for those required first being to cut them with most of the stem and leaves attached, and then hang them up after tying the foliage close over the heart with matting, by which they may be slung on a nail. Those required to keep longer should be taken up by the roots and either laid in by the heels in some soil in a shed where they can have a mat thrown over them by night, or placed in any spare cold frames where they can be protected by having the lights and other coverings put over them when frost is severe. If frames or sheds are not at liberty, they may be laid in close under a wall or other fence on a border, where it is an easy matter to shelter them with mats or straw, and this is the best way of treating the earlier kinds of Broccoli, such as Snow's, Osborn's, and Backhouse's, which turn in during winter, as without some kind of protection they often get spoiled. The disturbance to the roots may, and doubtless does, lessen the size of the heads, but that is a small matter when the safety of a whole lot is considered. The later sorts of Broccoli are very luxuriant, owing to the exuberant growth which they have made, and in order to insure part of the crop of these against severe frost, it is advisable to turn them over on their sides and bury their stems so as to bring their heads near the ground, which places them in a much better position to endure hard weather than upright, as when snow comes, instead of the leaves hanging down and leaving the hearts exposed, they lie over the heads and protect them. Treated in the way referred to, I have known large breadths saved when others left as they grew were

every one spoiled or destroyed. Cabbages should be simply earthed up after the ground has been hoed and cleaned, which steadies them against wind. Young Cauliflowers ought to be potted singly and kept in cold frames ready for planting out early in spring, as then they experience no check, but commence growing at once. Spinach, before hoeing, is much benefited by having a dressing of soot sown between the rows, as it not only acts as a powerful and agreeable stimulant, but wards off slugs and insects that affect either root or top, and often do as much mischief to the one as the other.

CELERY should now in most places have its last earthing up, and when doing this it is necessary to bring the soil to a sharp ridge at the top, so as to keep out wet, which if it gets into the hearts of the plants causes them to rot, and does as much or more harm than the frost. The maggot has been and is very prevalent still in some places, and in these latter cases it is advisable to go very carefully over the plants and squeeze the parts of the leaves affected between the finger and thumb, which crushes the maggots at work there, and prevents any further spread of the evil. Beet and Carrots, if not up, should be got in at once, as frost injures both, and if touched by it, the roots suffer in flavour and rot. Where Carrots and Beet keep best is in sheds, where they should be stacked in dry sand or earth with the crowns out, in which way they remain dry and do not decay. Parsnips are best left in the ground and taken out when wanted, as frost improves them, and many dig them out and let them lie, that they may be more subjected to it, as it makes them more mild and mellow when cooked. Turnips, though equally hardy, deteriorate by exposure, and the best way with them is to cut out trenches in the ground and bury the bulbs, leaving the tops out, as then they keep moist, sweet, and plump. Some head and tail and put them in heaps or lay them in sheds, but they are never so fresh, juicy, and good as they are in the open earth covered with soil as referred to above.

S. D.

PROFITABLE TOMATO GROWING.

OF all departments of fruit-growing, probably none is more profitable than the Tomato, when carried on in a sufficiently large scale and by properly qualified persons. Almost any kind of house may be made to answer the purpose, but a low span-roofed one running north and south, with the eaves of the roof reaching to within a foot or 18 inches of the ground, with ventilators along each side close to the ground and the apex, is undoubtedly the best for the purpose. It should be about 14 feet wide, 9 feet high—angle of roof about 46°, and it should have a 10-foot rafter. It should be permanently wired, as for Vines, about 12 inches under the glass. The heating power for such a house need not be very large; a flow and return of 4-inch pipes on each side, within 2 inches of the outside walls, and opposite the ventilators, would be amply sufficient, and so situated would warm the admitted air and promote its circulation within the house at times when it would be impossible to obtain it otherwise. To obtain the fruit at a time when it would fetch the best price in the market, strong plants should be planted early in the month of November; they would be in full bearing in the early spring months when good Tomatoes would fetch from 2s. to 3s. a pound, and with careful treatment, abundance of manure, both liquid and solid, they would continue to produce good fruit for six or eight months without replanting. Now, supposing such a house as we have shortly described, 100 feet long, to be planted and well managed, we reckon it would produce during a year more than two tons of fruit, the price of which would vary from 3s. to 3d. a pound, the latter price only being obtained in September and October, when the bulk of the fruit should be gone. From such a house it may safely be predicted that the fruit would fetch an average price of 10d. per lb., which for two tons would be about £185. The necessary fuel for such a house would cost about £10, manure £5,

labour in attending and packing £40 (one man would very well manage two such houses if he had nothing else to do), rent of land £5, interest on building £10; total expenditure £70, leaving a balance of £115. This may appear to many to be incredible, but the calculations are founded on facts. What do our great growers say to it? If they say anything, they will say, "It cannot be done," but until they point out in what respect our calculations are wrong, we shall have faith that they are right, and that Grape growing is out of the field when compared with Tomato growing.

JERSEY GARDENER.

The Autumn Giant Cauliflower is largely grown in this locality, and when true is decidedly one of our best vegetables. There is no danger of confounding it with any other kind, as it is perfectly distinct, both as regards flower-heads and foliage, which is long and tapering. The spell of fine autumnal weather which we have lately experienced has evidently suited this Cauliflower, for heads of it produced by plants grown in open fields with plenty of space are quite a foot in diameter. Although we frequently see this variety recommended for successional sowings, I find that it is strictly an autumn Cauliflower. It is sown thinly in beds in March or April, and as soon as large enough the young plants are put out on good soil a yard apart, and the result is all that can be desired.—J. G., Gosport.

Chou de Burghley.—My experience of this exactly coincides with that of Mr. Muir, of Margam (page 399); with us it turns in splendidly, forming close conical hearts, which when cooked are as delicate in flavour as any spring Cabbage, and much superior to any of the Brassica tribe at this season, except perhaps a nice white Cauliflower, which, unfortunately, we cannot expect to have long, as winter with its frosts will soon be upon us. If Chou de Burghley will stand hard weather as well as Savoy's, there will be no need for the latter, and few, if any, will be grown when the first named excellent vegetable becomes better known. Mr. Gilbert, the raiser of Chou de Burghley, is said to have effected a cross between it and the Brussels Sprout, and if so, the seedling of such parents ought to be something good.—J. SHEPPARD, Woolverston Park.

Early Peas.—Of all vegetables grown nothing takes the place of good Peas; therefore it behoves us to sow the best varieties and at the proper time. We sow our first crop now on a sheltered south border dug slightly, and manured a short time before sowing. We draw the drills 3 inches deep, coat the seed with red lead, and sow thicker than in spring sowing. Immediately they can be seen above ground cover them 1 inch deep with coal ash, and when they get through that draw a little earth up to each side of them and stake them at once, sticking pieces of Bracken or Fir branches in each side. It is not the frost that kills Peas, but the dry March winds that cut them to pieces. The best variety for this season's sowing is Earliest of All, a blue marrow with hard round seed that does not rot in the ground. I always sow at the same time a few rows of my old friend William IV., which makes a suitable succession.—R. GILBERT, Burghley.

SHORT NOTES.—KITCHEN.

Chou de Burghley.—It appears to me that this is nothing more than a Cabbage, yet I understood that it would be something better. I followed the printed directions sent with the seed, and have had nothing superior to the old Sugarloaf or Little Pixie Cabbage. Is that the result generally?—J. C. C.

Mushrooms in London.—Opening the door of a stable which had been closed for ten days, large and beautiful blocks of Mushrooms were seen on a sloping pathway growing in tan. We have never seen finer specimens of Mushrooms than these, which were shown at Messrs. Buck's shop in Covent Garden lately. It is curious how these things will sometimes grow of their own accord in abundance, while many who give great care to them cannot succeed in getting a crop. The Mushrooms in question were grown in a stable belonging to Carlton House Terrace.

Epicurean Cucumber.—This comparatively new variety is an excellent all-the-year-round Cucumber, bearing equally well at Christmas as at mid-summer. For these last eighteen years I have grown only the true Rollisson's Telegraph, thinking that that variety could not be beaten. This spring, however, I was induced to give Epicurean a trial against Telegraph, and to my surprise it produced fruit ready for cutting a fortnight earlier than Telegraph, and from that day I have given up growing the last named variety. In form Epicurean resembles Telegraph, but it is darker green and grows a few inches longer. For superior flavour, prolificacy, and hardness of constitution it surpasses Telegraph.

—RICHARD NISBET, *Aswarby Park, Folkingham.*

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 413.)

LASTREA ERYTHROSORA.—This highly decorative Japanese species, in many respects totally distinct from all other members of the genus, is a grand addition to the already long list of hardy greenhouse Ferns possessing characters sufficiently attractive to deserve cultivation on a large scale. It has even proved perfectly hardy under our climate, as it stood, without any protection whatever, the test of our hardest winters, but in that case it becomes deciduous, although, when treated as an indoor plant, its magnificent bipinnate fronds, of a beautiful bronzy hue in the young stage, turning with age to a dark shining green, remain on the plant all the year round, and make it a very valuable plant for winter decoration. These are produced from a thick underground creeping caudex, and often attain 30 inches in height, and are of a very elegant habit. The whole plant is rendered exceedingly attractive by the sori being large and the indusium which covers them being of a bright, light red colour, contrasting singularly with the dark glossy green of the upper surface of the frond, and giving it a very distinct and at the same time a handsome, lasting appearance. Greenhouse.

L. FALCIFOBA (L. viscosa).—This is a very handsome and highly ornamental, although uncommon, species from the Neilgherries, where it is found growing abundantly in ravines. In general appearance it resembles somewhat the more common and deservedly popular *L. patens*, from which it is, however, quite distinct. Its firm and rather rigid fronds grow to about 18 inches in length, and are more or less hairy on both sides; they are of a coriaceous texture, lanceolate in shape, and finely acuminate; they are pinnate with rather distant pinnæ 3 inches or 4 inches long, linear-lanceolate, nearly pinnatifid, and the apex long, tail-like, entire or serrated; they are borne on hairy stalks and produced from a short, thick, tufted caudex entirely free from scales. This diminutive stem being copiously furnished with fibres, the plant requires a great abundance of water at the root. Stove.

L. FERRUGINEA.—A very beautiful species from Southern India, with massive, yet very elegant, fronds, deltoid in shape and soft in texture, sometimes attaining 2 feet in height; they are tri and even quadripinnate, with pinnules in the upper part of the fronds divided again. The extremities of the segments are very broad, obtuse, and crenated; the stout, short stalks on which they are borne as well as the rachises are densely clothed (especially on their upper part) with pubescent hairs of a reddish brown ferrugineous colour, and rise from a short, erect, stout, and fleshy caudex provided with rough tubercles. Stove.

L. FLACCIDA.—This, one of the most ornamental species of the genus, is indigenous to Ceylon. It forms a short, erect stem, abundantly provided with fibrous roots; the very decorative and robust fronds, which attain 3 feet in height, are borne on tufted and scarcely scaly stalks, whose upper surface is very glaucous; they are broad, of

membranaceous texture, and ovate-lanceolate in shape, bipinnate with pinnatifid pinnules, the veins and veinlets of which are covered with long white hairs on both sides. The pinnæ, which are rather remote, lanceolate-acuminate, are sometimes alternate, but more often opposite, the inferior ones measuring from 10 inches to 12 inches in length by 3 inches in breadth, decrease in size and get gradually smaller, so much so that one of the superior pinnæ is of no larger dimensions than a pinnule of an inferior one. The pinnules, of oblong-lanceolate shape, measure about 2 inches in length, and in the lower pinnæ are quite pinnatifid, entire, or sometimes crenated in the upper part of the frond. It is a thoroughly distinct as well as decorative species, and one of those which should be grown more extensively than it is. Stove.

L. FLORIDANA.—A very distinct North American species, of robust growth and peculiar habit, perfectly hardy in this country, where it has stood without injury the hard winter of 1879-80. The fronds, which are highly ornamental and of a subcoriaceous texture, are situated in a crown and totally dissimilar in appearance, according to their being sterile or fertile. The latter grow from 30 inches to 36 inches in length and are of lanceolate form, tapering, as they do, both ways from the middle; they are pinnate, the lower pinnæ barren, triangular, lanceolate, and deeply pinnatifid, like those of the barren fronds; upper pinnæ fertile, narrower and longer, pinnate, with oblong crenulate-toothed pinnules. The totally barren fronds, besides being shorter, are lanceolate, oblong in shape; they are also pinnate, but their pinnæ, lanceolate from a broad base, are pinnatifid more than half way to the midrib; their segments are closely set and crenulate toothed. They are all produced from a stout, succulent creeping rhizome very chaffy, with large ferrugineous brown scales, and borne on stalks about a foot long, dark green and chaffy near the base only. Greenhouse.

L. FRAGRANS.—This, one of the most interesting of the North American members of the genus, is particularly remarkable on account of the pleasant odour, compared by some authors to that of the Violet and by others to that of the common Primrose, which is emitted by the fronds, and which they retain for many years when in a dry state in the herbarium. Although a plant of small stature, it is one which deserves to be grown in every collection, if only for its perfume, which is readily detected wherever one single plant is kept. The fronds, which generally measure from 4 inches to 8 inches in length and about 1 inch in width, are perfectly lanceolate in outline; their extremity is acute and the lower part gradually tapers to a narrow base. They are produced from an erect and rather stout caudex covered with broad, chaffy scales of a bright brown colour. Each separate crown generally produces six to eight of these fronds, but as the crowns are nearly always found forming a tuft of five or six clustered together, they present an agglomeration of thirty or more fronds on one plant. These are borne on stalks about 3 inches high and also furnished with chaffy scales. They are deeply bipinnate, and the pinnules, which in small specimens are entire or slightly toothed, have in large fronds their teeth again crenately toothed. The whole plant is of a somewhat rigid appearance, and the fronds, dark green above, are a little paler underneath, and both surfaces are dotted with very minute amber-coloured glands. It is found in crevices of shaded cliffs and on mossy rocks always near the water, either cascades or rivulets, in Canada, Wisconsin, and in the neighbourhood of New York, but it is apparently much more common farther north. One of the most curious features about this singular and delightful little Fern is, that it has also been found at high elevations in Japan by Maximowicz and Maries, and is said to give a most pleasant flavour to the tea to which it is sometimes added in that country. Greenhouse.

L. GLABELLA.—This exquisite dwarf-growing New Zealand species of a compact habit is particularly well adapted for pot culture or for planting in nooks in the rock fernery, where there is but little soil and a small amount of space at dis-

posal. It is also a capital plant for Fern cases, as generally seen in dwelling rooms, where it grows luxuriantly, and by its tender, soft green colour, forms an exceedingly pretty contrast with plants of much darker hue. Its full size is from 10 inches to 12 inches high, but it is more often seen as a beautiful little specimen, not exceeding 7 inches in height. Its delicate and finely-divided fronds, which are produced in great abundance from an underground creeping rhizome, are tripinnatifid, somewhat of a triangular form, and borne on short, light-haired stalks, giving the whole plant a most delicate appearance. The beauty of the plant is readily destroyed by watering or syringing overhead, which causes the fronds, young or old, to assume a brownish, sickly tint. Greenhouse.

L. GOLDIEANA.—A very fine North American species, found growing plentifully in Canada, Vermont, New Hampshire, and Kentucky. The full-grown and fertile fronds, which are produced from a creeping or slightly ascending caudex of a very fleshy nature, often measure 2½ feet long and are about 1 foot broad; these fronds are produced late in the season, as those forming the first growth are commonly sterile and shorter than the others. In general outline they are oblong-ovate, the lowest pinnæ being of the same length as those in the middle of the frond, which generally measure from 6 inches to 8 inches in length and about 1½ inches in breadth. The segments of the pinnæ are about twenty on each side of the midrib, and as the incisions do not extend quite to it, it is narrowly winged, and the pinnæ are pinnatifid rather than pinnate; the segments, moreover, are obtuse or somewhat acute with crenate edges more or less distinctly serrate with sharp incurved teeth. The fronds are borne on bare stalks about 12 inches to 15 inches long, of a light green colour and rather stout, covered at their base with large ovate-acuminate brown or sometimes dark shining scales, which extend to about half the length or so of the stalks. With these large scales are found some smaller and narrower ones of a chaffy nature, which are also disposed along the whole length of the stalk and the rachis. It bears a certain resemblance to *L. cristata*, of which it has somewhat the habit and general outline, but in this latter the greatest breadth of the pinnæ is uniformly at the base. Greenhouse.

L. GRACILESCENS.—A Himalayan species, which, as its name implies, is of very graceful habit. Indeed, a great charm is imparted to it by the slender shape of its elegant fronds of peculiarly narrow dimensions when compared with their height; they are borne on slender stalks about a foot high, slightly hairy, and produced in great abundance on the upper surface of a short, fleshy caudex, devoid of scales, and creeping horizontally on the surface of the ground, its underneath part emitting roots very freely. Although the fronds themselves, independent of the stalks, often measure 18 inches high, they are scarcely more than 6 inches wide, oblong-ovate or sub lanceolate, acuminate in shape, pinnate, and pinnatifid only at their apex. The pinnæ, which are also oblong-acuminate and deeply pinnatifid, generally measure 3 inches long by half an inch wide, and have their segments oblong, obtuse, quite entire. It is a totally distinct species. Stove.

L. HIRTIPES.—This handsome species from Southern India is a general favourite wherever it is grown, being highly ornamental, of easy culture, and its fronds when in a cut state being also of long duration. These grow from 24 inches to 30 inches in height and are borne on stout stalks densely covered with long subulate, intensely black flexuose scales remarkable for their deciduous character; they are subcoriaceous in texture and dark green in colour, pinnate, with pinnæ 6 inches to 8 inches long, more or less remote and serrated on the margins, nearly sessile and inauriculated at their base. Additional charm is given to the plant by the sori being very large and conspicuous. A singular character quite peculiar to this plant is that during the winter the fronds get very soft at the base and

have then a tendency to fall around the plant; in that state, however, they will retain their colour and freshness for several months if only held up by a little thread, which can easily be concealed from view. Greenhouse.

L. HISPIDA.—A lovely New Zealand species of small dimensions, particularly adapted for growing in a Fern case in the dwelling-room, where, in the company of Todeas and other Filmy Ferns, it will be found to thrive admirably; indeed, it is a plant rather difficult to manage in the open house, unless a close and shaded corner can be devoted to it. Either as a pot plant or planted out it forms a beautiful and most interesting object. Its elegantly arching fronds, which seldom reach more than 10 inches or 12 inches in length and about 4 inches in breadth at their widest part, are triangular in shape and of leathery texture, tripinnate, with sharp pinnules dentate on the margins. They are borne on wiry stalks from 4 inches to 6 inches high, which, like the crown itself, are densely clothed with very long, black, brittle hairs. It is one of the species so thoroughly distinct and ornamental that no collection should be without it. Greenhouse.

L. INTERMEDIA.—A very fine and strong-growing species from North America, with robust fronds about 2 feet in length, borne on stalks very shaggy with long linear rufous scales, which are also found in great quantities covering the main and partial rachises. These fronds are very large and tripinnate, with pinnules nearly pinnatifid to the base, obtuse, entire or serrated, toothed on the margins, and sparingly hairy above and pubescent on both sides; it is a very striking plant of easy culture. Greenhouse.

L. IMMERSA.—This is a robust-growing kind from Assam and Java, producing from a creeping caudex its glabrous or finely pubescent fronds of large dimensions, measuring sometimes 4 feet in length, pinnate, with sessile pinnæ from 8 inches to 10 inches long, rendered peculiarly striking by a swelling frond at their base; they are ovate-oblong or oblong-acuminate in shape, the whole frond being of the same form, and of a very pleasing green colour. It is also known under the name of *L. verrucosa*. Stove.

L. INVISA.—One of the most striking as well as robust among the West Indian kinds, and one that is of most value in a large fernery on account of its bold habit and of its easy culture. Its handsome fronds attain the height of 5 feet, and are produced in great quantities from a somewhat decumbent caudex of a fleshy nature, and provided with short pale scales. They are lanceolate in shape, pinnate, with pinnules pinnatifid and slightly serrated; these fronds, which in their widest part measure about 18 inches, are of a cheerful light green colour, seldom found in the genus to be so clear. Stove.

L. MARGINALIS.—This, no doubt, one of the handsomest of all North American Ferns, is deserving of a much more general cultivation than it receives at present. It is an evergreen species whose caudex forms quite a little stem, which, although somewhat resembling that of *L. Filix-mas*, inasmuch as it is covered throughout by the bases of fronds of previous seasons, is distinguished from it by its erect or ascending habit, and also by its stout, succulent, and shaggy appearance, being covered with long, shining brown, chaffy scales. Its pinnate or sub-pinnate fronds are beautifully pendulous, and grow from 18 inches to 24 inches long. They are of a rather more coriaceous texture than those of other plants belonging to the genus, and also of a darker green. They are ovate-lanceolate in shape, and scarcely narrowed at the base. Being situated in a crown and borne on rather stout, though very flexible, stalks 8 inches to 12 inches long, more or less chaffy, with shining scales, they have a very pleasing appearance. The pinnæ, almost sessile, are unequally triangular-lanceolate, with their segments or pinnules of a dark bluish green colour above and much paler and slightly chaffy underneath, oblong-lanceolate, sometimes crenately toothed and at other times pinnately lobed with

crenulate lobes, obtuse and short stalked. There exists a variety elegans in which, although not of a larger growth, the fronds have most of the pinnules twice or even three times as long as those of the type and all pinnatifid, thus making a distinct plant with bipinnate fronds. The most striking character peculiar to this *Lastrea* is that the sori are disposed close to the margin of the lobes, and vary from three to ten to a lobe; they are besides very large and prominent. It is found in great abundance in Alabama, Wisconsin, and on the Rocky Mountains, where hill-sides are completely covered with it. In cultivation it stands our winter very well, but in that case becomes deciduous, although thoroughly evergreen in a greenhouse. When planted out a sheltered situation should be selected for it, and one neither too wet nor too dry.

L. MEMBRANIFOLIA (*L. paradoxa*).—A very distinct and ornamental Southern Indian species of robust growth and bold habit, producing from a thick, fleshy, erect caudex, covered with black subulate scales, its handsome broad tripinnate fronds of a dark green colour, membranaceous in texture and deltoid in shape; they are acuminate, with primary pinnæ from 4 inches to 6 inches long and nearly 2 inches broad; whereas the middle ones, which are nearly sessile, are deeply pinnatifid, with segments more or less entire. A character peculiar to this plant is that in each frond the lowest pair of pinnæ are not only the longest, but of an half ovate-acuminate shape and deflexed, their lobes, being large and spreading, sometimes measuring an inch long by one half wide. These fronds are borne on firm stalks about a foot or more in height. Stove.

L. OCHTHODES.—Almost a cosmopolitan species, being found nearly all over India. The fronds, of a leathery texture, are firm and glabrous, with margins sparingly hairy; their upper surface is of an olive-green colour, whereas their underneath part is much paler. They are lanceolate-acuminate in shape and gradually attenuated at the base, simply pinnate with pinnæ deeply pinnatifid, and whose segments have their margins more or less reflexed in fructification. They are borne on flexuose stalks of medium length and hairy throughout. Greenhouse.

L. ODORATA (*L. eriocarpa*).—This is another very interesting species from Southern India of very peculiar appearance, produced by the stout ascending caudex from which the fronds rise, and which, like that of the common Cushion Fern (*Balanium Calcutta*) is provided with a thickness of 2 inches or 3 inches of subulate scales nearly 1 inch long and of a beautiful golden colour; these, however, do not extend to the stalks which grow to about one foot high, glossy, and of a pale brown colour; they bear pale green membranaceous fronds about 15 inches in length, deltoid, acuminate in shape, and hairy on both sides. They are tripinnate, with pinnæ oblong or ovate-acuminate and about 5 inches long. It is of a very good and compact habit, but requires careful watering in winter. Greenhouse. PELLÆA.

Maiden-hair Ferns.—What "J. C. B." says (p. 395) about these is very much to the point, and if growers who cultivate plants for the sake of their fronds for cutting would only give them more light and sun, with plenty of air, their fronds might be kept fresh in water at least double the usual time. I know this from some planted out along the front wall of a fernery, where they are in pockets; those got from the plants in the upper row, where they almost touch the glass, are very much harder and thicker in texture than those lower down, and when made use of in vases or bouquets are far more enduring; besides which, they are altogether better in colour, as the tints are more delicate and the pinnæ smaller, which makes them more suitable for the work above named. Where many fronds are required, or where they are grown for market, I have no doubt but that it would pay well to plant them out in warm pits or light houses in rough peat and loam where, if kept liberally watered during the grow-

ing season, they would yield double or treble the produce they do under the more restrictive system of pot culture, with the limited root run they can get under that system.—S. D.

GARDEN FLORA.

PLATE 414.

AMERICAN COWSLIPS.

(DODECATHEON.*)

THIS genus of the Primrose family consists of a few species, all indigenous to North America, and almost all confined to the western half, and all are found within the limits of California. As the Dodecatheons are somewhat confused in gardens as regards nomenclature, it may be well to reproduce from the "Botany of California" Mr. Sereno Watson's synopsis of the genus. As may be seen, he admits but one species, and ranks all the other Dodecatheons as varieties of it. This species, *D. Meadia*, is indigenous to the eastern States, and is the only one mentioned in Gray's manual. No doubt Mr. Watson's views of the



Dodecatheon Jaffrayi; showing habit of growth.

genus are correct, as he has had an opportunity to study the Dodecatheons in all their phases in their native state, but we doubt if his classification will be followed in gardens now that the older names have become so deeply rooted.

D. MEADIA (Linn.).—Leaves varying from obovate to lanceolate, entire or more or less toothed; scape 3 inches to 15 inches high; umbel 2, 20-flowered. So far as we can make out, only one species occurs, which extends across the continent, and on the Pacific side through fully 40° of latitude (viz., from Guadalupe Island, Lower California, to those within Behring Straits), varying immensely and inextricably. The Pacific forms (which usually have rather shorter or blunter anthers than the Atlantic) may, as to their leading features, be mainly but loosely arranged under the following varieties:—

VAR. BREVIFOLIUM.—Common through the warmer parts of the State; leaves round-obovate or spatulate, half an inch to 1½ inches long, short-petioled, thickish; scape a span to near a foot high, few, many-flowered; capsule ovoid, hardly ex-

* Drawn in Mr. T. S. Ware's nursery, Tottenham, June 7, 1883.



ceeding the minutely glandular calyx.—*D. ellipticum*, Nutt. ex Durand, Pl. Pratt. in Jour. Acad. Philad. n. ser. ii. 95. *D. integrifolium*, Benth. Pl. Hartw. 322, not of Michx.

VAR. LANCIFOLIUM.—Common in wet mountain meadows, flowering in summer; leaves oblanceolate or lanceolate-spatulate, 3 inches to 10 inches long (including the short margined petiole), quite entire, mucronate; pedicels and calyx commonly minutely glandular; the lanceolate or triangular-lanceolate lobes of the latter nearly equalling the short ovoid capsule.—*D. Jaffrayi* of the gardens.

VAR. ALPINUM.—A diminutive state of the foregoing, on the higher mountains, 9500 feet to 12,000 feet; the narrow leaves an inch or two, the 1-3-flowered scape 2 inches to 4 inches high; pedicels and calyx quite glabrous.

VAR. MACROCARPUM.—A mostly large and stout form, from Alaska southward; spatulate or oblanceolate leaves 5 inches to 10 inches long (including the petiole); scapes often a foot high, several, many-flowered; capsule oblong or almost fusiform (half to three-fourths of an inch in length), about twice the length of the narrow calyx lobes.—A form which may be referred here, with lacinately-toothed spatulate leaves, was collected on the mountains of Ventura Co., Brewer.

VAR. FRIGIDUM (Hook. Bot. Mag., t. 5871, & S. Watson, Bot. King Exp.) includes various forms, ranging from the high sierra northward to the islands within Behring Straits; leaves obovate or oblong, very obtuse, mostly entire, with either short or slender petiole; scape a span or more high, few, several-flowered; calyx lobes longer than the tube, varying from broadly to ovate-lanceolate, shorter than the oblong (or sometimes ovoid ?) capsule.—*D. frigidum*, Cham. & Schlecht.; Seem. Bot. Herald., t. 9.

VAR. LATILOBUM.—Leaves thin, oval, undulate-toothed, 1 inch to 2½ inches long, abruptly contracted into a petiole of nearly twice the length; scape a span to a foot high, 1, several-flowered; calyx lobes ovate or triangular-ovate, not longer than the tube, about half the length of the narrowly oblong capsule.—*D. Meadia* var. *frigidum*, Watson, l. c., in part. (East side of Cascade Mts., Washington Territory, Lyall. Wahsatch Mts., Utah, Watson.)

CULTURE.—The American Cowslips are perennial and perfectly hardy in this country, requiring a cool situation and light, loamy soil. The nature of the latter is, however, of but small importance, as they grow as freely in peat or leaf-mould as they do in loam; situation is the principal point in their cultivation. In shady spots on rockwork or in cool secluded nooks in borders, where *Primulas* and *Soldanellas* thrive, *Dodecatheons* will be found to soon establish themselves, and in spring to form lovely and attractive objects. All the species and varieties of this genus grow freely, and soon form large tufts, which require dividing every third or fourth year. The best time for performing this operation is the latter end of January or beginning of February, when the roots are becoming active, taking care not to divide them into too small pieces, as in that case there is danger of losing the plants while in a weakly condition. *Dodecatheons* may also be easily raised from seed, but this can only be obtained in very favoured situations.

The plate represents seedling varieties of *D. Meadia* which have been raised in the Hale Farm nursery, except the deepest coloured one, which is the *D. integrifolium* of gardens. There is a wide

range of colour in *D. Meadia* from pure white through pinks and roses to a reddish crimson.

From a garden point of view the following notes may be useful:—

THE ENTIRE-LEAVED AMERICAN COWSLIP (*D. integrifolium*) is the most lovely of the genus, and one of the best rock plants in cultivation. Its foliage begins to make its appearance in March, and when well grown attains a length of from 4 inches to 5 inches, forming deep green rosettes, from the centre of which rise the flower-stems, each bearing from six to twelve *Cyclamen*-like blossoms; the individual flowers are about 1 inch in length, and in colour a rich purplish crimson, with a bright orange ring at the orifice of the corolla. As an exhibition plant this, in its way, is unrivalled, and as it grows freely and is perfectly hardy, it should be found in every garden. Strong, well-established plants of this produce abundance of seed, which should be sown immediately it is gathered.

GIANT AMERICAN COWSLIP (*D. Jaffrayi*) is a noble species, growing from 2 feet to 2½ feet in height, and has large, dark green leaves, from 9 inches to 12 inches in length, furnished with conspicuous reddish mid-ribs. Its flowers are large and fragrant and of a reddish purple colour, and are supported on stout stems that grow from 18 inches to 24 inches in height, and sufficiently strong to resist wind. In rich, moist, loamy soil this plant grows vigorously in an ordinary border, but it succeeds best when partially shaded from the mid-day sun. It is thoroughly hardy, and one of the best of our border perennials. It is also called *D. lancifolium*.

COMMON AMERICAN COWSLIP (*D. Meadia*).—This, the best known of all American Cowslips, has a beauty peculiarly its own, and whether grown in pots to bloom in a cold frame, in a house, on the rockery, or in the open border, it is alike a gem amongst spring flowering plants. Clumps of it should be seen in every available situation wherever shade and moisture can be found. Well-grown masses of it may often be found with from ten to twenty stems, each bearing from eight to twelve flowers, and in the case of some varieties of it from twelve to thirty blossoms on a stem. The flowers, which are purplish coloured and fragrant, are produced in umbels on erect, slender stems, which grow from 12 inches to 15 inches high. Of this there are numbers of pretty and distinct varieties, differing more or less in size of flower, colour, and height of plant. Among the best of these may be mentioned *D. giganteum elegans*, *albiflorum*, and *violaceum*. *D. californicum*, thought by some to be a species, is probably only a variety of *D. Meadia*. It is, however, a distinct and pretty plant, and well worth growing. *D. frigidum*, a rare species, is not at present in cultivation.

A Paris flower market.—There is in Paris near the Square Marengo a flower market unique in its way. As far as the market itself is concerned, it is of the ordinary type; the plants are placed in the open air, but the owners have the liberty of sheltering them in any way they like. That which particularly distinguishes this market from all others is its permanent character. On the arrival of fine weather the florists take up their respective stations, and do not again remove their plants until they pass into other hands. When they go away at night the plants remain behind and the growers assert that they never lose any. Sometimes plants of a delicate character are taken home, but the rule is to leave them just as they are exposed for sale in the daytime, and, with the

exception of a few being occasionally knocked down by cats or a stray dog, they have never been known to be damaged.—J. C. B.

SEASONABLE WORK.

FLORAL DECORATIONS.

A PRETTY arrangement may be made for the dinner-table without either the aid of epergne or any kind of glass stand whatsoever. Select an appropriate plant for a centre-piece; *Cocos Weddelliana*, *Euterpe edulis*, *Geonoma gracilis*, *Areca aurea*, or *Chamædorea glaucifolia* are especially adapted for this purpose, being elegant in growth and graceful in outline. Having fixed on a plant, turn it carefully out of its pot, *i.e.*, if larger than a 3-inch one; then set it in the centre of a soup plate and surround it with sand, covering the latter with Moss. After this has been done, suitable foliage should be selected to form a margin, resting on the table-cloth. The variegated leaves of several kinds of *Begonias* make an excellent change for this purpose in place of Fern fronds or other material. Of the latter, *Davallia Tyermanni* or *elegans* would make a durable edging. Insert a few fronds of the common Maiden-hair Fern over the Moss, and then some flowers may be dotted over the surface. A good selection could now be made from the various sorts of *Primula sinensis* interspersed with a few spikes of white Roman Hyacinth. These will arrange well together. *Bouvardias* in divers colours would look well, adding a spike or two of scarlet *Salvia*. If larger and bolder flowers are desired, use those of *Eucharis* in conjunction with a few blooms of any coloured *Chrysanthemum*. If flowers are scarce, foliage only will make a beautiful effect arranged as a base, choosing such as that of *Fittonias*, *Peperomias*, or the points of bright-coloured *Coleus*, with the addition of a small growth or two of *Pandanus graminifolius* or a few points of high-coloured *Croton*. For specimen glasses *Chrysanthemums* will now be valuable. Excellent arrangements may also be made with these flowers alone for sideboard decoration; for this latter work long sprays should be used and arranged in a free and easy style, with a backing up of some hardy Fern fronds if at hand. Now that the leaves of many late Grapes possess such beautiful tints, they should be made use of for the dessert from this time onwards till the Vines ripen and drop their foliage. A few stray blooms of climbing *Roses* may still be found here and there, and clusters of these make a good change for the drawing-room. Blooms of Indian *Crocuses* (*Pleiones*) look well in a flat glass dish in a little Moss and water. Flowers of Tree Carnations also look well arranged (a few only) in a specimen glass with their own foliage.

INDOOR PLANTS.

WITH a good stock of well-grown *Chrysanthemums* there should now be no scarcity of flowers in conservatories or greenhouses, but where there is not a considerable extent of glass structures, in the endeavour to make an effective display it often happens that the plants are so much crowded together that they do serious injury to the more permanent occupants of the house; for although plants of most kinds will bear standing closer together in the winter, when little growth is being made, than they will in the spring and summer, still over-crowding is always injurious, not alone on account of the mischief it does to the foliage, but also through the liability that exists of plants getting overlooked in the attention they require in watering and other matters when standing so close together as not to be easily got at. For this reason it is better at this season, when the houses devoted to plants are the most crowded, to keep as much of the successional stock as can be accommodated in any pits or empty vineries available. So located, until such things as *Chrysanthemums* and *Salvias* are over and all but enough of them to propagate from can be dispensed with, the general collection will be found in better condition than when indiscriminately crowded together.

HARD-WOODED PLANTS.—Whatever training and tying has to be done should now be got on with without delay, so that the work may be got out of hand before the time comes for other matters requiring attention. Few operations better exemplify the taste and judgment of the operator than tying plants, for, whatever use they are required, one individual will succeed in giving just the support needed to keep them in shape and to prevent their having a straggling, unnatural appearance, whilst another will only manage to show what to avoid by using ten times the sticks and ties that are necessary, the result being that the support that should have been as far as possible concealed becomes the most prominent feature. So far as the altered circumstances under cultivation will allow, the form which each species of plant assumes when growing naturally should be preserved, merely giving the support which the lengthened, weaker growth resulting from culture under glass requires. There is another important matter connected with plant tying which cannot be too often urged upon young hands at the work. The roots of a plant confined within a pot are packed together thickly to an extent that would not take place if it was growing where its roots had full scope to extend, and it follows that every stick which is thrust into the soil must necessarily break a number of fibres and so far injure the most vital part of the plant. This obviously points to the desirability of not using more sticks than can be avoided, and also of not pushing them deeper into the soil than can be helped. In the case of plants that have attained considerable size, and that merely require the old sticks replacing, if care is taken to put the new ones in the old holes, no root injury will follow.

ADMISSION OF AIR.—Guided by the state of the weather, air should be given daily to the different plant structures, proportionate in quantity with the nature of the plants cultivated. But fog and frosty air are much better excluded, especially the former; and even with artificial heat, air-giving in frosty weather is best confined to opening the roof ventilators, as then it does not come in direct contact with the plants. In the mixed collections of plants that usually have to be kept through the winter in greenhouses it becomes necessary to make a compromise in the temperature maintained, some things having to be kept cooler than they like in order to prevent others that will not bear any artificial heat being excited into premature growth or brought on to flower earlier than they are wanted. This unavoidable low temperature, accompanied as it is through this and the ensuing months by the ordinary, damp, sunless condition of the weather, is particularly favourable to mildew, for which a diligent look-out should be kept. Where the usual soft-wooded winter flowering Heaths are grown on them it will generally first appear, and if not at once discovered and means taken for its destruction the foliage at the base of the plants will be destroyed, and the chances of their being of use another year much reduced, for it is well to bear in mind that to whatever extent the leaves of a plant are destroyed the roots suffer in proportion. Hard-wooded Heaths and the more delicate foliaged hard-wooded plants from the Cape and New Holland are equally susceptible of injury from this parasite. *Pimeleas*, *Boronia*, *Hedera*, *Gompholobium*, *Leschenaultias*, *Tetrathecas*, *Roella ciliata*, and others of a like description require to have a vigilant eye kept on them before they get injured to an extent that can never afterwards be remedied, for not only do they get denuded of leaves on their lower branches, which cannot be restored, but they are so weakened as to become a prey to insects, which seldom fail to attack plants that are enfeebled.

PRIMULAS.—The early sown plants will now be well in flower. There has been so much improvement in the single strains of these plants, that out of a package of seed there are hardly any bad ones, but it frequently happens that a few will be found so much superior as to be worth retaining for seed purposes. These should at once have all the flowers pinched out, as it is much too soon for them to set freely, and if left to go on

blooming the plants will be so weakened as to yield few seeds. Where possible they should be kept where they can have a night temperature of from 40° to 45°, and be stood as near the glass as can be. So situated, they will be benefited by the application of manure water once a fortnight.

ARUM LILIES.—There are few plants so appropriate for using in entrance halls and rooms as what is called the Arum Lily (*Richardia æthiopica*). Intermixed with suitable foliage, its flowers are unequalled for large vases. It is doubly valuable when in flower early, and where wanted at Christmas, or soon after the plants should at once be put in a brisk heat. For this early work nothing but the strongest examples ought to be used, and such as have been grown through the summer in pots, for though those that are turned out in the open ground during summer are more compact in their foliage, and have a nicer appearance, they will not force quite so early as the stock that has been kept in pots. This *Richardia* is very subject to green fly, which increases fast upon it, and quickly spoils its white flowers; consequently before putting the plants in heat it is needful to take care that there is no trace of this insect; if any are found, fumigate well once or twice, or, what will be much more effectual in killing both the insects and their eggs, give a good washing with Tobacco or strong Quassia water.

LILY OF THE VALLEY AND HOTEIA JAPONICA.—No time should now be lost in potting all that will be required of these useful winter forcing plants. Such portion of the stock as is wanted to come in early may at once be put in heat. The Lily will bear a higher temperature than it is advisable to subject the *Hoteia* to; a brisk bottom heat with the crowns well covered from the light will quickly bring up the flower-spikes, and this plant when not taken out of the ground until time has elapsed to allow of its foliage dying off naturally will bear harder forcing than if taken up too soon with a view to have it in bloom very early. The failures sometimes experienced with Lily of the Valley when it refuses to move at all, however much heat is given it, are not unfrequently traceable to their being lifted from the ground before the leaves were properly ripened off. The *Hoteia* if wanted early must nevertheless not yet be kept too warm, or the flowers will be few and thin in appearance.

ORCHIDS.

EAST INDIA HOUSE.—Now is the season when we can best attend to the cleansing of woodwork, glass, pots, and all else about the plants in the house. In cleansing the plants themselves they must be carefully handled, otherwise injury may result from breaking the growing points of the roots of *Vandas*, *Aerides*, *Saccolabiums*, and similar genera. *Angræcum sesquipedale* is now showing flower-spikes, and where they are considerably advanced see that they are not injured in any way; this, like the rest of the Madagascar species, grows and flowers best in the warmest part of the house, although we saw plants of it the other day doing well in the temperature of a Cattleya house. *A. citratum*, also showing its flower-spikes freely, is one of the easiest grown amongst the *Angræcums*, and one which seems to thrive well in pots or pans in Sphagnum, kept always moist. It is a pretty species, and one which should be in every collection of stove plants. Numbers of these two species of *Angræcum* have recently been introduced; also *A. Ellisi* and *A. articulatum*, said to be distinct by M. Reichenbach. *Ellisi* does not seem to be a very free flowerer, but as the plants become more plentiful we may find out the treatment which suits it best. It seems to flower freely in its native haunts. The beautiful new *Cypripedium Spicerianum* grows as freely in the warmest house as *C. insigne*. The same may be said of the distinct and beautiful *Phalenopsis violacea*, which seems to be more robust and free growing even than *P. grandiflora*. It grows well either in pans, baskets of teak, or pots, and is now flowering freely in this house. When the pans or baskets are well filled with roots water may be applied

rather freely, but with caution if the plants have been but recently potted. In large collections it may be a necessity to re-pot or shift Orchids from one receptacle to another during almost every month in the year, but unless there are good reasons to the contrary, the less they are shifted during the months of November and December the better.

CATTELEYA HOUSE.—In our house the *Pleiones* are still in capital condition, but where they have been treated to a warmer temperature than we can give them, the flowers are over and the plants are starting to grow. The best plan is to re-pot them as soon as the flowering period is over; shake all the compost from their roots, and separate the bulbs; then re-pot in a mixture of peat and Sphagnum in equal parts, to which some charcoal and broken potsherds have been added. Three small bulbs may be potted in a 4-inch pot, five bulbs in a 5-inch pot, or a dozen bulbs may be put into an 8-inch pot. Some very small tufts of Sphagnum may be planted on the surface of the compost after potting. Do not water too freely after re-potting, and place them rather close to the glass. The best known varieties are *P. lagenaria*, *Wallichiana*, and *maculata*; the last we think the most beautiful, owing to its pure white sepals and petals and richly marked lip. *P. Reichenbachiana* is also a pretty species which does not yet seem to be common.

CATTELEYAS require to be carefully attended to as regards water at this season. Some good cultivators would rather err on the side of giving them too much than run the risk of injuring their constitution by keeping them too dry. Others again say, keep them rather dry at all seasons, but maintain a very moist atmosphere. The fact is, *Cattleyas* are not amongst the easiest Orchids to grow, and when they once get into bad condition it is not easy to bring them round again. The quantity of water a plant needs must be determined by its condition, and whether it is a time of rest or a season of growth. Any plants that have flowered and are absolutely at rest should not have much water; others that are making growth require much more. One of the finest *Cattleyas* in flower at this season is the true variety of *C. labiata*. Would it not be well to obtain seeds of scarce plants like this *Cattleya* from flowers set with their own pollen? Seeds are easily obtained, and the rest merely consists in waiting for the appearance of the plants. *C. guttata* is also in flower, and is distinct and pretty, though not so showy as some others. *C. Fausta* is a pretty hybrid *Cattleya*. It has delicate rosy pink sepals and petals, and the lip in some cases is scarcely tinged with colour. *C. maxima* has again been introduced freely quite recently, and is now to be seen in flower in various establishments. It does not like to be kept too warm. The sepals and petals are rosy lilac, the lip very lightly veined with crimson.

COOL HOUSE.—Under good management, plants do as well in this house now as they do at any other season of the year, especially if the weather is mild, in which case very little artificial heat is needed. Many of the best species and varieties of *Odontoglossum* are now making growth and will require plenty of water; many of them, too, are in flower, and the moist atmosphere with little artificial heat causes the petals to become spotted. Therefore, if a drier and rather warmer atmosphere could be obtained for plants in flower this would be obviated. Besides *Odontoglossums* and *Masdevallias*, one of the most useful of all winter-flowering cool house Orchids is *Lycaste Skinneri*. With this, as with *Odontoglossum crispum*, almost every flower differs in some respects from its neighbour, but all the varieties are well worth growing. They have now mostly completed their growth, and flowers are coming up plentifully. During the growing season they have been watered freely, but now they must not have quite so much at the roots, although it would be a mistake to allow them to become so dry that the growing Sphagnum becomes white. The pure white form is grand, but very scarce indeed, and likely to be so. In instances in which the Sphagnum has grown too much on the surface of the pots it is best to

pull it off and replant it more thinly; trimming with scissors may injure the tips of some of the active rootlets. *Lælia autumnalis* and its varieties, also *L. majalis*, should not now receive much water, and they ought also to be placed in a light position, not far from the glass. There is a pretty tufty little plant now in flower, *Masdevallia ionocharis*, the flowers of which are of a delicate white colour, marked with reddish purple, quite distinct. *M. corniculata* (also in flower) should likewise be named in connection with it; the flowers of this are quaintly formed, some of them orange-yellow, others yellow spotted with reddish buff. A house entirely devoted to the culture of *Masdevallias* would be most interesting, and there would always be some one or other of them in flower.

FLOWER GARDEN.

THE planting of all kinds of deciduous trees and shrubs should now be pushed on with despatch, as the earlier these are got in after the fall of the leaf the less check they receive in their removal, and the better they will succeed, for with open weather, such as we may possibly get for a month yet, roots are formed at a great rate, and plants under such circumstances quickly become re-established. For flowering subjects, such as double Cherries, Almonds, all kinds of *Cratægus* and *Pyrus*, poor soil is the most suitable, as in it they make less growth and more blossom buds, but for ornamental foliaged plants that one wishes to become larger assistance should be given in the shape of a little fresh earth to enable them to start. The best for this purpose is rich turfy loam, such as may be obtained from the trimmings of paths or roads or any old banks, and, failing this, a good substitute is the soil that has been in use for the borders or under cultivation, which is far more congenial to the roots of plants than such as is dug up from below, which is generally dead and inert. It is a good plan, therefore, when excavating the holes for planting to throw this on one side, and fill first with the surface soil, which, from having been exposed to the atmosphere and aerated, is sweet and wholesome. Leaf-mould, so much in favour with many, is a thing to be avoided, as, unless perfectly free from sticks and thoroughly decomposed, it is almost sure to generate fungus, which is apt to fasten itself on the roots of plants, and prove fatal to their well-being, as it poisons the sap, stops all healthy growth, and is a frequent cause of death and decay. Instead, therefore, of using leafy matter as a stimulant, it will be much better to give each tree or plant a mulching of half rotten manure, which, lying on the surface, acts beneficially in a variety of ways, as its juices are washed down, and it keeps the ground below uniform as to moisture, and prevents any injury from frost.

In planting trees and shrubs, one of the most important points to attend to is the spreading out and regulating the roots, and another to see that the plants are not buried too deeply, as when the collars are lower than is needful, they rarely succeed satisfactorily. To keep the heads from swaying about, suitable stakes and ties should be used, and the soil made firm about the roots by treading. Many are of opinion that American shrubs, such as *Rhododendrons* and *Azaleas*, will not grow in anything but peat, which is a great mistake, as they succeed almost equally well in a sharp, gritty loam, but what they do object to is chalk or calcareous matter of any kind, which is fatal to their existence. If peat can be got to give them a start, all the better, but if not, sharp turfy trimmings from the roadside answer well and will grow them to perfection, especially if mixed with rotten leaves, which are a good substitute for peat. Grit or sand is essential, and should be thoroughly mixed with the soil before planting, and in carrying out this latter operation it is necessary to make the soil very firm, as otherwise the fine hair-like roots of the plants cannot get hold, and they perish from drought.

Not only is this a good time to carry out the planting of all kinds of deciduous things, but it is the best season for taking up and relaying turf

and making any alterations in beds involving the removal of Box, in edgings of which gaps should at once be made good and walks re-formed where defective and otherwise put in order for the winter. The great point in having firm, sound walks is to get rid of surface water, for if this soaks in or lies on gravel, the latter is sure to be loose, however good and binding its nature may be. To get rid of it properly the walks should be provided with drains and gratings to carry it off quickly, as the more wash there is the brighter and cleaner will the gravel be kept. That the gratings may be as inconspicuous as possible, it is necessary to have them small, and the best for setting and the neatest are those cast in iron frames, which, placed close along the hedge of the walk, are scarcely seen. Under the gratings small traps or receptacles to catch the silt should be formed, so as to prevent the drains being blocked by the sand and rubbish carried in by the water. In the formation of walks, next to efficient drains the most important thing is the foundation, which to stand wear should be solid, for if the bottom of a path shifts the top will be disagreeable to walk on. Brick-bats and rough material of that kind are suitable, as the angular sides are favourable as a key for gravel to bind on, but the interstices among the bats should be filled, for which purpose there is nothing better than fine chalk, which, after it gets wetted a few times, binds almost as hard as a rock, and therefore keeps down worms, which where it is not used throw up their castings and sadly disfigure the surface.

PROPAGATING.

TREE CARNATIONS for flowering during the winter are best propagated early in spring, as by striking them thus early and growing them on freely during summer fine plants full of flower buds will be obtained by the end of the autumn. Cuttings may be obtained from plants that have been flowering during the winter, and may be taken as soon as the sap is vigorously in circulation, sometimes even by the middle of February. For this purpose prepare some 6-in. pots; half fill them with crocks, over which put a layer of fibrous material, then fill up with a compost consisting of equal parts loam, leaf-mould, and sand, sifted through a sieve with a $\frac{1}{2}$ -inch mesh, and press the whole moderately firm. For cuttings choose shoots of as sturdy growth as possible, for with only weak plants to start with it will be impossible to succeed satisfactorily. Take the cuttings about 4 inches long, remove the leaves from about 1 inch from the bottom, and if the remainder are inconveniently long they may be shortened, but in this respect care must be taken not to cut off more than is necessary. They may then be inserted, not too thickly, up to the bottom pair of leaves, and after being watered should be placed on a gentle hotbed and kept close until rooted, when air must be given by degrees. If there are any indications of damping after being put in, air may be given when requisite just to dry the foliage.

CINERARIAS.—Seeds of these are sown in May in pans of moderately light soil, and if placed in a frame with a gentle bottom heat will be up in a few days, when air must be given freely and the plants in every way encouraged to grow sturdily. Another sowing may be made in the following month to furnish plants for a succession. For increasing individual plants the *Cineraria* is often propagated from offsets taken in July from the old plants that have flowered the preceding season; they should be kept somewhat close until the roots start, when they may be treated in every way the same as seedlings.

CYCLAMENS.—Seeds of *Cyclamens* are sown as soon as ripe (probably in July or August) in well-drained pans filled with a mixture of loam, leaf-mould, and sand; after being just covered with the same material, the pans should be plunged in a gentle heat, where the seeds will soon germinate. When necessary to prick them off, the same kind of soil should be used, and the plants should be returned to their former quarters. Being in this way kept growing freely from the time of

sowing until that of flowering, good plants may be obtained in fifteen or sixteen months.

EPHIPPYLLUMS.—The propagation of these beautiful winter-flowering plants is very easy, as if a piece be broken off, put in a pot, and kept moderately dry, it invariably roots, but the practice generally followed is to graft them either on *Cereus speciosissimus*, or more commonly on *Pereskia*. This is done in the following manner: Head down the stock to the required height; then take as a graft a piece about 3 inches in length, prepare it as for wedge grafting, but do not cut more than the central woody part or stem proper, leaving the winged margin untouched. The stem of the *Pereskia* is comparatively small, and if the cut be extended further than the central portion, the wounded parts will not meet so truly and the union will accordingly be less perfect. The stock being split and the graft inserted, the next operation is that of tying; and while some merely fasten it in with a pin or even a spine from the stock, the better way is to tie all securely together. My practice is to use a support of about the same height as that of the plant, and in tying bring the matting round the whole; thus one ligature suffices both to secure the graft and to fasten it to the stake. The advantage of using but one tie is that in order to make all secure the matting must be drawn sufficiently tight to cut through the winged margin, which in one case does not matter; but if two or three separate ligatures were used, sufficient damage would be done to impair the chance of success. After grafting they should be kept close until a union takes place, which will be in about three weeks' time, but care must be taken that they do not get too damp at that time, to avoid which give air if necessary.

FRUIT.

HARDY FRUIT GARDEN.—When the root pruning of pyramids and bushes has been brought to a close, the renovation of older trees should receive immediate attention. In many old gardens we often find trees of large dimensions to which the modern system of root lifting cannot be applied, or if it is attempted, one side only should be operated upon in any one season, and when the strong roots which have to be cut have made new roots into fresh compost the other side may be treated in a similar manner. If the trees are healthy and crop well, and disturbance at the tap roots is not considered necessary, the quality of the fruit may be greatly improved by the entire removal of the surface soil quite down to the roots, replacing it with fresh compost consisting of good loam, road scrapings, charred refuse, and rotten manure. Conjointly with these operations the heads of standards may be thinned preparatory to the removal of loose bark and Moss, when all the strongest branches may be washed with a mixture of soot, lime, and stiff loam reduced to the consistency of paint with strong soap water, 2 pounds to the gallon. Wall-trained trees and espaliers should be unfastened, spur pruned where the spurs have got too far away from home, washed and dressed in a similar way, and tied up in bundles until the time arrives for nailing or tying in for the season.

PRUNING.—Where much of this work has to be performed advantage should be taken of the mild weather which generally prevails through November for getting this operation well advanced. Commence with Currants, Plums, and Cherries, thin and tie up Raspberries, but defer shortening the tops until the spring. Mulch heavily with rotten manure when the weather is favourable for wheeling, and avoid all digging or disturbance of the surface roots. If new plantations have to be made now is a favourable time for getting in the canes. The Raspberry enjoys a light, rich soil, and produces the finest fruit when grown in single rows running north to south and trained to a V shaped trellis which admits of the young growths rising up the centre. Unnail Peaches and Nectarines as soon as they are clear of the foliage, and draw them away from the walls to prevent the buds from getting too forward

early in spring. Warned by the disastrous effects of frost a winter or two ago, get all outdoor Figs unfastened and have plenty of dry Fern or straw ready for covering them up on the approach of severe weather. Let the roots be well covered with short manure, see that mice do not establish themselves in the straw, and keep the latter dry by putting up glass copings or broad boards for throwing off rain and snow.

STRAWBERRIES.—If pot Strawberries are still standing out-of-doors care should be taken to prevent them from becoming infested with worms, for, useful as these creatures may be in our fields and pastures, the Darwinian theory is not likely to find favour with the grower of pot Strawberries. Prepare the cold pits intended for their reception by covering the bottom with a thick coat of coal ashes, examine the bottoms of the pots, and plunge to the rims in Oak leaves or old tan. See that the soil is in a nice growing state when they are put away, throw the lights off at all times when the weather is mild, and close them when very wet or unusually severe. If the first batch intended for early forcing has been some time under glass, have them moderately supplied with water, as damage often follows keeping them too dry.

PINES.—In the fruiting house plants in stages from the recent starter to the point of changing colour may be kept at a temperature of 70° by night, with plenty of atmospheric moisture from the evaporating pans replenished with liquid manure, light syringing overhead on fine days, provided the plants are not in flower, and the regular damping of the surface of the plunging material. As the days decrease in length more fire heat will be needed, but it will not be well to adhere to any hard and fast line with regard to the top-heat, at least where the bottom-heat ranges about 85°, and blinds can be run down under sudden external depressions. From this time on to March allow the suckers to remain on these plants as the fruit is cut, and if successional stock requires more room, the old stools may be divested of leaves and laid in at the end of a warm pit, where they will keep moving and make better stock than if potted at this dead season. In succession houses guard against overcrowding the plants. It is better to weed out and throw away than to get them "drawn" by attempting too much. Keep them well up to the glass, maintain a steady bottom-heat of 80° to 85°, and let the top-heat range from 60° at night to 75° by day, at which point give a little air. If growing in close, compact pits, the best of all structures for Pines, syringing may be discontinued; but root watering will require regular attention, otherwise the best plants may start prematurely in the early spring. The same caution applies to autumn-rooted suckers occupying 5-inch and 6-inch pots, the soil in which soon becomes dry if not well watered and plunged quite up to the rim in gentle bottom-heat, sufficiently strong to keep them moving until the time arrives for shifting in February.

CUCUMBERS.—Where the structure devoted to Cucumbers in winter and Melons in summer is divided into compartments the early winter fruiter will now be in full bearing and capable of taking copious supplies of tepid liquid at a temperature of 80° to 85°. If it is intended to follow this batch with early Melons, high pressure may be indulged in, as their time is short. Plants in the second compartment for coming in after Christmas do best in pots placed on inverted pots or brick pedestals, as they can then have plenty of fermenting Oak leaves or tan placed round them, and renovated at a dead time when the warmth and moisture will counteract and soften the heat given off by hot-water pipes. Train the Vines regularly over the trellis, giving every leaf room for full development; remove all fruit and male blossoms, and keep the foliage clean by syringing occasionally with clear sulphur water. Look after weak plants from the latest sowing, pot on as they require it, and keep them steadily

moving in a close pit where they will do good service through February and March, when Cucumbers are scarce. The greatest drawback to winter Cucumbers is a deficiency of light and excessive firing. To secure the first, limewash the walls and keep the glass scrupulously clean. To counteract the second maintain a sharp fermenting bottom heat, and use some kind of external covering at night.

THE KITCHEN GARDEN.

ONE of the most important operations now demanding attention is the laying down of spring Broccoli; the work is so simple and so effective, that all should do it at once. Merely take out a trench, and lay the plants sideways, with their heads to the north. Celery should now be finally earthed up; nothing is so disastrous to this useful crop, as when the first sharp frost lays prostrate the outside leaves, leaving the heart of the plant exposed to the weather, and here we may hint that only varieties thick in the stem should be grown. All young Cauliflower and Lettuce plants in frames should be dusted over with fine charcoal and sand to dispel damp and mildew.



Cypripedium Fairieanum in its native habitat.

Keep on the lights when the weather is wet, and give air by tilting at the back. If not already done, plant out Cauliflowers under hand-lights in good rich ground. For two years past my hand-light plants have mostly buttoned. The best variety and certainly the most useful is the new Erfurt Dwarf Mammoth. Five plants of this fill one light. Select a warm and cosy corner for this indispensable esculent. Cutting away Asparagus stems and giving the beds first a dressing of salt, and then mulching with good cow manure, fresh from the cow houses, is the way to obtain fine, thick, and tender heads of this delicious vegetable. Lift all Beet at once, and hill it in small round heaps; it keeps much sounder, and retains its flavour better by being buried under the soil than stored in any other way.

FORCING VEGETABLES.—We are busily engaged emptying brick pits to be in readiness to fill with leaves for Rhubarb, Seakale, and Asparagus. These vegetables when forced with good sweet leaves are not only tender, but the flavour is much better than when manure is used; in fact, they are not only eatable, but enjoyable. Keep good stocks of French Beans at work; Osborn's variety is a good one. Make up at once beds of manure and leaves for early Potatoes. Start the

sets in a mild heat in boxes. Our first Mushroom bed, spawned seven weeks ago, is now in bearing, and the house is kept cool and humid. The second bed will be in plenty of time to succeed the first. Inside Mushrooms are poor examples compared with those grown on ridges, where the buttons are as big as Oranges and firm as rocks. Still, we must have them in the dark days of winter. Bear in mind there is such a thing as lamb at Christmas; therefore be in time with plenty of green Mint. Keep up good supplies of Mustard and Cress, Tarragon, and, above all, Chives, which are always in demand.

ORCHIDS.

A RARE LADY'S SLIPPER.

(*CYPRIPEDIUM FAIRIEANUM*.)

It is now nearly thirty years since the original and only imported plants of this species of Lady's Slipper first made their appearance at Stevens' Rooms, forming, as was then thought, part of a collection recently sent home from Assam. It was named after the late Mr. Fairie, of Liverpool, who in 1857 exhibited a plant of it in flower at one of the exhibitions of the Horticultural Society, at that time held in Willis's Rooms, and it was from Mr. Fairie's plant that Lindley drew up the original description of this species. The plant flowered in two or three other collections about the same date, since Mr. Fitch's figure of the plant, published in the *Botanical Magazine*, t. 5024, was made from specimens forwarded to Kew by Mr. Myland, then gardener to Mr. Reid, of Burnham, Somersetshire, and Mr. Parker, of the Hornsey Nursery, also sent a plant to Kew in flower about the same time. As Lindley long ago said of it, "it is an exquisitely beautiful species," and at the present time it seems one of the rarest and also one of the most difficult to cultivate in a really satisfactory way. Lindley compared it with the old *C. insignis*, but we are now fortunate in having a much nearer ally of our present plant in the comparatively new *C. Spicerianum*, which in general habit of growth and to some extent in inflorescence also recalls to mind the peculiarities of *C. Fairieanum*. That this plant should have never again been found by modern collectors in Assam is one of those phenomena difficult to understand, the more especially as but few rare Orchids of late years eluded the search of modern Orchid importers. Our present species, however, is not quite alone in having defied recent search, since the same is true of the Chinese *C. purpuratum*, the Bornean *C. Stonei platytanum*, and that "beautiful white *Cypripedium*," of which we have heard as growing in the Indian Archipelago, but which, like the scarlet *Phalanopsis*, seems to be a "Dutch mystery," or the cup of Tantalus, by which many a weary collector's thirst has been deluded. One must live and hope, however, for the lucky day when *C. Fairieanum* may be rediscovered in its "native lair" and imported in quantity to our gardens, and that it will soon be found requires no power of prophecy to predicate. I sometimes wonder that Mr. Seden has not raised a batch of seedlings of this and of a few other rare Orchids difficult to propagate in any other way. Mr. Dominy, the well-known raiser of hybrid Orchids, did, indeed, raise a hybrid between *C. barbatum* and our present species (*C. Fairieanum*) some years ago, and this is now grown under the name of *C. vexillarium*.

This much has been said because *C. Fairieanum*, with its greenish white, purple-streaked flowers, is one of the prettiest, neatest, and in every way most desirable of known Lady's Slippers, and the accompanying sketch gives a fairly good idea of the way it may grow naturally in its native land, wherever the precise locality may be. The artist has secured a fairly good portrait of the plant as he has imagined it would grow on a moist bank

among mossy tree trunks, and having tall Alpinias or other Ginger-worts for company.

F. W. B.

WINTER TREATMENT OF ORCHIDS.

DENDROBIUMS.

WE have now reached the season of the year wherein our Orchids require very different treatment from what they have previously received. Plants that were growing vigorously not many weeks ago have now completed their growth, and have gradually reached the point at which they become as nearly as possible inactive. Of this class we may name nearly the whole of the Dendrobiums. Both the evergreen and deciduous species require a long season of rest, and it seems to me that they are most benefited by their rest when they have been prepared for it by a strong, healthy growth of the plants during the previous growing season. A firm, well-developed growth does not shrink much during the winter, even if it is kept without water for six weeks or more; whereas a badly-developed growth will shrink very considerably, and its long rest may be injurious rather than otherwise, and as a consequence it would flower badly the following season. Of well known deciduous species, *D. Wardianum* and *D. crassinode* are characteristic examples. As soon as their growths are well matured they should be taken into a moderately cool house and be kept very short of water, but not quite without it. In a month or so they may be placed in an ordinary greenhouse, and water may be altogether withheld for six weeks, or even for three months. To keep up a succession of bloom, the species *D. crassinode* has a tendency to flower rather later than *D. Wardianum*; but between the two of them a succession of bloom may be kept up for nearly six months. The best time to re-pot these is just as soon as they pass out of bloom.

Of species that retain their leaves through the resting period the good old *D. nobile* is best known. This also ought to have a season of rest similar to the others, and the treatment in other respects ought to be the same. *D. nobile* may be wintered in a house, which falls almost as low as the freezing point occasionally. *D. Dalhousianum* is quite another type of the evergreen section. It also requires a prolonged season of rest, but I have not yet tried it in such cool winter quarters as a greenhouse. In any house where the temperature does not fall below 50° it succeeds remarkably well. The low winter temperature and a thoroughly dry state of the roots cause the long pendulous spikes of its gorgeous flowers to be freely developed. One of its necessary requirements is a high temperature and moist atmosphere while it is making its growth. Yet another distinct species that retains its leaves during the winter is the charming *D. Falconeri*.

During the growing season this species is a prey to red spider, and it can only be kept clear from this pest by syringing it daily while it is making its growth. Some years ago I saw a very fine plant of it exhibited at a flower show. It was in beautiful bloom, and the gardener assured me that he dipped the whole plant in a tank of water for half an hour every morning while it was making its growth. A long season of rest and a greenhouse temperature cause it to flower freely in May and June. Two very desirable species that we usually winter in the Cattleya house temperature are the pendulous-growing *D. devonianum* and the sweetly scented *D. Bensoniæ*. They delight in dryness for many weeks at this season. The first named is quite as attractive to red spider as any of them, but freely syringing during the growing season prevents its appearance or keeps it in check. A succession of all of the above may be kept up by placing the more advanced plants in heat before others that seem to be later. There is yet another type of Dendrobium—a section, too, that contains many beautiful species—and this is the evergreen nigro-hirsute section. The leaves are retained on the stems of more than one season's growth, the stems being also furnished with blackish hairs. The best known of this group are *D. formosum*, *D. infundibulum*,

D. Jamesianum, &c. The first named requires at least 10° more heat than the others; it likes plenty of light when making its growth, and the roots prefer to run over the sides and cling to the bars of a teak basket rather than to grow in pots. *D. formosum* likes a night temperature of 60° in winter, and 65° to 70° in summer. Water freely while growth is being made, and almost withhold it in winter. *D. infundibulum* and *D. Jamesianum* succeed best in the cool house. They grow freely in pots treated very much as cool Orchids are treated. The *D. thysiflorum* group are also evergreen. Of this type there are many fine species and varieties, and although the leaves are of a deep green and are retained the whole length of the stem, they do not get injured if the plants are kept quite dry for weeks in winter. There are a few that flower in winter naturally, such as *D. heterocarpum* and the pretty hybrid raised from it, *D. endocharis*. With a few exceptions, all of them require to be kept quite dry during winter. Very different from the Dendrobiums in their characteristics and requirements are the very numerous species of

CATTELYAS.

They are mostly furnished with large evergreen leaves, and do not at any season of the year submit to excessive dryness at the roots. If they are allowed to become so dry that the pseudo-bulbs shrink, the plants are likely to be injured to the extent of losing some of the leaves from the back bulbs, and even more serious consequences may follow, for if Cattleyas once get into bad health it is very difficult indeed to get them right again. On the other hand, if the plants are gorged with moisture they are just as likely to disappoint the cultivator by losing their roots and getting into a bad state of health, from which they are as unlikely to recover. Most of the species and varieties of Cattleyas are best grown in pots well drained, with a good proportion of fibrous peat in the compost. This potting material retains a goodly proportion of moisture, and even in summer the medium-sized and large plants do not require more than one good watering in a week. In winter probably not oftener than once in two or three weeks, but that would depend very much upon the state of the compost, and quite as much on the condition of the plants, whether they are or are not making roots. Take, for instance, one of the best known of Cattleyas, *C. Mossiæ*. This species is very regular in its time of flowering and also in making its growths. They will grow on very freely during the summer and autumn months, sometimes making two strong flowering sheaths from one lead. In October, November, and December the sheaths are matured and the plants are in a state of comparative rest, but not for long. Early in the year it will be seen that the new roots are being freely emitted from the base of the last flowered pseudo-bulbs. I find that just before the roots start is a good time to repot any plants that require it. There is usually more time to spare in winter than there is at any other time for such work, and as plants make naturally much less growth, there is more time for them to recover. We are now repotting all Cattleyas and Lælias that are just commencing to form roots if they require it, and those that do not require repotting are surface-dressed with fresh compost, part of the old being removed. If there is any convenience, it is as well to place all plants forming their growths in a higher temperature than those quite at rest. For instance, *Lælia purpurata* is now making its growth; and while some of the Cattleyas, such as *Mossiæ*, if at rest would do best in a temperature of 50° to 55°, *L. purpurata* would prefer one nearly 10° higher. Cattleya *gigas* also while making its growth likes a high temperature. At present and up to the time when the new growths start into active life it requires very little water indeed; this will give it a good rest, and then if the plants are hung up close to the glass and kept in a moist temperature of 60° they will produce flowering sheaths at once. The winter season is also a time for thoroughly cleaning the plants. Where is the collection free from white scale and yellow thrips? The

last is a serious plague, and where it is possible to fumigate the plants this ought to be done at intervals, tobacco water being used for dipping. The lovely *C. citrina*, so distinct from any other Cattleya, deserves mention. I have tried it in many ways, but find it succeeds best in the cool house on a block of Tree Fern. This retains the moisture longer than a teak block. At this season it does not want much water, but plenty of light and air.

J. DOUGLAS.

Orchid culture in America.—I noticed lately a fine form of *Vanda cœrulea* among a collection of Orchids and stove plants belonging to Mr. A. W. Spencer, Dorchester, near Boston, Mass. The plant, though small, bore a spike with nine blooms, each measuring 3 inches in length by 2½ inches in breadth. The shade of blue seemed to me to be especially fine. *Lælia Dayana*, aniceps, and autumnalis, as well as many of the familiar forms of *Dendrobium*, *Oncidium*, and *Phalæopsis*, appeared to be in flourishing condition under the treatment of the gardener, Mr. Blair, and were full of bloom. I note with pleasure the progress of Orchid culture in America and the increase of late in the number of admirers of these most beautiful forms of plant life.—AMERICAN READER, Boston.

Lælia autumnalis atrorubens.—The deep coloured variety of the autumn-flowered *Lælia* is just now very showy in cool houses, the deep rich tint of its blossoms being very conspicuous when associated with the pale-coloured *Odontoglossum crispum* and *Pescatorei*. One point certainly not in its favour is the unpleasant odour of the flowers. To bloom this *Lælia* satisfactorily it must be grown in a cool house fully exposed to sunshine at all seasons; indeed, we keep ours in the greenhouse where no shading is ever used. They are grown on blocks of wood, the bottom parts of which are plunged in pots just to keep them in position. In fastening them on blocks, the base of the plant is bedded in Sphagnum. When in full growth water is freely given, but as the pseudo-bulbs commence to ripen it is used sparingly till the spikes show themselves. After flowering the plants are again removed to their quarters in the greenhouse.—H. P.

Odontoglossum citrosimum.—This I hold to be one of the most beautiful *Odontoglossums* yet introduced, and the coloured plate in THE GARDEN last week confirms my opinion. It is one that we grow very successfully. "F. W. B." says "it is impatient of too much moisture at the roots," a remark which is scarcely clear enough. After the bulbs are formed at the end of summer, or rather in autumn, but little water is required, and during part of November, December, and part of January we scarcely water at all, though the bulbs may even shrink for lack of moisture. About the end of January or in February the new growths will appear, and with them the flower-spikes. We then re-pot if the plants require it; if not, they are surface-dressed. Water is then applied to the roots, and during the growing season we give them water as freely as *O. crispum*.—J. DOUGLAS.

—This, one of the oldest and, when well grown and flowered, one of the finest of *Odontoglossums*, many fail to bloom satisfactorily, and even when flower-spikes are formed a single slug may destroy several in a night, so great is their liking for this Orchid. As observed in THE GARDEN, this *Odontoglossum* is very impatient of water at the root; indeed, I attribute much of my success in flowering it to keeping it very dry during the winter and early spring, even to the extent of causing the pseudo-bulbs to shrivel. I grow it in the Cattleya house, and keep it shaded during bright sunshine. It occupies a light, elevated spot, and is potted in a mixture of fibrous peat and Moss—materials which seem to suit it perfectly, as it roots in them freely. The pots being thoroughly drained, water is given freely during summer, but in autumn, when growth is finished, it is gradually withheld, until in winter, as I have said, no more is given than will prevent the pseudo-bulbs from shrivelling up very much. When it

appears to be suffering water is given, and not until that happens. So treated the flower-spikes make their appearance in spring, and when they are an inch or two long more water is used, but care is taken even then not to give too much. When water has been liberally given on the first appearance of the flower-spikes, I have known instances in which the plants have started rapidly into growth, but the flowers failed to develop themselves. Mine are at their best in June and the earlier part of July, and when in that condition too moist an atmosphere will cause the flowers to quickly become spotted. In this respect *Odonoglossum citrosimum* is among the most delicate of Orchids.—H. P.

Dwarf Lælias.—Among the most valuable of Orchids for flowering at this season are the dwarf forms of *Lælia* distributed under the names of *Dayana*, *marginata*, *præstans*, and *pumila*. They are all probably varieties of *L. pumila*, but if that be the typical form the others surpass it in beauty. A good variety of *L. marginata* has flowers nearly 4 inches across, with prettily reflexed sepals of a lilac-purple colour, while the labellum is of an intense dark velvety purple and margined with white. In *L. Dayana* and *præstans* the white margin is wanting, while the flowers of *L. pumila* are a good deal smaller. These *Lælias* succeed best when grown in shallow pans such as are now becoming so popular, and even then they should be thoroughly well drained. In potting I use good fibrous peat, with a moderate amount of Sphagnum, and care is taken not to have the pots or pans any larger than needful, for *Lælias* and, indeed, nearly all epiphytal Orchids are very impatient of having a mass of unnecessary soil about their roots. Grown in a light position in the Cattleya house, these *Lælias* succeed well. Instead of pots or pans being used, *Lælias* are sometimes grown on suspended blocks of wood, but for my own part I prefer the small pans just alluded to.—H. P.

MODERN PLANT COLLECTORS.

It is not easy to say when or how long ago it is since professional plant collectors commenced the work of enriching our gardens with exotic plants, work which has in this our own day been so well carried out. Parkinson, who was apothecary and herbalist to Charles II., tells us, indeed, that he sent a Dutchman—one Guillaume Boel—"who going into Spain, almost wholly on my charge, brought me little else for my money than seeds of Chiceing Peas," and afterwards he informs us that he (Boel) gave seeds to others, so that, as Parkinson quaintly expresses himself, "I beate the bushe and another catcheth and eateth the bird." This was prior to 1629, but since the present century began many tender exotics, and especially of Orchids, have been introduced to our gardens, and it is for the most part to this modern taste for orchidaceous plants that collectors have been so actively employed. As a matter of fact, collectors were sent out from Kew in search of interesting plants years before Orchids became fashionable, and Sir Joseph Banks and Humboldt had both fanned the glowing embers of desire in the same direction, and the Horticultural Society in Regent Street and at Chiswick was only one of the many expressions of a new taste which had sprung up as if by magic from the remnants of the old-fashioned Physic Gardens and the dry-as-dust stores of the Covent Garden herbalists and apothecaries. Gardening became more general, nor did the heavy duty on glass prevent hothouses or bark stoves from springing up throughout the length and breadth of the country.

At Chatsworth, Sion House, and Chiswick the culture of exotic plants had begun, and both the Horticultural Society and His Grace of Devonshire sent out collectors to India, China, and to the South American continent in quest of rarities, but it is only since Orchids became fashionable and have brought such remunerative prices at auction sales that collecting abroad has been followed out in a systematic manner. Since Mr. Cuming brought home those two then wonderful plants of

Phalaenopsis amabilis, for one of which the Duke of Devonshire gave one hundred guineas, until Sir Trevor Lawrence paid twice as much or more for the new *Aerides Lawrenceæ* the other day, has collecting abroad been remunerative in the long run to our nurserymen, to whom we are indebted for most of the new Orchids and other plants introduced during the past 20 or 30 years. J. D. Hooker, Hartweg, T. Lobb, Fortune, Linden, Blant, Weir, Pierce, J. G. Veitch, Bowman, Lehmann, Kramer, Roezl, Wallis, Zahn, Endres, Tucker, Boxall, Chesterton, Carder, Shuttleworth, Horsman, P. Veitch, Curtis, Davis, Kalbreyer, Bruchmueller, and the brothers Klaboch are only a few out of the many names that might be quoted out of that "great army of martyrs" or those modern collectors who have risked health and life itself in their labours for horticulture and for science. Lastly, but by no means least, we mention Charles Maries, who recently, 1877-80, travelled in China and Japan for Messrs. Veitch, who have already sent out some of the best of his introductions. Among these are many ornamental-leaved as well as flowering trees and shrubs, rare conifers, Acers, Orchids, Ferns, and other plants, including some



Charles Maries.

remarkable varieties of Kämpfer's Iris, and *Lilium auratum platyphyllum*, *Davallia Mariesi* among Ferns, and *Primula obconica* (poculiformis), among flowering plants, will long bear evidence to Mr. Maries' power of discrimination whilst in Japan, which has not unaptly been described as "the England of the East," so liberal and progressive are its people. In a word, Mr. Maries may stand for the present as a good typical example of a modern collector; nor is he a stranger to the readers of THE GARDEN, since he has from time to time contributed some highly interesting notes of travel and adventure to its pages, and that he now fills a responsible and lucrative position as gardener to one of the native princes of India, is nothing more or less than a natural sequence of his faithfulness when employed in Veitchian explorations. Our engraving is an admirable likeness of a man who, although young, has rendered substantial service to horticultural progress.

Messrs. Veitch consider the following to be some of Mr. Maries' best introductions: *Abies Veitchi* (vera), *A. sachalinensis*, *Daphniphyllum glaucescens*, *Acer polymorphum*, several new and distinct varieties of *Hydrangea rosea*, *Styrax obassia*, *Lilium auratum gloriosoides*, *L. a. platyphyllum*, *Spirea palmata alba*, *Conandron ramondoides*, *Primula obconica*, many extra fine varieties of Iris Kämpferi, *Davallia Mariesi* and its crested form, *Osmunda japonica corymbifera*, besides introducing in quantity many plants which had previously been very scarce.

F. W. B.

FORNHAM PARK.

THIS, the seat of Mr. William Gilstrap, lies some two miles north from the town of Bury St. Edmunds. The parishes of Fornham, of which there are three, are of considerable historical interest. It is said that a battle was fought here between Edward, son of King Alfred, and Ethelwald, a rival Saxon leader, in which the former was victorious. And here, at a later period, viz., in the year 1173, was fought the celebrated battle of Fornham, in which the Earl of Leicester's foreign troops, in the interest of Henry the Second's rebellious sons, were defeated with terrible slaughter by the royal troops under Robert de Lucy.

Like many of the manors in this neighbourhood, that of Fornham appears to have for some time belonged to the Abbey of St. Edmund, and was, after the Dissolution, granted, by Henry VIII., to Sir Thomas Kytson. From the Kytsons it passed into the old family of Gage, and afterwards into that of Kent. From the last-named it was purchased by a late Duke of Norfolk, and was afterward sold to the late Lord Manners. It has been in the possession of the present owner for some twenty years, more or less, and he has greatly improved the estate as well as the mansion and grounds. There are two entrances to the park, one on the south, and another on the north side, in each case by handsome iron gates, with lodge attached.

THE PARK comprises some 100 acres, and the soil being of excellent quality, it contains many fine trees, some evidently of considerable age. The mansion is large and pleasantly situated, although the situation is somewhat low. The principal front faces the east, and a pretty geometrical flower garden stretches towards the south, bounded by a terrace wall, on which are vases filled with flowering plants, while in the centre is an ornamental fountain. The fruit and vegetable gardens are at a short distance from the mansion on the north-west side. These are in three divisions, and contain the glass structures. They are about three acres in extent, and are devoted more to the culture of fruit than culinary vegetables, the more common kinds of the latter being furnished by a vegetable garden at a considerable distance off. A broad walk runs through the centre of each garden, and leads to the pinetum on the north-west. The glass structures are numerous and are devoted to the production of fruit of various kinds, as well as of plants, for the purpose of table and house decoration. They consist of a somewhat lofty lean-to greenhouse; two vineries, each 40 feet long, and each containing fine crops of fruit of excellent quality; together with a Peach house, all heated by hot-water pipes. Many of the Peaches grown here weighed upwards of 12 oz. Two unheated structures, each 80 feet long by 7 feet wide, are devoted to Fig and Peach and Nectarine culture, and contain also a few Apricot and choice varieties of Plum trees. They are trained chiefly to the back walls, and although the ventilation of these structures is less perfect than it might have been, the trees are nevertheless exceedingly healthy, and were mostly carrying good crops, the Figs in particular bearing very freely. In addition to the houses just named, there are numerous low structures used for growing Cucumbers, Melons, Strawberries, &c., and for the purpose of forcing flowers and vegetables.

THE PINETUM contains a fine selection of ornamental Conifers, mostly young trees, but some sufficiently developed to form very handsome specimens. Amongst the latter may be named *Cupressus Lawsoniana erecta viridis*, fine pyramidal trees; *Thuja elegantissima*, like pillars of gold; *Juniperus japonica aurea*, *Picea Parsoniana*, a remarkably fine specimen; and good examples of *Picea Nordmanniana* and *Pinsapo*, together with numerous examples of the various *Retinosporas*, including *pisifera aurea*, *plumosa*, *squarrosa*, and others. The pleasure grounds contain many ornamental trees and shrubs, deciduous as well as evergreen, such as a fine group of Beech trees, apparently of great age, and several very large Cedars of Lebanon. These last have, however,

suffered severely from the effects of repeated disastrous gales, although their heavy limbs have been supported by strong chains and their wounds covered with sheet lead or zinc. To the left of the fine broad walk or drive which traverses the grounds is a pretty rosery laid down on the Grass, which contains a selection of the finest varieties of this favourite flower. A somewhat conspicuous object in the pleasure grounds to the west of the mansion and at a short distance from it is the ancient and ivy-clad tower of the church of St. Genevieve; the church itself was accidentally burned down more than a century ago, and this tower is now transformed into a water tower for supplying the mansion, gardens, and ground. The water is forced into an elevated cistern on the tower by means of an over-shot water wheel, driven by the water of the adjacent river at the western extremity of the grounds. Opposite the southern front of the mansion, and at a distance of some 200 yards from it, has been recently formed an

ORNAMENTAL LAKE or piece of water some 4 acres in extent. This is fed from the river, and with its pretty island planted with the scarlet or coral barked Dogwood (*Cornus sanguinea*), has a very pretty appearance as seen from the mansion and other parts of the grounds. This is intensified during the summer months, at least, by the brilliant effect produced by the planting on some portions of the margin of the lake the *Acer Negundo* variegatum and the golden Elder (*Sambucus aurea*); the richly variegated foliage of these plants reflected in the water as well as when seen from a distance produces a remarkably pleasing effect. Although the mansion, as has been already said, lies somewhat low, it has nevertheless been skillfully made to command various pleasing and even somewhat distant views of remarkable objects, such as those of the church and spire of St. John's, Bury St. Edmunds, the parish churches of Westly and Fornham, St. Martin's, and the group of tall silver Firs in Hide Wood. It is by no means an unusual occurrence for coniferous and other trees to, from some cause, lose their leading shoot, and when this takes place, unless remedial measures are resorted to, the specimens soon lose their symmetrical appearance. This, however, is prevented as far as possible from taking place at Fornham, for in June last men were busily engaged in restoring the lost leaders of various kinds of trees, such as Yews, Cedars of Lebanon, and Firs and Pines, some of which were, at the least, 20 feet high. This is accomplished by fixing a long and strong stake or pole to the upper part of the stem of the tree to be operated upon in a perfectly perpendicular position, and rising higher than the highest part of the tree. To this stake the most eligible side shoot or branch is securely tied, while anything like rival shoots are judiciously cut back. Treated thus, the elevated branch soon assumes the position of a leader, and when this condition is fairly secured, the supporting stake is removed. Objections have been made to

PRUNING CONIFERS.—There are, however, no species of trees more likely to be benefited by timely attention of this kind than conifers; the removal of rival leaders, and the judicious stopping or cutting back of over-luxuriant side branches, in order to encourage the flow of sap towards the central portion or stem of the tree, are operations to which they submit better than most trees.

P. G.

Madame Oswald de Kerchove.—“J. C. C.” writing of this Rose (p. 398) has certainly underrated it, and I very much doubt if he possesses the true variety. Like him, I obtained this Rose when first introduced into this country, and ever since we have been delighted with it. A more thoroughly perpetual white Rose we have not, blooming as it does at every point. It is much freer than that well-known variety *La France*. Its growth is similar to that of *La France*, and we never saw it more than 2 feet in height, and literally a sheet of snow, owing to the freedom with which its lovely white blooms are produced.—W. H. FRETtingham, *Beeston*.

RECENT PLANT PORTRAITS.

CALENDULA SICULA FL.-PL. (Regel's *Gartenflora*, plate 1128), a pretty double yellow Marigold, apparently a small form of Meteor; **OPUNTIA POEPPIGII**, **OPUNTIA SEGETHI**, **CHAMELUM LUTEUM** (Regel's *Gartenflora*, plate 1129).—These all appear on the same plate somewhat crowded. The first named is apparently small growing species, sparsely covered with long, white hair-like spines and producing comparatively large and showy pale straw-coloured flowers, shading almost to white inside. The second is considerably a larger grower, more thinly covered with stout green spines and with decidedly fewer ornamental flowers of a pink colour, quite half of which seem buried in the shoot from top of which they spring. The third is a slight growing, creeping, rhizomatous plant with slender hairy foliage, from 2 inches to 3 inches high, and producing small yellow flowers, much resembling those of the rare *Colchicum luteum*.

CALAMUS (?) LINDENI (*Illustration Horticole*, plate 499).—An exceedingly handsome Palm from the Malay Archipelago, the upper portions of the leaves of which are of a peculiarly rich deep green and the under surface almost pure white, forming a most charming contrast. As it has not yet flowered in Europe it is provisionally named *Calamus*, but may yet turn out to be a *Dæmonorops* or some other species.

ONCIDIUM PAPILIO VAR. **ECKHARDTI** (*Illustration Horticole*, plate 500).—An exceedingly handsome and most brilliantly coloured form of the well-known and curious Butterfly Orchid, with apparently larger flowers than the type, of a brilliant shade of orange-red, barred with gold on the long side petals, and with a large circular blotch of pure gold colour in the centre of the large labellum.

ANÆCTOCHILUS LOWI (*Illustration Horticole*, plate 501).—A handsome variety of these richly-veined and ornamental foliage plants, which are, however, unfortunately very difficult to cultivate successfully, requiring much special attention and usually a box frame all to themselves in a moist and warm stove house. This variety is one of the introductions of Messrs. Low, of Clapton.

CARAGUATA SANGUINEA (*Revue Horticole*, second part for October).—A curious and highly-coloured Bromeliad from the Western Cordillera of the Andes of New Grenada, where it grows as a parasite on the branches of trees. Introduced and described by M. E. André, and now being distributed by M. G. Bruant, of Poitiers, Vienne, France.

BEGONIA OLBIA (*Revue de l'Horticulture Belge* for November).—A very handsome and distinct upright growing foliage Begonia, with smooth, dark olive-green foliage, bright red underneath, and distinctly spotted with white on upper surface; the flowers are white and small.

SARMIENTA REPENS (*Botanical Magazine*, plate 6720).—A pretty scarlet tubular-flowered trailer from Chili, closely resembling in form and colour the better known, but more robust-growing, scandent, half-hardy shrub, *Mitraria coccinea*, but in every way smaller. This should make a pretty basket plant for hanging from the front roof of a cool greenhouse where the temperature is rather damp. It has also been described under the name of *Urceolaria chilensis*.

RHAMNUS LIBANOTICA (*Botanical Magazine*, plate 6721).—A handsome, hardy shrub from Mount Lebanon, with large, smooth foliage; also known as *R. Imeretiae* and *R. castaneæfolia*.

TRITONIA POTTSI (*Botanical Magazine*, plate 6722).—This is a handsome and almost hardy bulbous plant from South Africa, producing tall branching spikes of narrow, tubular, orange flowers. It is better known in gardens as *Monbretia Pottsi*, under which name it was first distributed by the late Mr. McNab, of Edinburgh. It flowers in August.

ANGRÆCUM SCOTTIANUM (*Botanical Magazine*, plate 6723).—A remarkable species allied to *A. eburneum* in flower, but very different foliage.

It was sent from the Comoro Islands, near Zanzibar, by Sir John Kirk, and has medium-sized white flowers.

ROSA ALPINA (*Botanical Magazine*, plate 6724).—This is one of the most elegant of single Roses with bright pink flowers of medium size, remarkable for its bright orange-scarlet hips in autumn. It is also known under the names of *R. inermis* and *R. pyrenaica*. It is of somewhat low and bushy growth, and well adapted for a rockery.

FRITILLARIA PALLIDIFLORA (*Botanical Magazine*, plate 6725).—This plate gives a decidedly incorrect idea of this species as known to me, having bloomed it for the last two years from bulbs imported from Belgium. The flowers with me are a pale yellow faintly shaded with green, but though certainly not over showy, they are more ornamental than the hideous dull green they are here represented.

PHILODENDRON MAMEI (*Revue Horticole* for November 1).—A handsome and distinct new Aroid foliage plant, recently introduced by M. E. André, from Ecuador, and now figured for the first time. It has large leaves somewhat resembling those of a *Caladium* in shape, but borne on much shorter stems, which do not apparently exceed a foot in height. The leaves are profusely and distinctly marbled with white markings. This fine addition to our cool stove foliage plants is now being distributed by M. Godefroy-Lebeuf, of Argenteuil. It is said to be a fine vigorous grower and of easy cultivation.

W. E. G.

HORTICULTURAL EXHIBITIONS.

ALLOW me to inform “Peregrine” that before saying anything on the subject I carefully read “R. B.’s” communication (p. 353), to which my remarks were directed, and quite understood it. The statement was too distinct to admit of being misunderstood. “Peregrine” tries to make it appear that it was not the judges, but the committee’s management and the system of judging to which the dishonourable proceedings were chargeable. But if the statements made by “R. B.” were correct, it is not possible to separate the delinquents. If, as he distinctly says, it was impossible to gain a first prize at a show in the classes where the president or members of the committee exhibited, clearly the judges must have been in league with the individuals in whose favour the awards were wrongfully made. There is no escape from the joint dishonesty of the proceeding; but I have yet to be convinced that there are grounds for such charges. If there are judges who act as “Peregrine” asserts, by visiting exhibitors whose productions they are to judge previous to an exhibition and accompanying them to the show, their indiscretion affords a grand chance for the cynical remarks of those whose estimate of human nature is that all men are dishonest. It does not require much reflection to convince reasonable people that where any dishonourable leanings existed with a judge towards an exhibitor, both parties would be careful to keep far enough apart either immediately before or after a show.

—T. B.

—Allow me to inform “T. B.” (p. 394) that what I stated (p. 353) is perfectly correct, but the ill-fortune with which “T. B.” couples me has not always attended me. I have taken a first prize at one exhibition, and at another a few days later I have been third with the same exhibits, and also against the self-same exhibits and exhibitors; there has not been the slightest perceptible change in any of the things shown. This has occurred several times, and *vice versa*. Different men seem to judge from different points of view—a good reason, I think, why judges should be frequently changed. As to the rules, I have known exhibitors disqualified for being a few minutes after time, and others at another time come in half an hour after the prescribed time and carry off prizes. I have also seen an exhibitor disqualified for having a pot half an inch over the prescribed size, and another carry off a prize, though several of his pots were not according to rule. I have also seen

an exhibitor with a good clean collection of plants, all quite distinct, beaten by one who had duplicates. This I have noticed several times, and once when five points out of six were in his favour. Now will "T. B." tell us that these things are right?—R. B.

GARDEN IN THE HOUSE.

FLORAL DECORATIONS.

I WONDER whether we have quite exhausted this fertile subject? Much, indeed, has been written about it, but I think something still remains unsaid. A true instinct is leading Flora's lovers to adorn our churches, our homes, and those still abodes where we lay our departed with her gifts. The day cannot be far distant when the sable hearse, those parodies of grief the mutes, black scarves, hatbands, and the like, will have passed away for ever. The other day, reading an account of the funeral of a distinguished clergyman in one of our northern counties, written by a familiar and honoured pen, I observed that some ghastly emblems were absent, and were replaced by flowers and evergreens. We seem to have returned in this matter to the practices of our forefathers. Sir Thomas Oberbury's "Fair and happy milkmaid" "hopes to die in the springtime, to have store of flowers stuck on her winding sheet."

Milton, in his celebrated ode on the death of the Marchioness of Winchester, after comparing her to some "fair blossom,"

The pride of her Carnation train,
Plucked up by some unheedy swain,

goes on,

Here be tears of perfect moan,
Wept for thee in Helicon;
And some flowers and some Bays
For thy herse to show the ways.

But I would speak more particularly of house decoration—first of rooms, then of the dinner table. The prevailing errors seem to be overcrowding and what I may call "the dotting arrangement," *i.e.*, instead of presenting flowers in masses, as Nature is wont to do, sticking them singly into specimen glasses, where they seldom show to advantage. Some rare blossom may be placed very appropriately in a small glass. But why multiply these insignificant and unsatisfactory little vessels? No number of negatives can ever make an affirmative. Neither can any quantity of laboured trifles ever form a pleasing or harmonious whole. Do not, on the other hand, crowd a multitude of flowers together quite irrespective of colour or design in a vase: I have seen red, pink, yellow, and blue, with white and mauve so heaped together as to produce a distracting effect. Such "nate confusion," as the Irishman called it, is revolting to persons of taste. Give me a china bowl; fill it with Roses of two or three different colours, with no other foliage than their own. Let their glossy leaves fringe the edge of the basin and mingle with their glorious blooms: let buds half-blown and perfectly opened flowers be arranged by a deft hand, and you have "a thing of beauty," not indeed "a joy for ever," for Flora's brightest gifts soon fade. "Nothing continueth in one stay;" still, while it last, our "beau-pot," as our grandmothers would have called it, will give the utmost pleasure to more senses than one. So it is with other flowers. Saucers filled with Violets, their own leaves forming a border, with, perhaps, the addition of a little Moss, are charming things for a drawing-room. I do not write here of the sumptuous mansions of the very wealthy, for these favoured persons may at will transform their rooms into gardens by means of flowering plants, and even in "bleak December" may fancy themselves blest with eternal summer: there seems in these days scarcely any limits to the magical power of money. It is, however, rather those less gifted by fortune, and who depend for floral decorations on their own efforts, whom I address. In many a country vicarage, in many an old-fashioned manor house, elegance and good taste reign: let the

dwellers in these quiet abodes cultivate artistic feeling in these and other matters. It will make their pleasant homes pleasanter and more homelike still. It is easy, if you have a good old garden of herbaceous plants, to keep the house florally furnished during the spring, summer, and autumn months. This forms one great inducement to grow herbaceous plants largely. Some which have experienced undeserved neglect, and, banished from the well-kept gardens of the rich, have taken refuge in the cottager's plot, might be reinstated with much advantage. A simple arrangement of golden Daffodils, Anemones, and "Narcissi, the fairest of them all" (with their own foliage added), cannot be surpassed. I would rather not mix them with other flowers, but leave them alone in their beauty. Later on tall spikes of Foxglove, or that royal flower, the Canterbury Bell, with its many different shades, from deep blue through all the changes of pale grey or mauve to rosy pink or creamy white. Talking of this jewel in spring's radiant crown reminds me that the pilgrims to the honoured shrine of Thomas à Becket had as one of their signs a bell. An old writer speaks of "the noise of their singing, and the sound of their piping, and the jangling of the Canterbury Bells" as a body of pilgrims passed through a town. The Campanula rotundifolia grows wild in the neighbourhood of the ancient cathedral city. What, again, can be more pleasing or delightful than a posey of Sweet Peas bordered by sprays of Mignonette, "that subtle and sad perfume?" or, again, a majolica vase of Irises of different shades with their own broad leaves? You might add a bloom or two of the pale tree Pæony, which comes in at the same time. I have seen many quaint and beautiful vases, bowls, and jars very suitable for holding flowers, made at a porcelain manufactory (venerable for its antiquity of 800 years, and still very flourishing) at Nevers, a place I visited for the first time last year. Then there is Vallauris ware, and the revived majolica works at Florence, presided over by men of artistic tastes, who are faithfully copying old classic shapes and patterns. Besides these, in many curiosity shops in out-of-the-way towns of the Continent you may meet with brazen vessels of antique shape and almost faultless design which are charmingly adapted for flowers. In France or Italy most of the vases, &c., I have mentioned may be bought for a few francs and well repay the trouble of bringing them home. Very lovely things are made at Worcester and in other parts of England, but their costliness sometimes places them beyond the reach of modest purses. If you mix your flowers it is best to take care to keep to two or three colours which harmonise, and if possible introduce some white. The spikes of the white Gladiolus The Bride are extremely ornamental; they mix well with the scarlet, crimson, and pink varieties. Sprays of any of the lovely Delphiniums, which grow so well in shrubberies or mixed borders, are a charming addition to pure white Foxgloves when you want to fill a tall vase (this should occupy a conspicuous place on a sideboard or mantelpiece). I would place a few fronds of Maiden-hair Fern or a hanging spray of crimson Fuchsia in front of the vase. The Hydrangea is very handsome for large, massive arrangements: it mixes well with dark crimson Roses or scarlet Geraniums. Some regard should be paid to the background when a jar or vase is close to a wall. Suppose the latter is tinted a dull or pompeian red, blue and white flowers relieve its sombreness beautifully; pink and yellow are out of place. The neutral tints both of the wall papers and wall painting now in vogue are well adapted to throw up the brilliant colours of many flowers.

It is easy enough to manage your decorations in summer's lavish days, for in her "unthrifty loveliness" there is no stint. But now in dull November,

When yellow leaves, or none, or few do hang
Upon those boughs which shake against the cold,
Bare, ruined choirs, where late the sweet birds sang,

it may seem difficult to carry on the work. The foliage of some of our deciduous trees (yellow, russet, or crimson) is most effective mixed with the few flowers still remaining in our gardens. I

do not think we make enough use of the changing hues which come in at this desolate season.

Oh! Violets for the grave of youth,
And Pansies for those dead in their prime;
Give me the withered leaves I chose
Before in the old time.

sings a poet of our own day. I saw lately two quaint jugs of large size placed on Oak brackets in an old hall, the walls of which are painted sage-green; these jars were differently arranged, though the flowers were similar. Tall fronds of hardy Ferns formed a background; they were mixed with Laurel; while in front and branching off to each side were boughs of scarlet Maple, then at its full beauty. Two or three fine Sun-flowers, which the "rocking winds" had mercifully spared, a spray of lilac Michaelmas Daisy, some late Heliotropes (Miss Nightingale), several of the star-like flowers of the Anemone japonica formed a charming whole. In the vase I liked best the Michaelmas Daisy was left out, and its place supplied by a scarlet Cactus Dahlia and some red Fuchsias. Those who possess greenhouses will have great wealth of flowers for the next two months in the endless varieties of Chrysanthemums: these are very effective if carefully arranged. Many of the foregoing remarks apply equally to table decorations. Here the same errors—overcrowding and "the dotting arrangement" before mentioned—prevail. How annoying it is to have the view of a pretty vis-à-vis (herself a flower) or the pleasant face of a valued friend completely blotted out by a pyramidal erection of flowers and Ferns! I have even seen the nodding plumes of the Pampas and other Grasses used with disastrous effect. But what shall I say of the "dotting style?" The other day, dining at a suburban villa, the mistress of which arcanian abode is very proud of her flowers and of her skill in arranging them, I noticed the almost bewildering appearance of a number of specimen glasses, each of which held a Chrysanthemum and a spray of Maiden-hair Fern. "Would you believe it, Mr. Nesfield, there are seventy glasses on this table? I spent the whole morning in arranging them, and now they look so well, I feel my time has not been wasted." It was truly distressing. A sort of nightmare seemed to seize me, as I found myself whenever there was a pause in the conversation furtively counting the specimen glasses, till the voice of the servant at my elbow from time to time recalled me to the business of the evening. All this would have been different if, instead of being broken up into a frivolous multitude of prettinesses, the same flowers had been grouped in one or two well-chosen bowls or jars. As it was, the whole gave me the idea of the *infinitum petit*. I have ventured to throw out a few suggestions—rules there can be none—even were I qualified to propound them, for in that charming art, the arrangement of flowers, much must depend on individual taste and the appliances at command. Above all, study Nature, and try to master some of her valuable lessons. She is an artist who never fails to please. Thus, great poets, painters, and sculptors derive their inspirations from an inexhaustible source. As they depart from her, they become stilted, conventional, and the like. She alone is the fountain of eternal freshness and beauty.

MARK NESFIELD.

Gesnera zebrina.—This has been allowed to fall into most unmerited neglect. Although usually considered a stove plant, it is when once fairly developed quite suitable for room decoration, and will even stand in mild weather for many weeks in an entrance hall or passage without its lovely deep green and crimson velvet foliage being materially injured. Its flowers, though pretty, are short-lived, and may be pinched out; it is for its foliage that it is most valuable, and its scaly corms multiply rapidly, so that a stock is readily got up. For the dinner table we often use this *Gesnera*—single corms in 3-inch pots—two, four, or more on the table, in little ornamental covers. With these may alternate many other subjects, such as small Ferns, of which *Adiantum glaucophyllum*, from its brilliant green and tidy habit, is our favourite;

Begonias, especially the discolor rex section; and *Pilea muscosa* nana, a little beauty, rivalling the *Selaginellas*, &c. *Gesnera zebrina* and its congener, *G. cinnabarina*, can be had in full beauty at any season that may be desired according to the time at which they are started. For those who can give them a fairly warm stove temperature, say 60° at night in winter, they may be set at work in July or August, but if started in spring in a hot-bed, a warm greenhouse will suit them fairly well in summer, when they may be brought into the dwelling-house till they begin to get shabby, and show signs of dying off. Then a good season of rest, well out of the reach of frost, is most desirable. Both *G. zebrina* and *G. cinnabarina* are at this moment (Nov. 13) in my outer hall fully exposed, as the door is almost always open, and they have been there for many weeks; they still have a good appearance. Capsicums, too, I have found to last admirably in the dwelling-house once their pretty scarlet fruits are nearly ripe. They like plenty of heat while growing, but do fairly well under the same treatment as the *Gesneras*. As I have no conservatory to display my pets, every plant at all available for sitting-room work is pressed into service, and many do well which one would not expect.—GREENWOOD PIM, *Monkstown, Dublin*.

SOCIETIES.

ROYAL HORTICULTURAL. NOVEMBER 13.

CHRYSANTHEMUMS and **Cyclamens** were the chief features of this meeting, there being a conspicuous absence of tender plants on account of the cold frosty character of the morning on which the show was held. There was an unusual number of plants submitted to the floral committee, no fewer than eighteen being awarded first-class certificates. These were the following:

RHODODENDRON CURTISI.—This we regard as one of the most valuable new plants of the year, inasmuch as it will doubtless form the foundation of an entirely new race of greenhouse *Rhododendrons*. It is a native of Sumatra, but affects high elevations, often as much as 3000 feet; hence it is tolerably hardy. It is of dwarf spreading growth, only growing 2 feet high. The branches are slender, and the leaves long and narrow and not very abundant. The flowers are campanulate, of wax-like texture, and hang in clusters, three and four together, terminating the twigs. It seems to be remarkably floriferous, the plant shown being well furnished with flowers of a deep crimson-red. This little shrub we need hardly say was the centre of attraction among plants of a new description. It was shown by Messrs. Veitch, who recently introduced it through Mr. Curtis.

CYMBIDIUM AFFINE.—This species is so nearly allied to *C. Mastersi*, that only an expert among Orchids could distinguish them. In growth the two plants are identical, the most palpable difference being in the flowers, which instead of being pure white or very rarely spotted, as in *Mastersi*, have the lips blotched and spotted with a pale rosy purple on a white ground. Judging by the very fine specimen shown on this occasion, it is a better plant than *Mastersi*, the spikes of bloom being larger and denser. Exhibited by Mr. J. N. Wyatt, Lake House, Cheltenham.

VIOLET COMTE DE BRAZZA'S NEAPOLITAN White.—Unquestionably the finest double white *Viola* yet introduced to gardens. It is exactly the size of the ordinary Neapolitan, but pure white. It is seemingly very floriferous. Mr. Allan showed from Lord Suffield's garden, at Gunton Park, Norwich, a quantity of blooms of it together with *Marie Louise* and Neapolitan, the latter to show how favourably it compared with the newer and earlier *Marie Louise* in size and colour.

SARRACENIA SWANIANA.—A hybrid, obtained by crossing *S. purpurea* with *S. variolaris*. Some of the pitchers on the plant shown were a foot in height, not erect, but nearly so. They were deeply coloured and veined throughout. Exhibited by Mr. W. Bull, Chelsea.

IRECINE FORMOSA.—A new variety which originated with Mr. Goldsmith, Hollenden Park, Tonbridge, who exhibited it. It is of a dwarf bushy habit of growth with foliage somewhat resembling in form that of *I. Lindeni*, but broader and of a beautiful golden hue veined with crimson, with here and there pencillings of green. It is said to be a most effective plant for summer bedding; about a dozen plants of it were planted out in the open the second week of June and lifted the second week in October, and now they are found useful for embellishing the greenhouse. This is the third season in which Mr. Goldsmith has grown it. It is likely to prove a useful plant.

TRICHOSMA SUAVIS.—An old, but little known Orchid and a most desirable one, inasmuch as it habitually flowers at this season. Its chief attraction is the delightful fragrance of its flowers, which are produced in graceful drooping spikes. The colour of the sepals and petals is ivory white; that of the labellum white, heavily barred with red and surmounted with a bright yellow crest. It is evergreen and of easy culture. Shown by Mr. W. Bull.

ZYGOPETALUM BURKEI.—Distinct from any other cultivated species, and a really pretty plant. It partakes of the growth of the old *Z. Mackayi*. The spikes are erect, and the flowers have sepals and petals blotched with olive-green and brown, with which the pure white labellum forms a charming contrast.

SARRACENIA WILSONIANA.—Also a hybrid, the result of intercrossing *S. Drummondii rubra* and *S. purpurea*. The pitchers are erect, as large as those of *purpurea*, and highly coloured. It will be interesting to see if this and the other hybrids shown by Mr. Bull will possess the same degree of hardness as *S. purpurea*; if they do, they will be a great gain.

CHRYSANTHEMUM BENDIGO.—A new incurved variety, a sport from the white *Mrs. Heale*, with which it agrees except in colour, which is a clear straw yellow. Shown by Mr. Ridout, gardener to Mr. J. B. Haywood, Reigate, with whom it originated.

CHRYSANTHEMUM ROSEUM SUPERBUM.—A Japanese variety with large flowers and long, slender florets of a delicate rose-pink—quite an acquisition amongst varieties of a similar colour. Exhibited by Messrs. Laing, Forest Hill, and Messrs. Veitch, Chelsea.

CHRYSANTHEMUM SALTERI.—One of the Japanese class, and a remarkably fine and distinct variety. Its flowers, which are large, have densely arranged florets of a rich crimson-red, the under surfaces being yellow. Messrs. Veitch.

CHRYSANTHEMUM MDLLE. LACROIX.—An extremely fine Japanese sort, with large flowers, sulphur-white when first expanded, afterwards changing to pure white. Shown by Messrs. Jackson, Kingston.

CHRYSANTHEMUM MDME. D'ARNAUD.—A Pom-pone variety, remarkable for the profusion of its button-like flowers, of a bright red-purple. Exhibited by Messrs. Laing and Messrs. Veitch.

CHRYSANTHEMUM COMET.—A Japanese variety of a beautiful chestnut-brown colour, with the under surfaces of the florets yellow. Messrs. Veitch.

CHRYSANTHEMUM MONS. HENRI JACOTOT.—One of the Japanese race, with large reflexed blooms of a bright orange-red with a yellow centre. Shown by Messrs. Jackson.

CHRYSANTHEMUM GEORGE STEVENS.—One of the finest new sorts of the season, and distinct from all others. The flowers, which are reflexed, are not remarkable for large size, but their colours are very striking, being of the richest maroon-crimson, intensified by their under surfaces being yellow. Shown by the raiser, Mr. G. Stevens, Putney.

CHRYSANTHEMUMS were numerous shown by several nurserymen. Messrs. Laing contributed the largest group from their nurseries at Forest Hill. This collection included a selection of the finest sorts, and among them were several new and little-known kinds, such as *M. Astorg*, a white

Japanese, very fine; *M. Moussillac*, flower of James Salter, but of a bright red-crimson; *Ile Japonaise*, purple-red; *M. Deville*, deep crimson-red; *Alma*, reflexed, purple; *Mdlle. d'Arnaud*, a small Pom-pone; and *l'Or du Rhin*, yellow. Messrs. Veitch had a small group, which included, besides those certificated, *M. Astorg*, *Margot*, *M. Farin*, *Flamme du Punc*, *Mrs. Todman*, *Duchess of Albany*, *Angele*, and *l'Elegante*, all excellent sorts. In a collection of cut blooms from Messrs. Jackson were *M. Astorg*, *Flamme du Punc*, *Mons. Romain*, *Angele*, *Safranot*, and *Rosea superba*. Messrs. Cannell, of Swanley, ever on the alert for "something new," contributed a somewhat novel exhibit in the shape of a collection of single-flowered *Chrysanthemums*. Some of these were very pretty, similar to and scarcely distinguishable from single *Pyrethrum*s. The following are the names of some of the most striking sorts: *Miss E. Terry*, large rich rose-purple, one of the best; *Mrs. Wells*, large, pale purplish pink, white in centre; *G. A. Sala*, small, bright purple-carmine; *Mr. Santley*, and *Dr. Kellock*, both crimson-purple; *M. Toole*, medium size, lemon-yellow, colour of *Etoile d'Or Marguerite*; *Gus Harris*, rather small, reddish purple; *Arthur Sullivan*, reddish purple, whitish centre; *Mrs. Langtry*, pale rose-pink, very pretty; *Miss Lingard*, white, large yellow centre. Messrs. Cannell also had two good doubles named *La Vierge* and *Star of Wyke*, the first being of the purest whiteness. They also showed *Libonia floribunda* variegated in bloom, pretty and distinct; also *Heliotrope Albert Delaux*, remarkable for the large yellowish green leaves blotched with deep green. A good selection of Chinese *Primula* blooms indicated the commencement of the season of these beautiful winter flowers. *Mr. May*, Northaw House, Barnet, showed some uncommonly fine cut blooms of *Bouquet Fait*, one of the Japanese race, and also of a new one called *William Robinson*, a large Japanese sort with long, slender florets of a pleasing buff-yellow colour. *Mr. Fry* showed a sport from *Golden Empress*, named *Virginia*. It is a rose-pink with white centre.

NEW PLANTS exhibited by Messrs. Veitch included *Spathiphyllum Minahasæ*, a handsome Aroid from the Celebes, much resembling *S. Dechardi* with large white spathes; *Cyathea microphylla*, and a handsome *Zygopetalum* named *Z. crinitum cœruleum*, but which appeared to be different from the plant generally known under that name. *Mr. W. Bull* showed, besides the plants certificated, a fine specimen of the handsome new *Adiantum Legrandi* and a [plant of] the Assamese form of *Cymbidium giganteum* with a long pendulous spike. The hybrid *Sarracenia*s shown were *S. Maddisoniana*, a kind like *S. purpurea*; *S. Tolliana*, a cross between *S. Drummondii rubra* and *S. purpurea*, and *S. viridis*, apparently an unusually deep green form of *S. purpurea*. *Oncidium Schilleriana* in flower was shown by Mr. Kesterton, Balham, and from Mr. Smee's garden at Wallington came a very fine variety of *Oncidium Weltoni*. *Dendrobium album*, a little known, but old species, was shown in bloom by Mr. Waddell, Stony Stratford. A remarkably fine specimen of *Nephrolepis exaltata* from Mr. Allen, Sale, showed well what a handsome Fern this is when well grown. A curious double spathe of *Anthurium Andreanum* was shown by Mr. Buchan, Wilton House, Southampton, and Mr. B. S. William showed a specimen of a new fine-foliaged *Begonia* named *Mad. Henri Gache*, one of the handsomest of the Rex section we have seen.

CYCLAMENS formed the greatest attraction of the meeting; seldom has such a fine collection been shown at such an early date as that which *Mr. H. Smith*, the well-known *Cyclamen* growers brought from his nursery at Ealing. It numbered, some 200 plants, every one of which was the perfection of skilful culture. The majority of the plants were in 4½-inch pots, and each bore a healthy cluster of foliage, from which arose quite a sheaf of flower-spikes, stout, erect, and moderately short. The bulk of the collection consisted of the pure white strain for which *Mr. Smith's*

nursery is so celebrated. The flowers of this strain are characterised by their large size, broad and thick-textured petals of snowy whiteness. From these there was every gradation of tint to deep crimsons, and among the deepest rose-tinted varieties was a new one called Prince of Wales, remarkable for the large size of the flowers and their beautiful rose-pink colour. A silver Banksian medal was deservedly awarded to Mr. Smith for this fine group.

WINTER-FLOWERING CARNATIONS were shown by Messrs. Hooper from their Twickenham Nursery. There was a good assortment of varieties, the best being Irma, large, deep cerise; Purity, pure white; Hermine, also a good white; Jean Sisley, yellow flaked with various shades of salmon-red; Zouave and Alegatière, two beautiful deep crimsons among the finest grown. A bronze Banksian medal was awarded.

FRUIT.—The chief exhibits among these were Grapes, the most notable of which were three superb bunches of Gros Colmar, shown by Mr. Allan, Lord Suffield's gardener at Gunton Park, Norwich. The aggregate weight of these bunches was 15½ pounds, and one weighed as much as 6½ pounds. The berries were very large, and on the whole admirably finished. A bronze medal was awarded to the exhibitor. Some excellent Lady Downes were shown by Mr. Allis, gardener to Major Shuttleworth, Biggleswade, and some creditable bunches of Mrs. Pince's Muscat were shown by Mr. Cummins, Wallington. That little-known Grape, Chatsworth Seedling, was shown in excellent condition by Mr. Horsefield, Heytesbury, who sent three very large bunches, well finished in every way. This variety does not bear a good reputation as regards quality, but its appearance leaves little to be desired when so well grown as by Mr. Horsefield. A new Grape, called Winter King, was shown by Mr. B. S. Williams, Upper Holloway. It is said to be the result of grafting Gros Colmar on Raisin de Calabre, which proceeding is said to have changed the character of both these varieties in all ways. The berries are large, oval shaped, and those shown were as black as Sloes, and with as fine bloom upon them. It is stated to be a late Grape of the first quality. The committee desired to obtain fuller information respecting its origin. Several seedling Apples were shown, among them being a seedling sent by Mr. Jones from the Royal Gardens, Frogmore. It is a handsome dessert kind of medium size, and the committee commended it as an excellent sort. The handsome seedling Apple sent from the Prince of Wales' garden, at Sandringham, was again sent by Mr. Penny. It is named The Sandringham, and was awarded a first-class certificate at the Apple Congress. The certificate was ratified by the fruit committee. It is a fine large fruit of even shape and a pale green colour. Mr. Breese, gardener to Lord Leconfield, Petworth, sent three dishes of Apples, one of them, the little known Sussex Pippin, a handsome fruit of excellent quality. The others represented the Scarlet Nonpareil grown under diverse conditions of soil, the fruit from the tree in stiff loam being of a much higher colour than the other grown in richer soil. A first-class certificate was awarded to Mr. T. Parker, Moreton Cove, Hereford, for

APPLE, TYLER'S KERNEL.—It is a handsome fruit about 3 inches high, somewhat conical, pale green and deeply tinged with red on the exposed side. It is said to be of excellent quality as a cooking variety.

VEGETABLES.—Some fine fruits of a Cucumber were shown by Mr. Allan. The sort was Improved Telegraph, crossed with a long variety which seems to improve the strain in every respect, the fruits being longer and finer and not deteriorated as regards the flavour in the least. A cultural commendation was awarded. Mr. May, Northaw House, Barnet, showed fine samples of his new Brussels Sprouts named May's Selected. The committee accorded a vote of thanks. Messrs. Veitch & Sons, Chelsea, exhibited samples of a new self-blanching Celery which is said to blanch without being earthed up in any way. The same

exhibitors also showed full collections of Capsicums (about a dozen sorts) and of Beet, which also numbered also about a dozen. Among the Beets Veitch's Improved Black was commended by the committee for its fine colour. Pragnell's Exhibition, a rather new sort, was shown admirably, likewise such excellent sorts as Dell's Crimson, Nutting's Dark Red, Pine-apple, and others.

Scientific Committee.—Sir J. H. Hooker in the chair.

Potato tubers protected from fungus spores.—The secretary referred to communications received from Mr. Plowright and M. Jensen on this subject, the experiments and their results of the latter gentleman being given in the *Gardeners' Chronicle* for July 28. Mr. G. Murray questioned the possibility of the tubers being infected by the spores (*Zooconidia* or *Conidia*) directly, as the tuberous tissue would not allow them to germinate, the only method of attack being believed to be by the mycelium penetrating the stem, and so reaching the tubers.

Sclerotia in Potato leaves.—Mr. Murray read a report on these bodies, and pronounced them to be oxalate of lime. He says: "None of the phenomena of 'plasmolysation' or 'myceliation,' &c., were to be seen. They are soluble in dilute nitric acid and insoluble in acetic acid; the excess of nitric acid being neutralised by ammonia, crystals of calcine oxalate appeared."

Narcissus viridiflorus.—Specimens of this plant in flower were sent by Mr. G. Moore from Gibraltar, and exhibited by Dr. Y. T. Mather.

Convolvulus tricolor.—Mr. G. S. Boulger exhibited an inflorescence of this plant, received from Mr. Gibb, with a terminal flower-bud.

Cephalotaxus Fortunei.—Sir J. D. Hooker exhibited a branch and fruit of this plant received from Rev. J. Goring, of Weston, Sussex.

Earcockle galls.—Mr. W. S. Smith forwarded the following communication: "Whilst examining a number of galls of *Tylenchus tritici* in wheat spikes, I observed one gall with both the transparent lodicules present at the base. The idea seems commonly accepted that the galls represent these two lodicules, and no other part of the flower. Mr. Carruthers, in a paper recently published in the *Journal* of the Royal Agricultural Society favours this idea."

"But no doubt De Vaine was right when he said that any of the central parts of the flower were liable to an attack from the *Tylenchus*, and that the gall might represent the pistil or stamens."

"De Vaine states that he once found one of these galls growing from the base of a leaf."

Isaria fuciformis.—He also sent specimens of this fungus (from Australia) from the site of the model farm, Glasnevin. Mr. Smith described the fungus as British in the *Gardeners' Chronicle*, with illustrations, last year. The fungus is spreading over the country and generally attacks *Festuca ovina*.

ROYAL AQUARIUM.

CHRYSANTHEMUM, FRUIT, & VEGETABLE SHOW
NOVEMBER 14 AND 15.

THE annual exhibition of the Borough of Hackney Chrysanthemum Society, held on Wednesday and Thursday last in the Westminster Aquarium, was not only as fine as any that have preceded it, but much superior to any show that has been held at this place; indeed, it was the finest autumn exhibition that has taken place in London for a long time. It was not confined to Chrysanthemums, but there was a large and fine gathering of fruit and vegetables, the best exhibition of these that has been or will be held in London this year. The show was therefore of general interest, and attracted a good many horticulturists from all parts. As regards the Chrysanthemums, it was generally considered to be the best show the society has ever had. High quality of blooms prevailed throughout the exhibition, though we thought there was a falling off in the numbers as well as in the excellence of the Japanese class, the competitors seemingly being more local. We give a few remarks respecting the open classes,

and give lists of those sorts shown in the principal first prize collections, as they may be useful to our readers who wish to form selections of the best exhibition sorts.

OPEN CLASSES.—There was a fine display in all the open classes, and particularly of the incurved and Japanese kinds, the classes in each section being more numerous represented this year than usual, and the quality of the blooms were quite up to the usual standard. The first collection of twenty-four incurved sorts and that which won the silver cup came from Mr. E. Sanderson, St. Mary's Cray, Harlesden. It consisted of the following sorts: Empress of India, Alfred Salter, Emily Dale, John Salter, Queen of England, Barbara, Hero of Stoke Newington, Golden Empress of India, Mrs. Heale, Venus, Guernsey Nugget, Le Grand, Princess of Teck, Lady Hardinge, Jardin des Plantes, Empress Eugénie, Duchess of Wellington, Princess of Wales, Abbé Passaglia, Golden Eagle, Cherub, Nil Desperandum, Mrs. W. Shipman. There were seven other collections of twenty-four sorts, all excellent, the second, from Mr. Salter, Streatham, being scarcely inferior to the first, though not so uniform.

EIGHTEEN INCURVED SORTS.—The best in this class, which was represented by seven exhibitors, came from Mr. Sanderson, who had fine blooms of Emily Dale, Queen of England, Alfred Salter, Empress of India, Hero of Stoke Newington, Golden Empress of India, Lady Hardinge, Princess of Wales, Cherub, Princess Teck, Le Grand, Barbara, White Venus, Golden Eagle, Duchess of Wellington, Isabella Bott, Mrs. Mary Morgan, Abbé Passaglia.

TWELVE INCURVED SORTS were shown by no fewer than seventeen exhibitors, the finest coming all the way from Sheffield, Mr. J. Udall, of Shirecliffe Hall, being the exhibitor. He had a uniformly fine collection, consisting of Queen of England, Alfred Salter, Empress of India, Golden Empress, Princess of Wales, Mrs. Heale, Cherub, Isabella Bott, Jardin des Plantes, Prince of Wales, Princess Teck, and Barbara. The second and third collections came respectively from Mr. Herrin, Chalfont Park, and Messrs. Saltmarsh, Chelmsford.

SIX INCURVED blooms were shown by fourteen, and on the whole were of good quality, and came from widely separated localities. The best, from Mr. Prichett, Barnet, represented Queen of England, Prince Alfred, Prince of Wales, Golden Empress, George Glenny, and Barbara admirably.

ANEMONE-FLOWERED sorts, not a very popular class, were shown best by Mr. Berry, Roehampton, who had fine blooms of the following dozen sorts: Lady Marguerite, George Sands, Fleur à Marie, Mrs. Pethers, Marginatum, St. Marguerite, Marguerite de Norway, Acquisition, Louis Bonamy, Prince of Anemones, Princess Louise, and Gluck. Four other collections were shown in this class, and some half a dozen collections of twelve Anemone Pompones were shown; the best from Mr. Butcher, included Perle, Regulus, Astrea, Madame Montels, Mr. Astil, Miss Nightingale, Madame Gentir, Madame Chalorge, Antonius, Marie Stuart, Jean Hatchet, and Defiance.

JAPANESE VARIETIES.—These appear to be the most popular of all the races of Chrysanthemums their informal outline, shaggy appearance, and beautiful colours winning the admiration of everyone. This section was shown admirably on this occasion, and particularly by the competitors in the class for twenty-four blooms, in which there were four collections. The best, from Mr. Ridout, Reigate, represented the following beautiful sorts: Mdm. Bertie Rendatler, Fair Maid of Guernsey, Mdm. C. Audiguier, Soleil Levant, Sarnia, Chang, Peter the Great, Comte de Germiny, Oracle, Nuit d'Hiver, Erectum superbum, Fanny Boncharlet, Bouquet Fait, The Cossack, l'Incomparable, The Daimio, Mdm. Godillot, Albert, Agréments de la Nature, Chinaman, Beauté de Toulouse, Fulgore, and Elaine. This collection was remarkable for the uniform large size of the blooms and their high colours,

TWELVE JAPANESE SORTS were shown best by the Marquis of Ely's gardener (Mr. Maxted), who had fine examples of Yellow Dragon, M^{me}. C. Audiguer, Fair Maid of Guernsey, P^{ère} Delaux, Ethel, Illustration, Sarnia, Comte de Germiny, and Triomphe du Nord. There were ten other competitors in this class.

THE BOROUGH CLASSES, nine in number, were confined to exhibitors from the boroughs of Hackney and Finsbury, and, therefore, were of local interest only. They were represented as well or even better than the previous shows held here, and some of the collections would compare with any in the open classes—a proof, if one were wanting, that the Chrysanthemum may be grown to perfection in London, even in populous localities. There were two classes also set apart exclusively for amateurs who keep no gardener—an excellent plan, as it enabled the small growers to exhibit. In the two classes for twelve and six blooms there was an excellent competition.

SPECIAL PRIZES were offered by numerous donors, the most liberal being the Royal Aquarium Company, which gave three prizes, the first £10, the second £3, third £1. These were offered for collections of forty-eight blooms (twenty-four incurved and twenty-four Japanese). As may be supposed, such a large number was a difficult matter, and consequently only three collections competed, the best being from Messrs. Dixon, Hackney, who had a superb collection, thoroughly representative in every way. Mr. Herrin was an excellent second, and the third was also good. There was nothing remarkable among the exhibits for the other special prizes, except in the class for six Japanese blooms, in which some half a dozen sets were shown. The beautiful variety Triomphe de Rue de Chatelet was first, Baron Prailly (very fine) was second, and Bouquet Fait third. These were preferred to some fine examples of Peter the Great, the best in the show, Triomphe du Nord, and others. Some of the collections shown for the special prizes were much below average quality. The best bloom in the exhibition was Empress of India, found in Messrs. Dixon's collection.

POT PLANTS were better in every respect than they have been shown for the past few years here, but they were all of the usual umbrella-trained style, excellent in their way, but of much too formal appearance to please the general public. There was a group shown, not for competition, by Mr. McAndrew, Belmont, Mill Hill, which won the admiration of everyone. The plants were in pots, or rather inverted Seakale covers, and they were entirely untrained. All were several feet in diameter, and profusely furnished with flowers, which hung about with all the elegance that a Chrysanthemum can exhibit. There were a dozen or more plants shown in this group, and a few of them were specially attractive, notably one called L'Isle de Plaisirs, a Japanese sort with shaggy flowers of chestnut-brown. This plant was a sight in itself, so profuse were the blooms, so bright the colour, and so elegant the growth. Other remarkable specimens were James Salter, La Nympe, Mrs. G. Rundle, Alfred Salter, and Elaine. Some of these were far more suitable for growing in this loose, untrained way than others, as the habit of growth varies so much. The groups arranged for effect were of the usual stamp, a mass of a hundred plants or so placed on a square space, the tall ones at the back sloping down to the short ones in front. Really, there is no arrangement or harmonious arrangement of colours, so the judges look at the groups from a purely cultural standpoint, and award the prizes accordingly. The first group was from Messrs. Mahood, Putney, and consisted of well-grown plants, and scarcely inferior was that from Mr. J. Stevens, also from Putney.

GRAPES were a prominent feature in the fruit show, and it was the largest display that has been seen in London this year. The Royal Aquarium Company offered liberal prizes of £10, £3, and £1 10s., which was a sufficient inducement for the best growers to compete; consequently some of the best-known fruit exhibitors competed. The

chief class, that for the Aquarium Company's prizes, was for a collection of not less than a dozen bunches. There were nine competitors. Mr. Roberts, gardener to the Baroness Rothschild, being first with a fine gathering of some fifteen bunches, representing the following sorts in high state of perfection: Alnwick Seedling, Muscat of Alexandria, Black Alicante, White Tokay, Gros Guillaume, Mrs. Pince, West's St. Peter's, Black Hamburg, and Lady Downes. The second best collection was shown by Mr. Austen, who had a creditable display of the following: Black Alicante, Muscat Alexandria, Black Muscat, and Mrs. Pince. Mr. Findlay, Wroxton Abbey, showed an excellent third collection, and Mr. S. Castle sent from West Lynn a collection of no fewer than seventeen varieties, for the most part in fine condition. A good collection also came from Elvaston Castle. The sets of three bunches of white and black sorts were not very remarkable. Among the eight black kinds by far the finest were the superb bunches of Gros Colmar from Gunton Park, which Mr. Allan showed the day previous at South Kensington. Some good Alicantes were shown for the second and third prizes. The white Grapes consisted chiefly of Muscat of Alexandria, the best, from Mr. A. Smith, being remarkable for rich colour and high finish.

APPLES AND PEARS were not only more numerous than usual, but excellent throughout. There were classes for six dishes of dessert Apples, six of culinary, and six of Pears. Among two dozen collections of dessert sorts the best was shown by Mr. Ellis, Biggleswade, who had Aromatic Russet, Cox's Orange Pippin, Reinette Grise, Court Pendu Plat, Court of Wick, and Sykehouse Russet, all in excellent condition. Mr. Austen, Ashton Court, Bristol, was second with an excellent collection consisting of Blenheim Orange, unusually highly coloured, Ribston Pippin, Old Orange Pippin, Rosemary Russet, Margil, and Cox's Orange Pippin. The third collection came from Mr. Goldsmith, Hollenden Park, Tonbridge, consisting of Blenheim Orange, Ribston Pippin, Cox's Orange, Cornish Aromatic, King of the Pippins, and Fearn's Pippin. It was worthy of remark that there was not a single inferior dish throughout this collection of some 150 dishes. Among eighteen dishes of kitchen Apples the finest six dishes came from Mr. Roger Leigh's garden, at Barham Court, and, indeed, they were fine, and it is doubtful if they could be surpassed for size and good quality. The six sorts Mr. Haycock (the gardener) showed comprised Belle Dubois, Emperor Alexander, Peasgood's Nonsuch, Mère de Menage, Bedfordshire Foundling, and Lord Derby. The fruits were all extraordinary fine samples of these varieties. Mr. Ross, of Welford Park, showed an excellent collection for the second place, his sorts being Mère de Menage, Annie Elizabeth, Brabant Bellefleur, Loddington, Blenheim Orange, and Cox's Pomona. Mr. Austen sent the third collection from Ashton Court. He had some uncommonly fine Blenheim Orange, Waltham Abbey Seedling, and Warner's King among his dishes.

PEARS were not of such uniform good quality, though the best collections were uncommonly fine; and again Mr. Haycock easily carried off the first prize with a grand lot. His half-a-dozen sorts were Easter Beurré, Triomphe de Jodoigne, Beurré Diel, Duchesse d'Angoulême, Conseiller de la Cour, and Doyenné du Comice, all large and very highly-coloured fruits. The second best came from Dogmersfield Park; among the dishes were fine Beurré Clairgeau, Le Tongre, Doyenné du Comice, and Marie Louise. Mr. Goldsmith showed the third collection, also a good one, consisting of Doyenné Boussoch, Durondeau, Doyenné du Comice, and Conseiller de la Cour, all fine. Other good collections of Pears came from Gunton Park, Elvaston Castle, and Ashton Court.

VEGETABLES.—There was a first-rate show of these, the best we have seen this year. Among seven collections, Mr. May, gardener to Capt. Le Blanc, Northaw House, Barnet, was first with one of the finest collections we have ever seen at an exhibition. It would be difficult to particularise any as specially good, as all were of such high quality,

but the most prominent were Leicester Red Celery, Red Surrey Carrot, Autumn Giant Cauliflower, Pride of America Potato, Telegraph Cucumber, Osborn's Forcing Bean, Fragnell's Exhibition Beet (very fine), Lyon Leek, Porter's Excelsior Potato, White Stone Turnip, and May's selected Brussels Sprouts, a new variety raised by the exhibitor, and which appears to be a first-rate sort in every respect. The samples shown of it were uncommonly fine. Mr. Austen was second with a good collection also, but was weaker in some respects. His most noteworthy dishes consisted of Cardiff Castle Cucumber, a handsome sort; White Star Potato, a white round not much seen; Hathaway's Excelsior Tomato, Walcheren Cauliflower, Snowball Turnip, and Musselburgh Leek. In Mr. Haines' third prize lot were some uncommonly fine Improved Reading Onions, Trophy Tomatoes, Autumn Giant Cauliflowers, Tender and True Cucumbers, and Student Parsnips.

POTATOES.—There were two classes for these—one for twelve dishes, the other for six. In both Mr. R. Dean, of Ealing, won the first prizes with some first-rate collections of the leading sorts, including seven of his own new seedlings. Mr. Ross showed a fine dozen dishes, as did also Mr. Osman, who was second also with six. A large and comprehensive collection of Potatoes was also shown by Messrs. Sutton, of Reading, consisting for the most part of their new seedlings, among which we noted the new Early Regent, which is said to be the Potato of the future as a general cropper. It is early and of first-rate quality.

MESSRS. WEBB'S prizes for the best collections of six sorts of vegetables were competed for by thirteen exhibitors, all showing excellent collections. The best was exhibited by Mr. Austen, who had fine dishes of Autumn Giant Cauliflower, Improved Brussels Sprouts, Improved Reading Onion, Snowball Turnip, Adirondack Potato, and James's Intermediate Carrot—a capital selection. Mr. May was second, the finest of his dishes being his Autumn Giant Cauliflower, Banbury Onion, Lapstone Potato, and Leicester Red Celery, Mr. Findlay, Wroxton Abbey, took the other prize.

MESSRS. HOOPER'S prize for six kinds of vegetables was taken by Mr. May, with Earliest of All, Vermont Champion Potatoes, Autumn Giant Cauliflower, Leicester Red Celery, James's Intermediate Carrot, and Hooper's Market Favourite Onion.

A list of awards will be found in our advertising columns.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

CHRYSANTHEMUM SHOWS.

- 19 and 20.—Winchester.
- 20.—Manchester Botanic Garden.
- 20 and 21.—Twickenham, Clifton, Chesterfield.
- 21.—Ealing.
- 21 and 22.—Birmingham, Bristol, Northampton.
- 22.—Dublin, Reading, Aylesbury, Shrewsbury.
- 22 and 23.—Tunbridge Wells.

Canon Hole's Roses.—Canon Hole is, we hear, retiring from the wars of the Roses after forty years' distinguished service, and his three thousand Rose trees will be sold by auction at Nottingham on Saturday, November 24.

Potato disease.—Mr. George Murray, of the British Museum, will lecture on the Potato disease at the Park's Museum of Hygiene, 74a, Margaret Street, Regent Street, on Thursday, November 22, at 8 p.m. There will be a charge of 6d. for admission. W. Carruthers, Esq., F.R.S., will be in the chair.

Cotoneaster frigidula.—Of this very handsome Nepalese shrub, or rather small tree, Mr. W. E. Gumbleton has sent us from his garden at Belgrave, Queenstown, some branches more heavily laden with clusters of bright red berries than we ever remember to have seen before. These berried twigs, when cut and placed in vases with suitable foliage, have a fine appearance, and a good-sized tree profusely fruited must be a grand object. Mr. Gumbleton sends, besides the specimens from his own garden, some from a tree growing at Birr

Castle, which has brighter red berries, lighter foliage, and a more spreading habit of growth than his own. It might possibly be a distinct variety. With these comes a branch of *C. Royleana*, also laden with bright red berries. This so much resembles *C. buxifolia* that it is scarcely distinguishable from it, and it is probably identical with it or a garden form of it. These and other finely-berried trees and shrubs constitute an important element in the garden landscape at this season.

Dinner to Mr. Symons, of the Perth Nurseries.—It having been understood that Mr. Symons, manager of the Perth Nurseries, was about to leave that city, a number of his friends arranged the other day to entertain him to a complimentary dinner to mark their esteem for him and as a token of their appreciation of the ability and courtesy with which he discharged his duties. Between forty and fifty gentlemen interested in the nursery trade, horticulture, and forestry assembled. Much to the surprise and pleasure of the company, however, it became known early in the evening that Mr. Symons, instead of being about to leave Perth, had, in conjunction with Mr. Allardice, also of the Perth Nurseries, acquired the business so widely known under the firm of Messrs. Dickson & Turnbull, an announcement which gave a happy turn to the proceedings. The chairman, in proposing the toast of the evening, explained that the announcement which had just been made placed him in a somewhat awkward position, but as they all knew their guest as well as he did himself, he felt that no words of his were required to commend the toast to their acceptance. They greatly rejoiced to hear that Mr. Symons was not to leave them after all, and they sincerely hoped that the Perth Nurseries would prosper under the new management, if possible, better than they had done in the past. Mr. Symons, in reply, said that as manager of the Perth Nurseries he had endeavoured to discharge his duties so as to please both employers and customers. The Perth Nurseries were famed all over the country, and he hoped that Mr. Allardice and himself would so conduct their business as to enhance their reputation. The health of Mr. Allardice was also proposed and responded to. The health of Mr. John Anderson was also most cordially pledged, and a very enjoyable evening was spent. It may be mentioned that the firm will still be known as that of Dickson & Turnbull.

Botanical Society of Edinburgh.—Notwithstanding the gradual disappearance from the table, familiar to Edinburgh botanists, of veteran field workers, this society makes species botany a main point in its programme. The present president, Mr. W. B. Boyd, of Faldenside, a large working farmer by the way, introduced the present session by appropriate remarks on the cultivation of alpine and herbaceous plants. In an hour's discourse the hearer was presented with the enumeration of choice treasures from the Swiss Alps and the Scottish highlands, while the propriety of such cultivation in ordinary gardens was amply vindicated. Dr. Traill, of Orkney, has devoted much attention to the growth of New Zealand shrubs on his property on North Ronaldshay, and sent for exhibition a large stem of *Phormium tenax*, the New Zealand Flax, which had flowered and ripened there this summer, as was evidenced by seed capsules filled to bursting. It had flowered and ripened twice previously, once in 1879, and again in 1881. Mr. Lindsay exhibited a plant raised at the Edinburgh Royal Botanic Gardens from the seed of 1881. The Rev. David Landsborough, of Kilmarnock, who has for years been experimenting on the growth of Australian trees in the open air at Corrie and Lamash, in the island of Arran, gave encouraging details of his success during last summer. Thus a specimen of the Peppermint tree (*Eucalyptus amygdalinus*) of Tasmania, at Cromla, Corrie, is 22 feet in height. Other Eucalypti grow equally well, so does the Black wood (*Acacia melanoxylon*), and the Feather-leaf or Black Wattle (*Acacia decurrens*). Mr. Lindsay, curator of the Royal Botanic Garden, laid specimens on the table of the autumn tints of such trees as *Acer saccharinum*, *Quercus rubra*,

Pyrus Aria, and others. One peculiarity of the season was that though abundant in leafage it has been most unfavourable for developing flower-buds for next year. This is specially to be marked in *Rhododendrons*, *Azaleas*, and other American plants. Yews, Hollies, and Cotoneasters have a fair crop of berries which are now well coloured.

A Horticultural Mutual Improvement Society has just been started in Manchester, the meetings of which are to be held fortnightly during the months of November, December, January, and February, in the Old Town Hall, King Street, where papers will be read and discussions held. At the first meeting held on the 8th inst., at 7.30, Mr. Leo Grindon delivered a lecture on Poisonous and Medicinal Plants. He said that botanists had ascertained through the medium of living specimens in this country, and more particularly through that of dry specimens brought from foreign countries, that there are no fewer than about 100,000 different flower-bearing plants in existence. At a liberal estimate the number of plants which could be said to be of direct service to mankind would not amount to more than 10,000. There would be 500 different kinds of fruit trees, then all sorts of vegetables, trees supplying timber, and plants which give material for the manufacture of clothing, cotton, hemp, flax, and so on. The greater portion of the remainder of the plants were simply ornamental, but to his mind every bit as useful as the economic ones. As nearly as he could estimate there might be some 5000 plants which were more or less poisonous and hurtful, some of them very much so, others only moderately so. The most important fact of all was that a large proportion of the deadly plants with which we are acquainted are, he said, admirable medicines in the hands of a clever physician who knows how to administer them in proper quantities and at proper times. We may, therefore, look upon poisonous plants and accept them as the good gifts of Providence intended to be applied to certain purposes. It may be added that this society is under the auspices of the Royal Botanical and Horticultural Society of Manchester. The minimum charge for membership is half-a-crown a year. Mr. Bruce Findlay is president; Mr. R. Tait, treasurer; Mr. W. Swan, Oakley, Fallowfield, honorary secretary.

Helleborus niger altifolius.—In your last (p. 405) you accuse me of making an unwarrantable statement (in *Gardeners' Chronicle*, October 27) concerning the coloured illustration of the above Hellebore (*GARDEN*, April 24, 1878). I stated that it had small botanical value, that it was an artist's picture only, great licence having been taken both with the colour and form of the plant. One of the flowers is tinted throughout a deep pink; the leaf also is not at all like the sturdy leaf of *altifolius*. As I am a pretty well-known contributor to *THE GARDEN*, will you please allow me to say that I adhere to that statement, and I challenge any botanist to say that I am wrong. Mrs. Duffield says in the following paragraph "that she copied exactly the flowers sent to her for the purpose," and the editor adds that there was no licence taken with the drawing, which was made from flowers grown at Tooting. Of course, I am bound to believe Mrs. Duffield, but the fact remains that the plate in question does not give a correct representation of the standard form of *H. niger altifolius*. Out of a thousand flowers it might be possible to select a specimen as red as a Peony, but it would certainly be wrong to say it represented the true form of the plant. I have seen hundreds of flowers of this Hellebore, and I never saw anything like the deep pink colour shown in the two fully blown flowers to the left of the plate. The leaf, again, is very unlike a full-grown leaf of *altifolius*. I do not see how I could have spoken of it otherwise when I was bringing together in one article all that was known of the plant.—W. M. BROCKBANK, *Brockhurst, Didsbury*.

* * A gentleman well acquainted with this genus of plants writes: "If all our garden plants were figured as well as *H. altifolius* is in that plate to which Mr. Brockbank is so unjust, if not something more, it would be fortunate for us." Mr. Brockbank's soil and climate very probably give him blooms different from those on warm soils south of London on which the specimens grew that were figured in the plate alluded to. If he had asked those who grew, saw, or drew the plant as to the characters which he thought unusual, it would have been wiser than rushing into another journal to characterise as grossly untrue the work

of a lady artist, who is most careful to secure truth both of form and colour.

— Mr. Frank Miles, who has long been a grower of the Hellebore, writes: "Let me throw into Mrs. Duffield's side of the scale whatever weight you allow me as a grower of Hellebores and as an observer of their colour and habits. *Helleborus altifolius* is not always, indeed is not often, so dark a purple as she has indicated, but from plants exposed to the winds in entirely open positions I have several times seen blooms late in the blooming season turn to the colour she has represented. To my mind it is a perfectly truthful picture. If the plant is grown where it is not exposed to searching winds and cold rains of March the blooms seldom are as dark as represented. I consider this drawing and that of *Calcchortus venustus* by the same lady the best reproductions of flower drawings from a gardener's point of view of any I have ever seen in your paper or elsewhere.—FRANK MILES, *Bingham*.

— If Mr. Brockbank would take a look round gardens in the neighbourhood of London about the flowering season of the giant Hellebore, I think he would find several flowers identical in colour with those that Mrs. Duffield depicted in the plate in *THE GARDEN*. The high colour in question is, however, only to be seen in flowers that have been expanded some time, and where the plant is growing in a light soil and in an exposed position, such, for example, as in the herbaceous ground at Kew, where I have frequently noticed the flowers of *H. altifolius* quite as deep in colour as those of Mrs. Duffield's picture. These remarks will, I know, be corroborated by Hellebore growers about London and in the south generally. As regards the leaf represented, it is not, as Mr. Brockbank observes, a full-grown one, but it is, nevertheless, a correct drawing of a medium-sized leaf of *H. altifolius*, though too pale in colour.—W. GOLDRING.

Books (L. D.).—"Fruit Culture for Profit." Routledge & Sons, Ludgate Broadway.

Primulas (C. G.).—Good in colour, but we cannot judge of the strain from a couple of pips.

Transplanting Bracken.—Can anyone tell me the best way to transplant the common Bracken (*Pteris aquilina* L.)—M. H.

* * Now is a good time, or any time before March. You must, with a full-sized spade, dig up entire sods, enclosing the black underground stems of the fern, and so transplant in a light loamy or peaty soil. You will not succeed if you pull away the roots, or rather stems, without removing soil with them.—G.

Gardeners' characters.—"One in Difficulties" cannot compel the head gardener in question to give him a character, but the one given up by him when engaged, being personal property, the head gardener has no right to keep. It is not customary for under gardeners to give a written notice to quit, verbal notice being generally deemed sufficient.—J. L. P. D. M.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—*Constant Reader*.—*Maxillaria picta* (spotted); *Angrecum articulatum* (white Orchid); *Oxalis crenata* (yellow); *Tradescantia repens* discolor. Please number specimens next time.—*Header*.—We do not name varieties of *Chrysanthemum*.—*W. L. Banks*.—*Bieracium aurantiacum*.—*F. R. S.*—*Miltonia Moreliana*; *Cattleya Harrisoniae*.—*H. H.*.—1, *Rhus Cotinus*; 2, *Coronilla Emerus*; 3, *Goldfussia isophylla*; 4, *Colletia cruciata*.—*G. Nisbet*.—*Dendrobium chrysanthemum*.—*Anon*.—1, *Phalanopsis rosea*; 2, *Cymbidium giganteum*; 3, *Polystichum capense*; 4, *Adiantum cuneatum* variety.—*Sir W. Marrott*.—*Liquidambar styraciflua*.—*R. G. Brown*.—Next week. *J. H.*.—*Oenothera fruticosa*. Can you not send us a specimen of the other plant you speak of?—*T. P.*.—*Dendrobium Linawianum*, not noble.—Several varieties of *Dipladenia* have been sent to us without the name of the sender. If our correspondent will send more flowers and attach a number firmly to each we will endeavour to name them. In the present case the numbers were lying loose in the box when received.

GARDEN APPOINTMENTS.

ARBORFIELD HALL, Reading, Mr. R. Foster.
 KWELL HOUSE, Surrey, Mr. J. Slater.
 COLLEY LODGE, Reigate, Mr. G. Voell.
 MENZIE CASTLE, Crief, Mr. D. Kay.
 KIBBLESTONE HALL, Staffordshire, Mr. J. Laidlaw.
 CALLANDER LODGE, Callander, Mr. A. McLeod.
 SHROVER HALL, Hordean, Mr. F. Burgess.
 FELTHAM LODGE, Feltham, Mr. C. W. Farquhar.
 SYSTON PARK, Grantham, Mr. J. Ashley.

No. 627. SATURDAY, Nov. 24, 1883. Vol. XXIV.

This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

CHRYSANTHEMUMS AT FROGMORE.

SELDOM have we had an opportunity of seeing such a grand exhibition of Chrysanthemums as that which Mr. Jones has gathered together under one capacious roof at the royal gardens at Frogmore, and which at the present time is the principal attraction there. Chrysanthemums have for years formed a beautiful feature at Frogmore, but during the past year or so special attention has been paid to them, and they now number upwards of 2000 plants which embrace all sections of this flower. This grand collection occupies a huge span-roofed house erected last year for the express purpose of exhibiting it, and succeeding it are equally fine displays of Camellias, Azaleas, and similar winter-flowering greenhouse plants. It is a handsome structure, admirably suited for the purpose, heated when necessary, and provided with the means of abundant ventilation—an important item in a house of this description, the chief object of which is to preserve a show of bloom as long as possible. It is some 200 feet in length by 30 feet in breadth and of proportionate height, thus affording ample room for arranging even large plants to advantage. The appearance of this conservatory at the present time is extremely beautiful, for associated with that queen of winter flowers, the Chrysanthemum, are charming examples of Palms, Dracenas, Cordylines, and other noble-leaved plants, the whole forming a bright and varied mass of colour, blended and arranged with consummate taste.

There is a wide contrast between such a Chrysanthemum show as this and those of the conventional type which have been held about London during the past fortnight. At these competitive shows one rarely sees the Chrysanthemum in its natural state. The cut blooms are tweezered into prim symmetrical balls, the pot plants are twisted and contorted into formal shapes, and even the groups ostensibly arranged for beautiful effect are in nine cases out of ten the very reverse.

A commendable feature in this collection is the dwarf plants produced from late struck cuttings. In some cases, more especially in the Pomponé class, these plants scarcely exceed 9 inches or so in height, and they are found extremely useful on the stages for placing in front of tall plants so as to hide their naked stems, some of which are as much as seven feet or eight feet in height. These dwarfs so completely screen the thickets of bare stems and pots that the groups look like solid masses of flowers and foliage brought down from the highest points along the centre of the house to the very edge of the path, which is margined by Selaginellas. The beauty of the masses of Chrysanthemums is heightened by the numerous supporting pillars of the house being draped with trailers and creepers of various descriptions which hang in graceful festoons. At the end of the house is a raised rockery charmingly planted with Ferns and other greenery, lit up by Chrysanthemums and brilliant heads of Poinsettias, the whole forming a charming background for the array of colour when looking at the house from the entrance. A good broad path runs round the entire house, which is connected with the other chief glass ranges in the garden, so that visitors can perambulate the whole without going outside.

As regards the culture of Chrysanthemums here, it need hardly be said that it is well understood and carried out, as may be seen by the high quality of the blooms, which, without all the dressing and other little details professional exhibitors think it necessary to bestow on them would compare favourably with any we have seen at shows for size, substance, and colour. It may

be added, too, that excessive disbudding is not practised, but a good healthy plant is allowed to carry a good crop of bloom, so valuable for cutting in an establishment like this where the demand is enormous. The following list comprises a selection of the best of the Japanese section out of the multitude of sorts, new as well as old, represented in this fine collection.

YELLOW AND BRONZE TINTS.—Pure yellows among the Japanese race are comparatively few, but these few are extremely beautiful, and among them none can surpass in our estimation the well known Peter the Great, which, moreover, we regard as one of the best of all yellow Chrysanthemums. There is a peculiarity about the blooms of Peter the Great that impresses it on the mind of everyone. It combines, so to speak, the shaggy picturesque appearance of the Japanese race with the prim formality of the incurved section. All should grow Peter the Great. M^{me}. Berthier Rendatler has a loose and very showy flower of a peculiar nankeen yellow, very telling in a group. Dr. Masters has blooms bright yellow in the centre, but reddish around the margin. Bismarck, a fine, showy, bright orange flower tinted with amber, does not possess the shagyness of most of the Japanese race, but is nevertheless a striking sort. A beautiful sulphur-yellow is Bend d'Or, and it comes large when well grown as it is here. Fulton, is one of the very best of yellows and always satisfactory, and Yellow Dragon is hard to be beaten as a fine yellow. Thunberg is of a charming primrose-yellow, large and of fine form. Between the yellows and the reds come a set with bronze, chestnut, and cinnamon coloured flowers, and these tints are somewhat numerous. The most remarkable sorts among these are Lord Beaconsfield, a most distinct variety with flowers in the way of James Salter, the florets being a cinnamon-red and fawn coloured on the reverse side. Comte de Germiny is a somewhat grotesque-looking flower with broad distorted florets, but there is something fascinating about the bronzy colour which engages attention. It is one of Messrs. Veitch's newest sorts, as is also Sir Beauchamp Seymour, which is somewhat in the way of the preceding, but possesses a neater flower.

PALE PINK, ROSE, AND LILAC TINTS are the most numerous of all, the best among them and those most suitable for general culture being La Frisure, a pretty sort with the florets twisted, curled, and cut in a singular way; James Salter, one of the very finest of the pale rose sorts, and one also that flowers earlier than the rest; Mad. Clemence Audiguier, a rather new sort, produces grand flowers of a rich deep pink. One of the telling sorts among the light-tinted kinds is Bouquet Fait, whose large, shaggy heads are a sort of silvery rose and highly effective; it is also a capital sort to grow for cut bloom. La Nympe, a rather small-flowered sort, is one of the prettiest among the pinks. It is extremely floriferous, and in this collection there are bushy plants only about a couple of feet in height fairly smothered in bloom. Still, one of the finest pale pinks is The Daimio, remarkable for its large, shaggy blooms. Like several other of the light pinks, it changes to a deeper hue by age. Baronne de Prailly is also one of the most popular of the pale pinks. Duchess of Connaught is rather a new addition to the pale varieties. It has, indeed, a lovely flower, large, very double, and of a delicate blush.

WHITES are numerous represented, and being so valuable for cut bloom are grown on an extensive scale. The chief favourite appears to be Fair Maid of Guernsey, one of the best of all the larger flowered kinds. Elaine, which is unsurpassed as an early white, has at the present time flowers suffused with a delicate lilac tint, which heightens their beauty considerably. Ethel is also a great favourite here. It is out of the ordinary run of the Japanese race, inasmuch as the flowers, like those of Peter the Great, come midway between the incurved and the long-floreted Japanese group. It is of the purest whiteness, and is indispensable in every collection. The double white (Alba plena) is likewise invaluable. Meg Merrilies is an indispensable variety, as it is such a late

bloomer. At the present time it is only just commencing to unfold its dishevelled florets, which, though almost a yellow now, will turn by age to almost pure white. Last, but not least among the whites, is the lovely new Lady Selborne, a white sport from the popular James Salter, and only differs from it in colour. The tasselled heads are of snowy whiteness; it is in short a most charming sort, and quite indispensable even in the smallest collection.

DEEP REDS, CRIMSONS, and similar tints produce a telling effect in the groups. Those that attracted us most were the following: M. Croussé, with long twisted florets of a bright coral-red, yellowish on the reverse sides; Flambeau, a most striking colour, resembling the popular Julie Lagravère very closely; the blooms are large, the florets broad, with yellowish reverse sides. Dr. Audiguier, though somewhat small, is of a deep amaranth-crimson, which colour asserts itself boldly. M. Castel, crimson-red with yellowish centre, is one of the most distinct in every respect. L'Île de Plaisirs, a crimson-red, tipped and centred with gold, is a favourite with everyone; and so is the old Red Dragon, in a similar way, but of a more cinnamon tint. Cœur Fidèle, with cinnamon-red blooms flushed with yellow, is a showy sort and remarkably free in every way. Père Délaux stands out prominently from all the rest on account of the richness of its large full flowers of a velvety crimson-red colour. The Cossack is of a similar stamp, but scarcely so rich in colour. Cité des Fleurs, of a rich reddish orange, we noted as a first-rate sort. Rex Rubrorum has rich velvety crimson flowers in the way of Orphée, another first-rate sort. Royal Soleil, of a deep cinnamon-red, must also be included in the selection.

DEEP PURPLES AND VIOLETS comprise a beautiful class. In this collection they are highly prized and grown plentifully. Among the most prominent are Rosa Bonheur, of a deep rich violet; Nagasaki, violet, larger and scarcely so rich. Purple King and Gloire de Toulouse are among the best of these colours, as is also Fulgore, the long twisted florets of which render the blooms most picturesque. Chinaman is somewhat in the same way. La Charmeuse, bright amaranth-purple, and Nuit d'Automne, of a similar colour, are both beautiful.

THE REFLEXED FLOWERED sorts form a very distinct group, and include some strikingly beautiful kinds, though the majority of these are old and well known. The best of these is Dr. Sharpe, with flowers of a rich amaranth. The plants of it here are remarkable for the large and perfect form of the blooms; indeed, we had never seen it so fine. The popular Julie Lagravère was likewise uncommonly fine, though it was eclipsed by the newer sort of a similar colour named King of the Crimson, which stands out conspicuously from all other Chrysanthemums on account of its rich and uncommon colour. Chevalier Domage, though old, is still the finest yellow among the reflexed group, and another unsurpassable sort is Progne, which, like Dr. Sharpe, is grown to perfection at Frogmore. Its colour is a velvety amaranth. Christine possesses flowers of delicate beauty, a kind of peach suffused with gold; it is a favourite with every one.

INCURVED VARIETIES are largely represented in the collection, and include the majority of the best established sorts. The following are a few of the most noticeable. Among the whites and pale tinted kinds are Empress of India, one of the finest of all whites; White Beverley, Mrs. Heale, Queen of England, White Globe, Princess Teck, Venus, Mrs. Haliburton, Eve, Princess of Wales, and Mrs. G. Rundle.

PINKS AND ROSE TINTS are numerous, the best being Hero of Stoke Newington, Pink Venus, Fingal, Dr. Rozas, Lady Hardinge, Lady Talfourd, Pink Perfection, and Alfred Salter.

DARK PURPLE AND PLUM COLOURED sorts include Prince of Wales, Lord Derby, Prince Alfred, Refulgens, Le Grand, Mrs. W. Shipman. Our selection of the yellows and bronzes would be Barbara, Golden Beverley, Golden Queen of England,

Guernsey Nugget, Golden Empress of India, Aureum multiflorum, Mr. Brownlees, Mr. Bunn, Mrs. Dixon, Cloth of Gold, Nil Desperandum, and yellow and bronze Jardin des Plantes. The above list comprises a thoroughly representative selection, and one that would be ample for a moderate sized garden.

FLOWER DRESSING AND BRANCH TWISTING.

I BELIEVE that there are few flowers which give us such a variety of form and colour, and at the same time lend themselves so easily to cultivation, as the Chrysanthemum. I am therefore an enthusiastic admirer of it, but being so, am desirous, now that Chrysanthemum shows are at their height, to protest against errors which appear to me to be committed by both judges and exhibitors. I allude to the manipulation which cut blooms appear to undergo before they are placed in exhibition boxes, and to the unnatural twisting of the branches of show plants. Go to any show of Chrysanthemums and you find blooms, particularly the incurved, manipulated in such a fashion that the real shape of the flower is almost lost. Placed in a funnel-shaped cup, drawn into it and held tight, the form of the flower, which in Nature is that of a ball or half a ball, becomes rather that of the Mushroom. With all the petals close and perfectly even, they are, doubtless, from a symmetrical point of view, very beautiful, but with the exception of a few varieties, such as Lady Slade, its sport Angelina, &c., it is not the true form of the flower.

The system is objectionable in many ways (for this symmetry of form, to judge from their awards, is dear to the eyes of many judges), for it obliges the best growers to throw their most perfect blooms out of shape, and it enables others to give to what would in reality be badly-shaped blooms an appearance of perfection. Remove the centre of a poor bloom and a straggling petal or two—cup it tightly up—the flower loses in depth, but it gains the beautifully symmetrical form required, and many judges hold it to be points better than a really good flower which another exhibitor, with a prejudice against the system, prefers to leave to itself. With show plants, too, this Mushroom shape appears to be considered the correct type, and though with plants evenly grown it would probably be the true one, yet the unnatural twisting of branches to obtain it which so generally prevails is, I hold, a positive eyesore. Of course, where a close spread of blooms entirely hides the twisted branches the general effect is very good, but the majority of plants are not so shown. As a rule, this tying and bending of the branches beneath the flowers is so plainly discernible that one only marvels at the patience of the grower who has been at work on it, and wonders why prizes should be given for ingenuity rather than for painstaking cultivation. The whole thing is, I contend, unnatural, and the remedy for the correction of the above two errors, I would venture to suggest, is short, viz., allow no cups and no twisted branches. A SUBSCRIBER.

STONE EDGINGS.

In gardening matters, generally speaking, we are directed week by week what to plant and also what to avoid, but it is seldom that attention is drawn to the great improvement which might be made as regards picturesque effect by a judicious employment of stones as an aid to garden culture. We see borders of clipped Box, shorn Grass, Daisies, Violas, Pansies, Mignonette, Lobelia, and a score of other things as margins for walks and beds, but the wonder is we do not oftener come across irregularly shaped stones irregularly placed and almost entirely buried in the soil. Close to these some of the most beautiful of our rock plants might be grown, the roots of which would creep under them for a supply of moisture, and would also obtain protection against frosts. One need only disturb a stone in the driest weather and the sandiest soil to find how moisture in the evening is condensed and conducted by it to the cool

shade-loving roots, evaporation being at the same time retarded. Sedums, Sempervivums, and Saxifrages soon hide the junction between earth and stone by a luxuriant growth, which ere long creeps up and embraces their protector. Emerald-hued Mosses soon clothe the stones and hide their newness if older, weather-worn, and rounded pieces cannot be had. For small gardens a few barrowfuls of the rejected stones from a quarry may almost always be obtainable, but in preference those in old country lanes, or others which have been rounded by streams should be used. Sharp angular pieces ought to be laid flat-wise, and so far buried that only the longest surface and the most natural looking end may be seen, thus giving an idea of "there is more beneath." Where it is necessary to have access over a herbaceous border, they may be ununiformly placed as stepping stones, instead of having sharp, rectangular, short paths made. In like manner on beds of Roses which must be reached over for pruning, &c., if not for the gathering of the flowers, a few nature-worn stones judiciously placed saves one from the unwelcome sight of an unshapely footprint. A plant of the evergreen Candytuft, Rock Rose, or something similar growing by the side of such stones would quite counteract any seeming incongruity between rocks and Roses, or a few tufts of Saxifraga Wallacea, S. hypnoides, or S. aizoon would soon make all look natural and pleasing even in the height of the Rose season. To prove there are stones and stones, with divers ways of using them, I need only direct attention to various views in "Alpine Flowers," showing how not to do it; yet it cannot be too often reiterated that in making rockeries, the stones need as much thought and care as to position—often, in fact, more, than the plants themselves. On the artistic arrangement of rocks I will not further venture to speak, but will content myself with merely directing attention to the use of the smaller stones chiefly as edgings. Pieces of limestone, sandstone, millstone grit, or, in fact, anything but rectangular stones, bricks, and slates, may with a little thought be made to conduce to the natural effect we so much desire in our gardens, especially if planted deep enough, though not so much so as to be out of sight. R. A. H. G.

Horsforth, near Leeds.

NOTES.

Pleiones.—From THE GARDEN (p. 416) I quote the following: "Pleiones are now going out of bloom, and as soon as the decaying flowers have been removed, they may be repotted; indeed the sooner this is done after flowering is over the better. It is not necessary to repot them every year; if they are done every alternate season, it would be enough. They give a greater mass of bloom the year following that on which they have not been divided." Reading a similar remark to this a year or so ago, I did not believe it, but having given the plan a trial, I find the statement to be perfectly true. Forty flowers in a 6-inch pan is not so bad, and we have just had that number on an unrepotted pan of last year. A friend tells me that his stock of these sweet little Orchids has not been repotted for three years, yet they flowered profusely. To leave plants like these (which form new roots annually) in the old compost is wrong in theory, but it comes out right if tested. These and many other Orchids never flower really well unless the pots or pans become full of roots. The pan I left unpotated last year has taken twice as much water as those repotted, and although the individual bulbs were smaller than the repotted bulbs, they produced large flowers and more of them. So much for facts as opposed to theory.

Choretis glauca.—A graceful-habited Amaryllid, now beautifully in flower in the stove. It is of Pancratium-like habit, singularly like P. speciosum in flower, but with a more elegant habit of leafage, and as I fancy its powers of endurance are greater. It is of easy culture, and as grown in small pots one bulb in each, but few other

Amaryllids are more graceful or better adapted for the dinner table or drawing-room vase, added to which good points its fragrance is delicious without being too strong. In a warm temperature its culture is of the easiest, and one cannot but wonder that it is so rarely seen.

The flowers of Burns.—No evidence is needed to show that Burns was fond of flowers; his pathetic lament for the Daisy which fell under his ploughshare is ample proof of that. Carlyle, however, in his essay on the peasant poet, quotes one of his letters in which he thus speaks of his favourite blossoms: "I have some favourite flowers, in spring," he says, "among which are the mountain Daisy, the Harebell, the Foxglove, the wild Brier Rose, the budding Birch, and the hoary Hawthorn, that I view and hang over with particular delight." Tell me, my friend, to what can this be owing; are we a piece of machinery, which, like the Æolian harp, passive takes the impression of the passing accident? or do these workings argue something within us above the trodden clod? Burns' respect and love of the "wee crimson-tipped flower" was, indeed, only exceeded by the devotion which Chaucer paid to it, as to all that was bright and sparkling among field blossoms.

Choice Pears.—Few hardy fruits are more delicious than are the best of Pears, variable as they are in size and in flavour. Shall we give the palm of merit to these large, soft, yellow-coated specimens of Marie Louise, from a sheltered wall? At any rate when well grown and perfectly ripe, but few October Pears can surpass this one in quality. Wall grown Seckle is another delicious morsel, sweet, juicy, and with a bouquet distinct from any other Pear whatever. Williams' Bon Chrétien (Bartlett of the United States) is sweet and full-flavoured, but, as I think, a little too musky. Knight's Monarch, when you can get it just in its best state, is quite a revelation to fruit eaters, its juicy freshness bringing to mind the delicious Jargonelles of early August. Duchesse d'Angoulême is a fine fruit for show, but for eating I should much prefer Marie Louise at its best. Pears are, however, very uncertain in quality, for not only must they be gathered from the tree just at the right time, but one must also all but sit up all the night with them to watch the exact moment they are fit to be eaten. Then, in very cold weather you must put the finishing touch to their flavour by just a little warmth, which brings out the flavour of Pears as it does the delicate bouquet of some wines.

Soils and climate again have a very marked effect upon the flavour of Pears as well as of other fruits, hardy as well as tender. In one garden you may get all the finest of Pears large and well coloured—first-class fruit to look at, but scarcely third-rate in flavour. The Knight's Monarch, before alluded to, is often small and scabby in appearance, and yet to eat it is like a beautiful dream. So also of scrubby little Seckles, and small russet-blotched specimens of other well known kinds of both Apples and Pears. In a word, appearance is not always a guarantee of good flavour any more than good looks is always an index to a good temper. How is this? Is it soil, or climate, or sunshine, or what is it that gives the most exquisite flavour to fruits in one garden while it is not to be found in those grown a few miles away? Some employers desire quality before quantity, flavour or aroma before mere size. This seems to be as yet a comparatively virgin field for inquiry. Why should Gooseberries grown north of the Trent be credited with a flavour more delicious than those grown in the sunny south? Is it fact, or is it fancy? At any rate we are quite sure that Pears grown in different gardens are very different in flavour, and we want to know what causes this difference of quality?

The Bermuda Easter Lily.—We are interested in this plant, which in bulb and leaf growth, and also in flower, so much resembles our old friend, L. longiflorum, that up to this date we can see no appreciable difference. A noted seedsmen told me last spring that he believed it to be

nothing more than a robust variety of *L. longiflorum*, or rather simply typical *L. longiflorum* itself, improved somewhat by being grown in a warm climate. It is claimed for this variety that it continually throws up young blooming growths; but then so does *L. longiflorum* if grown in a moderately warm temperature. Colonel Trevor Clarke says: "By the way, *L. longiflorum* forces very fairly, becoming after that operation almost a perpetual, jumping up and flowering at all sorts of odd times, something "*In tempore quod verum omnium est primum*"—say just in time for your Christmas ball. Again in GARDEN, vol. XIII., p. 160, an amateur writes: "The bulbs of *L. longiflorum* come up with me in a cool house. As soon as the flower-buds show early in spring, I cut the stems down to the surface of the earth; four or five shoots will then come up and bloom with far finer flowers in September and October than would otherwise be the case, and continue in perfection very much longer. The question is whether *L. longiflorum* Harrisii is really a new variety, or whether it is the old type which has had its bulb growth more freely developed by culture in the Bermudas. Time will prove, of course. At present its price is very variable, varying from 2s. 6d. to 7s. 6d. a bulb, while typical *L. longiflorum* sells at 3d. or 4d. each.

Orchids in flower.—One of the brightest of all Orchids now in bloom is the gold-lipped *Oncidium Rogersii*, useful alike for cutting or as a decorative plant indoors. *Odontoglossum Alexandræ*, *O. Rossi majus*, and *O. grande* are also now seasonable, and *Masdevallia Veitchii*, with *Epidendrum vitellinum majus*, affords a bit of vivid colour to set off the crisp petals of the pale blossomed *Odontoglossums*. *Pleiones* are nearly over, that is to say, those of the early blooming section, for *P. humilis* and *P. tricolor* will not be in bloom for some weeks. *Cattleya labiata* is also over, and its place filled by *C. Mendeli*. *Calanthes* promise well for the new year, and the sweet-scented flowers of the old *Zygopetalum Mackayi* are ever welcome. One of our plants is this year producing three spikes from one growth. Is not this a little unusual?

The Urn Flower is known botanically as *Urceolina aurea*, and is just now one of the most graceful of all the bulbous plants flowering indoors. Although long since introduced, it is but rarely met with in private gardens. Its golden bells are inflated, each segment tipped with green and daintily edged with white, six or eight flowers being borne on a scape a foot or so in height. The plant grows freely in an ordinary plant stove temperature, and, as we think, flowers best when each bulb is grown singly in a small pot to itself. It is naturally of deciduous habit, shedding its *Eucharis*-like foliage ere the flower-scape appears. This plant is so graceful and distinct, that it well deserves a place in all good gardens where tropical flowers are appreciated.

Birds in the garden.—All who are fond of bird life will need no reminder that suitable food given now before bad weather really sets in will do more to preserve the song thrushes than any amount of feeding when frost and snow really arrive. If you hang a meat bone outside your window by a bit of wire, you will secure a little amusement for yourself as well as for the birds. The blue-tits are especially fond of clinging and pecking at a bone, and are not readily driven away by larger and more voracious neighbours. Just opposite my window is a large basin of water containing some roots of aquatic plants, and to it the sparrows and thrushes come in quantity every morning to bathe. Thrushes and sparrows agree pretty well together, sousing, splashing, and fluttering about in the water to their heart's content. But in a moment there is a fell swoop, and they are all gone up into the Hawthorn, and king blackbird—he of the golden bill—is in the water alone. He is like a Chinese mandarin—all the common herd must vanish when it is his pleasure to bathe. How royally deliberate and stately he is as he takes a souse or two overhead, and then sits to preen his glossy black wings in the morning sunshine, as if quite conscious that the sparrows and other

plebeians were anxiously awaiting his departure! A meat bone or a bowl of fresh water placed near the window will afford much amusement to all who are fond of birds.

Narcissus viridiflorus.—The green blossomed Jonquil, if not most beautiful, is certainly the rarest of all the Narcissi at present grown in our gardens, and that it even now does really exist therein is owing to Mr. G. Maw having met with it after a close search quite near to Gibraltar. It is described and figured by Parkinson in 1629, but has been very rarely seen since his time, once only, I believe, when it was figured in the *Botanical Magazine* many years ago. It naturally produces its sweet-scented blossoms during October and November or earlier, since in its native habitat flowers and fruit may be seen together. Lovers of brilliant and large-flowered species will not care much for this modest little beauty, however fragrant, but all collectors of Narcissi will be glad to hear of its reappearance. It is not fully hardy in our climate, as noted by Parkinson, whose description is very exact, but there ought to be no great difficulty in growing it in a pot of sandy soil in a cool greenhouse or frame.

The Torch Lilies.—The *Tritomas* are so effective during the fruity autumn time (the latest spikes of *T. nobilis* are only now gone), that they deserve more attention than they have hitherto received. Mr. Barr tells me he is instituting a great trial of *Pæonies*, and I think he might do worse than turn his attention to these brilliant Torch Lilies or Flame Flowers. As Mr. R. Dean recently told us, they grow quite readily from spring-sown seeds, and in this way variety may be gained, albeit that there are, even at the present time, six or eight distinct varieties of *T. Uvaria* alone, to say nothing of the other species known to be distinct. Of the smaller kinds, *T. Macowani* and *T. pumila* are most effective in flower, while for bold habit and breadth of glaucous leafage *T. cœrulescens* is one of the best. All the varieties of *T. Uvaria* are well suited for massing in beds or borders along with *Aralias*, *Acanthus*, or with bold masses of *Yuccas*, especially *Y. flaccida*, which blooms so freely, or with *Arundo conspicua* or Silver-plumed Reed.

The great Christmas Rose.—The earliest, if not the finest, of *Hellebores* (*H. niger maximus*), or, as we think it is more correct to call it, *H. altifolius*, is already in bloom in sheltered sunny gardens near the sea. Arranged along with Bamboo sprays, its plucked flowers are lovely indoors. Perfectly hardy, this plant is easily grown on all well-drained soils, and, as seen in perfection early in our winter time, it becomes one of the finest of all the hardy flowers in season. It does not appear to be generally known that wherever it luxuriates on rich, moist soils this plant seeds quite freely. I gathered its ripe black seeds last season in a neighbouring garden, and hope to be able to say if this plant comes true from seeds. This noble plant is succeeded by *H. niger* proper and its much nobler form with the *Eucharis*-like blossoms. We are beginning to open our eyes to these best of Christmas Roses. There is a "rustling among the dry bones," and for all this commotion our gardens are likely to be the richer and better in all ways. But who can tell us the native habitat of *Helleborus altifolius*?

Vanda cœrulea.—The blue *Vanda* is undoubtedly one of the finest of all Orchids now in bloom, but it is not by any means easy to grow satisfactorily. It comes from the comparatively cool and moist Khasia Hills, and, thanks to recent importations, is now tolerably plentiful in our gardens. Basket culture seems to suit it best, and if a pane be taken out near where it hangs or it be placed near to an open ventilator it enjoys a warm temperature and full sunshine, except during the hottest days, but what it enjoys best of all is a shower bath twice daily. The compost should be large nodules of charcoal and crocks covered with living *Sphagnum Moss*. If the plant is suited as to air, heat, and light, it soon lashes its thong-like roots around the basket and teak cylinder, and makes rapid growth. Its lovely cœrulean-tinted blos-

soms are unique among Orchids, and ample reward for any little extra attention the plant requires. VERONICA.

ROSE GARDEN.

HOUSEFULS OF NIPHETOS.

Perhaps there is no Rose better adapted for culture under glass than this. No Rose can possibly be more useful, few more beautiful. Under glass and in bud it is the purest white of any of our so-called white Roses, though it is mostly described as having a lemon-coloured centre. When *Niphetos* reaches that stage or colour it is already a beautiful Rose spoilt. Under glass, too, it is far more pure in colour—or rather the lack of it—and delicate in form than in the open air. The popular description of this Rose—as of globular form—is quite misleading. When fit for use it is one of the longest and most delicately formed Roses we possess. Globular, indeed! Whoever wants or wishes to see the graceful elegance of the perfectly moulded, beautifully tapered buds of *Niphetos* swollen out into flimsy masses of globularity? The mere idea is offensive to anyone who knows the points or appreciates the excellences of the Rose *Niphetos*. Cut it in time, no Rose is less globular or more elegant; none, as already remarked, more pure or useful. Now this

EARLY CUTTING is as favourable to successful culture as it is for turning the Rose to the best advantage for decorative purposes, for not only is it true of this Rose that you may cut and come again, but the frequent cutting is one of the most potent causes of the constant and ever-recurring coming again for more flowers. There is another fault to be found with most of the descriptions of this Rose. It is called a vigorous grower. This may be so in one case in ten or a hundred, but as a rule it is not so. True, occasionally a large shoot will spring up near the root and run a yard or more without flowering, and then finish with a shower of flowering shoots. But generally a foot or less of growth at a time is nearer to the truth. And it is this tendency to moderate, so moderate in fact, as often to deserve the name of weakly growth, that constitutes one of the chief merits of this lovely Rose, for the normal habit of this plant is for each shoot to produce a bud on its extremity. Hardly has this been gathered, and even at times beforehand, than the shoot throws out another. Where a roof or wall has to be covered as quickly as possible, it is best not to prune this Rose more than is done by the mere cutting of the buds. In all cases hard pruning should be avoided, for *Niphetos* seldom breaks so well near the base of the flowering shoots as further up the branch. In fact, not a few of the base buds prove blind, and at times many of the flowering branches have few or no wood buds on them, so that the pruning of *Niphetos* needs some judgment and care. Left very much to itself, *Niphetos*, by its natural breaks, will mostly show the cultivator where and when to prune. When thoroughly established and where it does well, considerable thinning out and hard cutting back of weakly shoots may be needful to keep the plants regularly furnished with flowering wood from base to summit of wall or roof. But, as already remarked, through the earlier stages little or no pruning will be needed.

A RATHER LIGHT SOIL seems to suit this Rose best. Naturally, it seems somewhat tender, and moderate food as well as a soil that tempts little rooting, such as a mixture of peat and loam and leaf mould or thoroughly well rotted farmyard manure, suits *Niphetos* well. The root run should also be well drained; the slightest excess of water at the roots, the merest suspicion of a block in pots, or saturated root runs in the open, tell at once on the healthy growth and perfect flowering of this Rose. A dryish, warmish atmosphere, especially throughout the winter months, is also essential to the free production and perfect finishing of its buds. Little or no overhead syringing should be given to *Niphetos* from November to March, and a temperature

of from 45° to 60° will suit it admirably during these dull, cold months; not but Niphetos will do fairly well under glass under less fostering and genial conditions. But when exposed to cold or damp in winter the lovely buds are apt to lose their external petals, or, worse still, to rot off at the neck or collar. Such symptoms are merely the natural protest of the Rose against cold or damp. Niphetos is not full-scented, but has a very distinct delicate fragrance, a sort of half-and-half mixture composed of Primroses and Violets. The foliage is also specially fine and almost unique in its distinctness, and the Rose needs no other greenery either for button-hole or other bouquets or general decorative purposes. In those old-fashioned gardens where flowers are not wholly grown for cutting no Rose is more worthy of a place for the decoration of a wall, roof, rafter, or pillar than Niphetos. Trained on the roof, most of the buds, from the slenderness of their flowering shootlets, depend more or less from it, thus meriting the title of showers, if not in the aggregate mountains of snow. D. T. FISH.

PROTECTING TEA AND OTHER ROSES.

NEVER was prompt and thorough protection more needful than this year. The Roses have been growing and blooming right up to the middle of November. At that time we gathered five good-sized vases full of Roses, with several single buds for smaller ones from the open, while, as to growth, it still (November 19) runs on unchecked. All this unseasonable flowering and winter growth is not only unfavourable to maturity of wood, but it renders it absolutely impossible; hence the necessity of protecting the Rose before the impending frost cuts them through the core. The proverbial folly of locking the stable door after the steed is stolen is still, however, all too often and too literally illustrated by our rosarians who hasten to protect their plants after and not before they are frozen. And it cannot be too often repeated nor too loudly asserted that it is the first frosts that kill or injure the Roses. There are various causes for this, such as the suddenness of the change of temperature, the active state of the sap at this period, and the wholly unprepared state of the Roses at the time of freezing. Nor only this; the apparent injury caused by spring frosts is no true measure of the real; for often while the succulent wood only seems blackened or bruised, the frost-bite has already entered and run down the pith almost to or even beyond the root collar. It is these frost-bites in and through the pith of Roses that lead to the wreck and ruin of so many plants months after the injury being inflicted. Even when and where the plants recover from these early frost bites the bloom for the next season is often seriously deteriorated, being very seriously lowered in size and lessened in staying power in consequence. Hence the vital importance of

EARLY PROTECTION. That protection may take several forms, the most common and most effectual being Fern fronds, long strawy litter, shrub or tree boughs, mats, Moss, tree leaves, Reeds, Cocoa fibre refuse, manure, or the earth itself. Each may prove best, according to circumstances of cheapness, procurability, fitness, &c. For Tea Roses on walls a thin double thatch of Fern fronds and Spruce or Yew boughs is one of the most perfect. But either may be used alone, or any kind of litter or straw held in position with worn-out mats or strong nets would answer well. For standard Roses in the open or dwarfs there is no protection for the top equal to a handful of dry Bracken if cut and carefully harvested before ripe to give it toughness so much the more durable and efficient. For protecting the collars and a few inches of the base of the main shoots, manure, Cocoa fibre refuse, or the earth earthed up over them are about equally efficient. In most cases the latter is the best, not only because it is the cheapest, the earth being already on the spot, but likewise because it is the most efficient, and for this reason: The furrow created in forming the ridge over the crowns of the Roses keeps these crowns the drier and the warmer by forming

open water-courses for the free and spontaneous removal of most of the water that falls on the Roses throughout the winter. So important is this indirect benefit of earthing up Roses for the winter, that means should always be adopted to keep the outlets of the furrows clear, so that the water may have free course from them into the nearest drain or ditch.

ANOTHER MEANS OF PROTECTION of considerable potency may also always be found on the spot, and that is the tops of the Roses. This at times is thoughtlessly destroyed. In no case, however, should any portion of the tops of tender Roses be pruned off till late in the spring. It may seem ridiculous to attribute any sensible protective power to the tops of Tea or other tender Roses. Nevertheless, these alone often suffice to carry the base of the shoots safely through rather severe winters; and it must never be forgotten that the potency of protective agents cannot be measured by their mere bulk or mass, but rather by their character and position. Now, both of these favour the tops of Roses to the utmost, and endow them with a power of guarding off cold altogether out of proportion to their mass. Their twigs or boughs are found in the right place, and their light and spray character is just what is most needed to break the lines of radiation, and so moderate the severity of the coming frosts. Be all this, however, as it may, the advice to prune not at all at present, but confine our attention wholly to warding off cold from our tender Roses, is as sound on cultural grounds as it is safe as a protective precaution. D. T. F.

TREES AND SHRUBS.

A NEW FINE-FOLIAGED SHRUB. (PRUNUS PISSARDI.*)

It seems a pity to let the present planting season pass without directing attention to this, the most distinct and beautiful of shrubs or trees with coloured leaves which have originated in gardens or have been introduced to cultivation for many years. Mons. Carrière truly remarks that it is certainly the most remarkable plant which has been introduced for some years. Besides its being a novelty (always a recommendation in itself), it is interesting from two points of view, as a fruit tree as well as a "foliage" plant. The leaves are an intense red, and remain on the plant sometime after those of most of its allies have fallen. To M. Pissard, the head gardener to the Shah of Persia, is due the credit of sending *Prunus Pissardi* to France, from whence it has been widely distributed. From the details published by M. Carrière it appears that this new Plum comes from Tauris, an important Persian town, situated about 270 miles from Teheran. It seems it is far from common in Persia, where it is much sought after on account of the colour of its leaves, and more particularly for its fruits, which are a deep red, even as soon as formed. For this reason the latter are valued at Teheran even before being ripe, and are eaten with salt, and also used for table decoration.

P. PISSARDI is a much-branched shrub, with ascending twigs and black, shining bark. The leaves vary in intensity of colouring according to the time of year, but are never dull. The pure white flowers are similar to those of the *Myrobalan* section, and open early in March. The somewhat small fruits, although not of superior quality, are thoroughly eatable when quite ripe. M. Carrière recommends its cultivation in pots like *Spiræas* and other woody things, as the plant branches freely and bears cutting well. It is thoroughly hardy in this country. A correspondent at Forfar writes to say that it grows vigorously in the nurseries there. During a recent visit to the Waltham Cross Nurseries of Messrs. W. Paul & Son I was particularly struck with the brilliant colouring of *P. Pissardi*, and it only requires to be

seen once to have its merits as a hardy fine-foliaged plant fully recognised. Since publishing his original description, M. Carrière has sown seeds of *P. Pissardi* and the *Myrobalan* Plum under the same conditions. The results were in both cases the same, so it is settled definitely enough that the former does not produce seedlings with coloured leaves, and that it will be necessary to work on the Plum stock. In all probability *P. Pissardi* is a variety of *P. cerasifera*.

GEORGE NICHOLSON.

Royal Gardens, Kew.

NOTES FROM THE NORTH.

WOODS and plantations are not yet wholly divested of their autumnal tints, even though the summits of the mighty "Bens" are capped with snow. As a rule, timber of the largest size is to be found in these exposed districts along the base of the hills, where the soil is sometimes of considerable depth and formed of particles of disintegrated rock, mixed up with the decomposed remains of vegetable substances, the accumulation of ages. On such places may be found patches of rich green Grass, banks of brown Bracken, and here and there a giant Pine; and although such trees are exposed to the blast from all quarters, yet they are seldom torn up by the roots. Unerring Nature has planted them there, and has done her work so well, that in the majority of cases the stem may be broken over, but the roots will never yield a single inch. My attention has of late been directed to the serious havoc sometimes made in artificially formed plantations by storms of wind uprooting young trees. It is disheartening to a proprietor who takes an interest in the improvement of his property to find great quantities of the trees planted some ten or twenty years ago so imperfectly rooted that, on being gradually thinned to admit air and light, numbers of them get upset and others so much loosened in the ground as to be a serious drawback to their healthy development. Young trees planted by the cross-notch system should have their roots spread out in a regular manner from the base of the stem. When the work is thus properly executed the roots are placed in a position at once to collect food and support the trees against wind attacks from all quarters. There is, however, a system of notch planting called

THE L NOTCH, formed by two cuts with the spade at right angles, thus—**L**. In this way, by pressing down the handle of the spade, the turf is opened up and the plant inserted at the corner. The spade is then withdrawn, the turf trampled down with the foot, and the work is finished. Now, it must be evident that such trees never could thrive and establish themselves in anything like a satisfactory manner. How could they, inasmuch as the roots are all placed on one side of the plant like those of a fruit tree planted against a wall? Trees planted in this way are not only apt to be blown over, but, owing to the way in which their roots are placed, they have to collect food from one spot only, a serious drawback to the healthy development of the trees in early life; indeed, a great many of such trees never do make useful timber. In

PIT PLANTING the size of the pits should always be regulated to suit the size of the trees to be planted. In performing the operation the young tree should be placed in the centre of the pit, and the roots should be properly spread out in all directions from the base of the plant towards the sides of the pit. If the pit be square, however, some planters place the young tree in one of the corners. They say that by so doing the trees have two firm sides to rest upon, and consequently are not so easily blown over as when planted in loose soil in the centre. In this they are certainly right, but ultimately the evils attending the system show themselves; in fact, trees thus treated are not planted at all, but laid in by the heels; they are only wedged in between a hard bank of earth and the soil in front with the roots all one way.

* *PRUNUS PISSARDI*—Carrière in "Revue Horticole," 1881, p. 190 (with coloured figure). *P. cerasifera* fol. purpureis, Späth, Catalogue 1883-84

When planted properly in loose earth in the centre of the pits they should be examined in spring, and any plants upset during the winter will require to be set up and made firm with the foot. As soon, however, as they take to the soil they will give no further trouble, and the roots will not only be enabled to collect food from all quarters, but likewise to act as cables to support and keep the tree in its proper position, no matter from what point of the compass the storm may come. In a natural forest we never see trees with the roots all on one side; no, Nature is very careful to have them spread out in all directions in order to enable them to cater for the support of the tree. It would be well indeed if we were to study her ways more closely in many things than we do, and in none more so than in tree planting.

YOUNG TREES send down their tap roots to steady them in their position, and extend the side ones in all directions, and any interruption as regards their spread, from whatever cause, is at the expense of healthy development. In illustration of this we may have only to refer to the injurious effects produced on young trees by planting in flower pots in which their roots are cramped and confined. As soon as they reach the sides of the pots their onward course is arrested, and as they cannot extend in a forward direction, they push their way round and round the pot in the hopes of finding some chink or fissure through which they may make their escape. When such plants are removed from the pot their root has the appearance of a cork-screw, and as such trees are useless either for ornament or utility, the best plan is to burn or otherwise destroy them. Such trees get uprooted even by an ordinary gust of wind. When it is necessary to give protection to young trees, the best plan is to grow them in boxes or baskets; in this way there is less risk of cramping their roots.

J. B. WEBSTER.

The Euonymus as a wall plant.—Few plants are better adapted for covering walls than the several kinds of *Euonymus*. Their foliage is bright and cheerful at all times of the year, but especially in winter. In the shape of a dwarf shrub, or as a plant for a window box or pot we are all familiar with the *Euonymus*, but as a wall plant it is not nearly so common as it deserves to be. Some of the trailing varieties, such as *E. radicans variegatus*, root on walls and cling to them almost as tenaciously as Ivy. On old rough stone walls beautiful winter effects can be produced by planting *Euonymuses*, *Cotoneasters*, *Pyracanthas*, and other berry-bearing climbers.—J. G., *Hants*.

Poisonous Rosaceous plants.—On p. 422 of THE GARDEN for November 10 the question is asked as to the poisonous properties or otherwise of the berries of *Cotoneaster* and *Pyracantha*. I agree with the editorial reply in considering them not poisonous, but beg to differ from the statement which implies that none of the shrubs or trees belonging to the Rosaceæ are poisonous. The common Cherry Laurel (*Prunus Laurocerasus*) is an instance to the contrary. The leaves, bark, and fruit of this shrub are all more or less poisonous; the Bitter Almond, again (*P. Amygdalus*), is the source of essential oil of bitter Almonds, well known for its poisonous properties, due to the presence of hydrocyanic or prussic acid.—JOHN R. JACKSON, *Museum, Kew*.

Dimorphanthus juglandifolius.—In describing this fine shrub from my specimens in last issue of THE GARDEN, doubtless by a slip of the pen, you gave the length of the leaves as 2½ inches instead of feet, 2½ inches being about the length of the leaflets. I find I understated the annual growth of this shrub, as, on measuring my specimen, I find it has added between 6 inches and 7 inches to its height this season, which is now just under 6 feet. There were seven or eight spikes of bloom similar to the one I sent you with the leaf, and the flowers are, I think, altogether identical with those of the common *D. manchuricus*, which it resembles in every way save the

foliage, which is quite distinct. I believe this shrub to be perfectly hardy, as none of the severe winters we have had since it came to me have affected it in the least. I should think it is a native of China or Manchuria.—W. E. G.

Pyracantha berries.—"We all of us," says the *Gardeners' Chronicle*, "owe it to the birds to defend them from unjustifiable charges, as they have had to suffer so much from our prejudice and ignorance. A gardener remarked to us recently that the birds had made very early inroads into the berries of the *Pyracantha*, and indeed the lacerated and spotted berries bore out that interpretation. It was not the true one, however; for on examining the berries more carefully it became obvious that the fruits had cracked, as Pears do upon occasion, and that the apparent lacerations were nothing but the separation of the fleshy flower-stem from the dry hard carpels in the interior, which would the more readily be dispersed." The fruit may, in some cases, crack in the way here described, but it is oftener spoiled by the birds. A large portion of our house is covered with the *Pyracantha*, and at almost any hour of the day the birds, several species, may be seen close to the window-sill, making a meal of the berries, and when killed and opened, these may be found in their crops. The top sides of the clusters are eaten first as a rule, as the birds find a seat there. It is not the gardener who is ignorant this time.—OBSERVER.

PLANTS IN FLOWER.

Escallonia montevidensis.—This beautiful shrub is now covered with its pure white flowers, a specimen of which I send with this. The plant is 12 feet high and 10 feet through. I find it to be very difficult to propagate, and very severe frosts are apt to kill it to the ground.—SANGUINEA, *Truro*.

* * A pretty shrub, with dense pyramidal clusters of Hawthorn-like blossoms. About London it requires wall protection.—ED.

Centropogon Lucyanus is now commencing to open its brightly coloured blossoms, and they will continue to be produced during the next two months. It is a plant which likes moderately light soil and a stove temperature. Its foliage is bright green and cheerful looking, and its tubular-shaped flowers are rich crimson-scarlet. Besides their beauty on the plant, small sprays of them are also valuable in a cut state, as they last some days in water, and are very bright-looking in winter.—H. P.

Chorozema cordatumsplendens.—This is better grown at Singleton than in any place in which I have seen it. Plants of it in 12-inch pots are 6 feet high, as much in diameter, and a dense mass of healthy shoots. This *Chorozema* is treated here in the same way as one of the most ordinary of greenhouse plants, and it is almost constantly in bloom. Just now it is a mass of flower, and one of the finest plants which can be grown for supplying cut flowers. In times gone by it used to be a favourite exhibition plant; but now one scarcely ever sees it even on the tables of our great London shows.—CAMBRIAN.

Allamanda Hendersoni.—We have a plant of this *Allamanda* in a 12-inch pot that opened its first flowers on May 21. Since that time we have cut from it 3000 blooms; over fifty are expanded at present, and there are several clusters of buds. The pot is placed on a shelf at the back of a Pine stove, and the shoots are trained on wires along the roof extending at present a very little over 10 feet. I think, for the space which it covers, that this year the blooms are exceedingly prolific.—W. RIGDEN, *Eynham Lodge, Shepherd's Bush*.

Azalea rosæflora.—This is a very pretty *Azalea*, and one thoroughly distinct from all others with which we are acquainted, not only in appearance, but also in the time of flowering, as in a temperature slightly above that of an ordinary greenhouse it will bloom continuously throughout the autumn and winter, while other kinds will require sharp forcing to have them in bloom by Christmas. In general appearance it is distinct,

being of a dense, sturdy habit of growth, and forming a globular-shaped bush, which, even when old, is little more than a foot high and 2 feet across. The flowers are about 2 inches in diameter, moderately double, and of a very pleasing shade of salmon-pink. When partially expanded the origin of its specific name becomes apparent, as the flowers then, except in colour, greatly resemble small Rosebuds, but when open that character is not so well marked. This *Azalea* is also known under the names of *Rollissoni* and *balsamæflora*. It was introduced into this country several years ago from Japan, but, probably owing to its slow growth, it has only been distributed to a limited extent, though a very desirable kind.—ALPHA.

Pentstemons.—These are amongst the most useful of all border flowers. They begin to bloom in June and July, and many of them are still bright and attractive. They may be increased by means of cuttings put in the autumn; dibble them into sandy soil along the bottom of a wall or hedge, and transfer them to the borders in spring. Another way is to allow the old plants to grow on year after year in the same place, and thus managed they bloom earlier and more profusely than cuttings are capable of doing the first season.—J. MUIR.

Euphorbia jacquiniæflora.—The manner in which this is cultivated at Singleton deserves notice. Young plants of it are propagated every spring and grown on in pots for a year or more. During this time they are kept well down by stopping the shoots until a bushy base has been secured; then they are turned out of their pots and planted in a bed in a warm Cucumber pit. Here each plant throws up scores of robust shoots, from 3 feet to 5 feet long, and from now onwards these are profusely clothed with the charming blossoms which make this plant in winter such a universal favourite.—CAMBRIAN.

Hymenocallis macrostephana.—We were much impressed with the beauty of this bulbous plant in the Royal Gardens at Frogmore the other day, where a fine specimen bore a large umbel of flowers. It is a *Pancratium*-like plant, but larger than either *P. speciosum* or *P. caribbæum*, and, as its specific name implies, the crown of the flower is very large, spreading out like a funnel-shaped transparent web. The flowers are of the purest whiteness, and produce *en masse* a fine effect, which is enhanced by the foliage being of an unusually deep green tint. It is a plant that deserves to be grown in every good garden, more particularly as it flowers in autumn and winter.

Chrysanthemums not disbudded.—I send you a few sprays of *Chrysanthemums* gathered yesterday from out-of-doors. I could send you scores of similar ones from the same two plants. Not a single bud has been removed from them, and yet surely they are large enough for all purposes where lovely flowers are wanted. The yellow variety is Mrs. Dixon; the white one Mrs. Parnell, a sport from Mrs. G. Rundle, not quite so shapely, but stronger and more free-flowering than its parent.—G. H. ENGLEHEART, *Applesham, Andover*.

* * Charming blooms, four and five in a truss; not large, but large enough for all purposes, except for exhibition, and very perfect.—ED.

Crowea latifolia.—Like the *Correas*, this is one of the pretty Australian rutaceous plants whose existence in gardens has almost ceased, but which, when well managed, is deserving of a first position among winter-flowering greenhouse plants. *C. latifolia* is not what one might call a plant of easy cultivation; still, whatever skill is required for its successful management is fully rewarded by the beauty and usefulness of its flowers. It is not unlikely that *Croweas* have fallen into disrepute owing to their failure to thrive under cultivation when grown on their own roots; and the same may be said to apply to *Correas* and *Eriostemons*, which, along with the *Croweas*, require to be grafted on each other or on some closely allied plant. In this last particular

lies the secret of success with these plants. I saw in the Clapton Nurseries some pretty little plants of *C. latifolia* bearing in the axils of almost every leaf fleshy, Primula-shaped, rose-coloured flowers. *C. saligna* is another handsome species with narrow foliage and rose-coloured flowers. Croweas may be had in bloom in summer and autumn as well as during winter. I have sometimes met with *C. latifolia* labelled *C. macrantha*.—B.

Clove Carnations.—Mr. Woolford, East Thorpe, Reading, sends us blooms partly expanded and buds of the old Clove Carnation cut from plants in the open ground on the 19th inst., concerning which he says, had it not been for the sharp frosts of last week, they would have been by this time fully developed blossoms. He has been cutting fine blooms from the same plants from the time of their first blooming, and, anticipating a frost on the afternoon of the 12th inst., he looked over the bed and found several blooms which almost rivalled the earlier blossoms for sweetness. The plants in question were layered in August last year, and planted in a moderately rich, open bed in the November following.

Luculia gratissima.—Some glorious clusters of this lovely Nepaulese shrub have been sent to us from the conservatory at The Grange, Alresford, by Mr. D. Allan, gardener there. The foliage, too, is more luxurious than we usually see it. The delicate rosy pink flowers of this shrub, and the delicious fragrance which they exhale, render it a most desirable plant for the greenhouse. It is by no means a difficult plant to deal with. It thrives best planted out in a border of good soil, rather loamy than otherwise, and the house should be a light and airy one. It succeeds admirably as a standard, but may be grown well against a wall, for which it makes a beautiful covering. Mr. Allan observes that the plants under his care are standards several feet in height, and now laden with flower clusters as fine as those sent.

A new *Pancratium*, one of the most beautiful species which we have seen, has just flowered in Mr. W. Bull's nursery, at Chelsea. It is distinct from any other in cultivation. It has thick, leathery leaves similar to those of *P. caribbæum*. The flower-stem in the plant which we saw was unusually short, being only about 6 inches high. From the top of the stem is produced an umbel of flowers, each possessing an excessively long tube as much as 9 inches in length. The sepals are long and narrow, peculiarly twisted and fall perpendicularly. The corona is shallowly funnel-shaped, web-like, and borne erect on a tube about an inch high. The flowers are altogether different in structure from those of the commonly cultivated species, and being of snowy whiteness have an extremely chaste appearance. It is not named yet, and probably is quite new.

***Cestrum* (*Habrothamnus*) *elegans*.**—Last week we alluded to the yellow *Cestrum* (*C. aurantiacum*) as a suitable plant for training up a pillar or tall stake, and as much may be said in favour of *C. elegans* for similar purposes. It is grown at Kew as a companion plant to the yellow one, and the fine crop of purplish flowers which it has borne throughout the autumn, and continues still to bear, renders it most ornamental. *C. elegans* is an old garden favourite, both because of its flowers and also on account of the crop of bright red berries that succeeds them. Although often grown as a pot plant, it is best when planted out as at Kew, where both in the conservatory (No. 4), and also in the temperate house, it flowers and fruits very freely.

Correas—These are not so much used for the decoration of the greenhouse and conservatory during winter as they might be. In a small state they are exceedingly handsome flowering plants, but when grown on into the dimensions they are known to assume in Australia, and as they were grown by cultivators here twenty years ago, some of these Australian Fuchsias, as they are called in Australia, are handsome shrubs. Where convenient, Correas thrive best planted out in beds in a light and cool position in the con-

servatory; they are free-growing and quick-rooting plants, and love to be allowed to grow naturally instead of in the tight-fitting pots in which they are generally grown. Shrubs from 6 feet to 8 feet high, and almost as much through, with graceful twiggy shoots and leathery leaves, and thickly covered with red, crimson, and pure white flowers, during the greater portion of the winter months are really desirable subjects for conservatory decoration, and Correas are all this when planted out and treated liberally both as regards soil, light, and water. The best of them are *C. cardinalis*, *C. Brilliant*, *C. ventricosa*, and *C. magnifica*.—K.

The blue Marguerite (*Agathæa celestis*).—This may be described as a perpetual bloomer, for it can be had in flower all the year round; during winter, however, it is most attractive, when blue flowers are scarce. The name blue Marguerite sufficiently indicates the appearance of the flower, and, like the ordinary Paris Daisy, its flower-stalks are so long, that when used for bouquets and similar purposes no wiring is required. It is an old inhabitant of our greenhouses, but it flowers freely in the open air in summer. If, however, the flowers are picked off as soon as visible till the autumn, and the plants are lifted and taken into a temperature of from 55° to 65°, with ordinary care they will continue in bloom for a long time. Its value for cutting purposes is enhanced by the fact that as the flowers are picked they are rapidly succeeded by others.—H. P.

November flowers.—Herewith I send you a gathering of flowers cut from out of doors this morning (November 19). We had some frost last week which destroyed almost all the Dahlias; however, I think you will agree with me that the hardy border has not yet lost its charms. Our Christmas Roses are fine, though early; *Schizostylis coccinea* and the various *Chrysanthemums* I never saw better. The large red Fuchsia sent is the variety known as *exoniensis*; it is a good kind and perfectly hardy, having stood in one position here for several years.—JOHN C. TALLACK, *Prideaux Place, Padstow, Cornwall*.

.*.* The Cornish climate is evidently favourable as regards outdoor vegetation. The Dahlias sent, chiefly bouquet sorts, are as good as we get about London in September. The *Chrysanthemums*, too, for outdoor blooms, are wonderfully fine, particularly the tassel-headed Japanese sorts. The other flowers include *Belladonna Lilies* (very fine), *Mignonette*, French Marigolds, Snapdragons, *Pentstemons*, *Gladioli*, and Sweet Peas. The *Hellebore* Mr. Tallack mentions is the true *H. niger* major or *altifolius*, as some call it. It is the finest form we have seen. The outstretched blooms measure 4½ inches across. The Fuchsia is not *F. exoniensis*, but some ordinary double variety.—ED.

PHYLLOXERA IN ENGLISH VINERIES.

It seem that this troublesome pest is constantly appearing in very unaccountable places all over the country, and no doubt it has often appeared in vineries, though no notice has been taken of it by the press. It has been generally supposed that if we kept our Vines isolated, taking care not to introduce any foreign Vines, that all would be safe, but that this is a mistake some correspondence in a contemporary abundantly proves. It has appeared in a vinery at Chevering, and the gardener, Mr. Gray, says, "The question of its introduction to different places is a very important one indeed, as if that could be ascertained with any degree of certainty, gardeners would then be able to avoid it or stamp it out. Little doubt exists in my mind that if no Vines had been bought in there would have been no Phylloxera here." So says Mr. Gray; but Mr. David Thomson gives an instance in which it was introduced to a garden in a different way. In this case it was proved that some Roses had been purchased in France, and that being received when the ground out of doors was frozen, they were laid in amongst some potting soil, and remained there for some time. "Afterwards the young Vines were potted in this

soil. No doubt the eggs of the Phylloxera had been imported with the Roses." This is not only a feasible, but a reasonable view of the case; and the knowledge that the eggs of this insect may be imported from France not only on Roses, but on Lilacs and other plants, should make us very cautious as to purchasing such things.

My own experience with the Phylloxera has been as extensive as that of most people. Some ten years ago I planted a house of young Vines, which did remarkably well; and when they had almost reached the top of the house the Phylloxera appeared on two of them, and also on young Vines in the next house. We certainly bought Vines that season, although this pest appeared on our own first. Both houses were at once destroyed and all the material of the border carted away a mile or so from the garden. Next season there was no appearance of Phylloxera, but the year following it appeared in another house 200 yards from where it first showed itself. I wanted to destroy the Vines at once; but several people thought I was mistaken, and that the warty appearance on the leaves might be caused by something else. It was, however, proved to be the Phylloxera, though that season no Vines had been introduced. Two or three years afterwards the pest again appeared, though not introduced on Vines.

Our case stands thus: We have purchased Lilacs' purchasing Roses annually. Where they come from one cannot say. We also have Lily of the Valley from somewhere over the sea—whether from France or Germany I know not; certain it is that the Phylloxera never appeared in our permanent vineries, but in the houses and pits to which these plants are taken in to force. The insect itself cannot live on roots, but in France the soil from which dead Vines have been cleared must be full of eggs. What more likely, too, than that ground rendered useless for Vines may have been planted with Roses, Lilacs, Lily of the Valley, &c., for the English market, and that the eggs have been sent into our gardens in this manner? The matter certainly requires investigating. It may be that I am wrong, but if right it behoves us to keep all these foreign introductions outside the garden walls and trust to other plants than Lilacs to produce flowers during the winter and spring months. J. DOUGLAS.

COUNTRY HOUSE SURROUNDINGS.

NOTHING looks so snug and home-like as an old English country house embowered in foliage, like that represented in the accompanying illustration. Unhappily, however, such examples are rare compared with the numbers one sees with nothing but bare walls and treeless surroundings. Some seem frightened to have trees too near their dwellings, and particularly foliage on their walls. The aversion to Ivy on a house is doubtless due to the impression that it causes dampness in winter, which it certainly does in some localities if both it and the tree and shrub surroundings are too dense. The tree growth especially should be so arranged as not to obscure sunlight, and if deciduous trees be employed little need be feared on the score of dampness. No one would think of completely smothering a house in trees, except in very exposed places as a break to the wind, and by no means should the southerly aspects be planted out. The house here represented lies in the bottom of a valley near a large lake, and the tree growth is chiefly confined to the north and east sides. There are some fine old Elms, rather unsafe trees near buildings, and these, as may be seen, break the sky line of the building in a most artistic manner. The shrub growth about the house is rather dense, too, and affords an effectual break to biting east winds. The grand old house here represented is completely enveloped in creepers, and these reach the very chimney tops. As regards the desirability of having Ivy-clothed walls, the evidence for and against them seems to be pretty well balanced, but there can be no question that greenery of any sort adds largely to the charms of a house whether in town or country.

GARDEN IN THE HOUSE.

WINDOW GARDENING.*

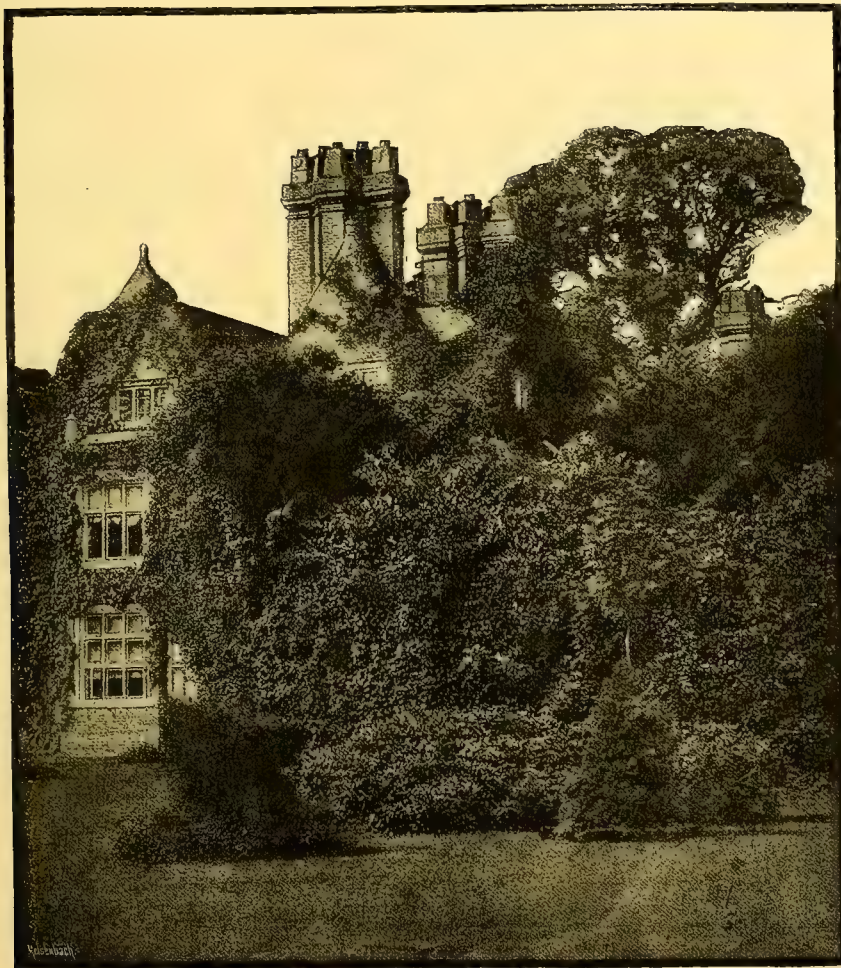
No one, unless engaged in the business extensively, can have any conception of the extent to which plants are used for window gardening, so called, and also for the decoration of the sitting-room or parlour during autumn, winter, and spring. Window gardening, as it is done in England—and it is yet there done much better than with us—consists in having boxes fitted so as to rest on the window-sill outside the window, these, of course, being used only at seasons when it is warm

water must be provided, either by making holes an inch or so in diameter, at distances of 6 inches apart, in the bottom, or making the bottom of slats placed half an inch or so apart. Window boxes are often made to be quite ornamental, but that is of little consequence, for if the plants in them are properly grown, they will be the most attractive ornament; and as drooping plants are essential to the beauty of the window box, these quickly cover up all parts of it. The length and breadth of the window box, of course, should conform to the size of the sill, but they should never exceed 6 inches in depth. There is nothing special in the soil used for win-

drooping line should be *Lobelia gracilis*, which has flowers of rich blue, drooping when well grown from 1½ feet to 2 feet. Another style is to plant the inside line with pink *Pelargoniums*, the middle line of the Rainbow Plant, as it is sometimes called (*Alternanthera major*), the leaves of which are tinted yellow, violet, crimson, orange, &c., and the drooping or outer line of scarlet *Tropæolums*. Sometimes a mixed variety is preferred, which may be made of *Heliotropes*, Lemon-scented *Verbenas*, *Fuchsias*, or such plants as taste dictates, having the finer kinds of *Verbenas* or *Petunias* to droop. The plants should be set about 5 inches or 6 inches apart. Window boxes are often used to grow annual plants only from seed, such as *Mignonette*, Sweet *Alyssum*, *Asters*, *Portulaca*, *Drummond's Phlox*, &c. These had better be sown separately, and not mixed up in the same box; one line sown in the centre of the box is sufficient. After having the box filled with proper soil, draw a furrow in it about half an inch deep; in that sow the seed—an ordinary sized packet is enough—cover the soil carefully over it, and then press the soil so as to moderately firm the seed. When dry, water gently with a fine rosed watering-pot. If the seeds are sown in the window boxes inside the house, it may be done any time in April; but if not wanted so soon, the boxes are placed outside; then the sowing should be deferred till May. After the seedlings or plants have grown so as to be well established in boxes, they should be copiously watered once every other day; if the weather is dry and if the boxes are exposed to the full glare of the noonday sun, no light sprinkling will answer; the water must be poured on until it runs out at the bottom of the box. If, however, they are partly shaded, or if the weather is cloudy or wet, judgment, of course, must be used in the matter of watering. The rule with all plants in pots or boxes is never to water until the soil is dry, and then water thoroughly. This dryness can be determined by the soil getting lighter in colour, or by examination by stirring it up with the fingers.

HANGING BASKETS.

These may, as a rule, be formed of similar materials to window boxes, although the usual kinds are such as are formed of rustic work and wirework; these last are rather the best suited for the health of the plants, for as in window boxes so made they allow full opportunity for the free passage of water from the soil and for the admission of air to the roots. As hanging baskets are exposed on all sides to the air, they will require more attention as regards watering than window boxes. The simplest and most efficient way, after the plants have been well established, is, when dry, to immerse the whole basket in a tub of water. This is particularly essential, if the basket is made of wire or any such material. Rustic baskets, of course, do not drain off so freely, and immersing them in water is not so essential, so that the rule for watering window boxes may be adapted to them. The plants suitable for hanging baskets may be similar to those used for window boxes, except that it conduces much to the appearance of the baskets to have some graceful plant placed in the centre. For that purpose nothing is better than some of the *Palms* or *Dracænas*; of *Palms*, *Latania borbonica* or *Corypha australis* are excellent, and of *Dracænas*, *D. terminalis*, with its crimson leaves, or *D. indivisa*, with its drooping fountain-like foliage, are all good types, though there are scores of others; if the basket has handles, some climbing plant, such as *Ivy*, or climbing *Fern*, &c., may be trained on these, while the plants used for drooping over the sides may be such as have been recommended for window boxes. If baskets or vases are in very exposed situations, such as cemeteries, where water cannot be easily given, it is best to use succulent plants, such as *Echeverias* and *Sempervivums* (Houseleeks) for the centres, and for the pendent plants some of the beautiful forms of the *Sedum* or *Stonecrop* family. All of these thrive with comparatively little moisture when once established, and present a good appearance, even if watered copiously once a week in the driest weather,



A foliage-covered house.

enough for plants to be placed outside. Such boxes may be made of wood, terra cotta, iron or wire patterns—the latter giving free drainage for water.

WINDOW BOXES.

A cheap window box is often made of slats an inch or so in thickness. These are placed at from half an inch to an inch apart at the bottom and side. This, like the wire window box, gives ample drainage, which is always a great advantage to the plants, for, besides freely allowing the water to pass off, the spaces allow the air to get through the soil to the roots—a most valuable advantage as regards the health of the plants. As in wire boxes, Moss, or some such material, must be placed against the slat-work, to prevent the soil washing through when watering. No matter of what material the window box is made, outlets for

water must be provided, either by making holes an inch or so in diameter, at distances of 6 inches apart, in the bottom, or making the bottom of slats placed half an inch or so apart. Window boxes are often made to be quite ornamental, but that is of little consequence, for if the plants in them are properly grown, they will be the most attractive ornament; and as drooping plants are essential to the beauty of the window box, these quickly cover up all parts of it. The length and breadth of the window box, of course, should conform to the size of the sill, but they should never exceed 6 inches in depth. There is nothing special in the soil used for win-

KINDS OF PLANTS.

When a great height from the street, it is essential that the colours used should be of the brightest, particularly those that hang over the box. An excellent combination is made by planting the first or inner row of scarlet *Pelargoniums*, the middle row of *Golden Feather*, while the outer or

* Window Gardening, by Mr. Peter Henderson, in *New York Horticultural Society's Proceedings*.

PLANTS IN ROOMS.

Although plants can now in nearly all parts be purchased at very low rates, it is always a satisfaction to the indoor gardener to know that the plant which he or she, as the case may be, admires and cares for was raised at home from a slip or a seed. But as the best modes of propagating plants would involve too much space in this article, I must refer such as need instruction on the raising of plants from slips or seeds to works on such subjects, whether they, however, have been raised at home or purchased, it is all important that they be in vigorous health to start with, or success is not likely to ensue, for once a plant gets unhealthy it is a loss of labour to attempt to get it again in health. It is better to throw it away and start again with healthy slips, seeds, or plants. If the young plants have not been raised at home by slips or seeds, it is always better to purchase young, healthy plants than large ones that have been forced into flower, although we well know that, with the majority of plant cultivators, this advice will be thrown away, as five people out of six buy only plants in flower; it is really far better for the purchaser to be guided by catalogue descriptions than to buy plants that have been forced into flower in a high temperature. Supposing, then, that a plant purchased from the florist has been growing in a pot 3 inches deep and wide, it is usually in a condition to require a larger pot, which will be known by observing that the roots mat the outside of the ball of earth; such a plant, whether it is a Rose, Pelargonium, Fuchsia, or any other similar free-growing plant, will require a pot 1 inch or 2 inches wider than that in which it has been grown. It is usually the safest plan to shift it into only one size larger, but if a pot two sizes larger is used, then at least 1 inch of drainage should be placed in the bottom, so that the water can pass freely from the greater mass of soil. This drainage may consist of charcoal, broken pots, oyster shells, or anything convenient suitable for the purpose. If the plant has been only placed in a pot 1 inch larger than that in which it has been growing, then there is no need for drainage. We ourselves never use drainage in our flower-pots, unless for some reason we are obliged to give them an extra large pot, when the drainage is used to counteract the evil effects of using a too large pot. The indication that a plant needs repotting is known by knocking it out of the pot (by giving a smart rap on the edge of a board, just as is done in taking a form of jelly out of a mould); if the roots have become matted on the outer surface of the ball of earth, then it is in a condition to require a larger sized pot. For soil, that recommended for window boxes will answer equally well for plants in pots. We are often asked if saucers should be used to set pots in. As a matter of keeping the place clean where the plants stand, they are a necessity, but the saucer should never be filled with water, unless when sub-aquatic plants are grown, such as Agapanthus, Callas, Hyacinths, Tradescantias, or plants of a similar character. The best temperature for room plants is about 55° at night, which may be increased to 10° or 15° during the day. The best aspect for plants in rooms is east or south-east, south or south-west; never north. It is necessary once in eight or ten days to turn the plants so that each gets a share of light, else the plants will get lop-sided. If plants drop their leaves, or the leaves become yellow, it is usually from one of two causes—either that the soil is too wet or too dry; either condition will destroy the small rootlets, a circumstance indicated by the condition of the leaves. There is usually more injury done from the plants being too wet than too dry.

INSECTS.

There are only three kinds of insects that are really troublesome to plants in rooms—the aphid (or green fly), the red spider, and mealy bug. The first is easily destroyed by tobacco in any form, either as liquid, dust, or by smoke. The most convenient way to use it for house plants is

to first wet the leaves, then dust snuff or tobacco dust over them. Red spider is not quite so easy to manage; it never appears unless the air is hot and dry, when it attacks the lower sides of the leaves. The best remedy is washing the leaves with a sponge, or, if the plants are very large, laying the plants on their sides and striking the leaves forcibly with water from a syringe or hose. Mealy bug looks like little bits of cotton, and is usually found at the axils of the leaves. It is best removed by a strong hair pencil, after which syringe or sponge the plant. All these instructions refer to plants that are grown in rooms from October until May. After that date, if circumstances permit, they should be shifted into good-sized pots, and placed in the open garden, sinking the pot in the earth to the rim, care being taken to pinch out the leading shoots, so as to secure good shape. If the pots are sunk in the ground, care must be taken to have them turned round every two or three weeks, else the roots will get through the hole in the bottom, and when lifted would have to be broken off, which would seriously injure them. Perhaps the best way is to stop up the hole entirely, so that the roots cannot get through. A cork is best for this purpose, as it must be taken out if the plants are again used as house plants. Many plants, such as Pelargoniums, Heliotropes, Abutilons, all the Coleuses, Ageratums, and similar strong-growing plants, usually get too large for house plants the second year, and it is better with all such to use young slips, or procure young plants of them in the autumn; while such plants as Carnations, Roses, Azaleas, Camellias, Jessamines, &c., are better when older if they have been properly cared for.

FLOWER GARDEN.

PROPERTIES OF FLORISTS' FLOWERS.

No one will deny the meed of praise to the "florists proper" for any good work they have done, nor deny that they have done good work, in so far as they have improved some things and shown us what it is possible to accomplish by patient selection and high culture. The great stumbling-block that has ever been in the way of their progress and usefulness has been the ideal "standards" and properties which they have set up and compelled everybody to conform to who would join their ranks or share in their work. These "standards" of theirs have not been originated by learned or competent men, but by anybody, often uneducated men, who choose to take up and cultivate any subject which pleased them, according to their own ideas. In some cases the standards have been modified and altered, but in the main adhered to even by men of education who might have been expected to rebel against purely empirical teachings. Perhaps this is to some extent explained by the fact that when flower shows were devoted to special subjects and were few and far between, the florists had it all their own way, and excluded everybody who did not at the outset acknowledge their authority. Florists complain, in these days, of criticism, but they should not; for no body of men connected with gardening have ever laid down such arbitrary rules or so sternly enforced compliance with them, thereby, without doubt, greatly restricting the scope of their usefulness. Florists plead that they are the real "lovers of flowers," but it can only be allowed that they have loved a few of them. Many of the old-fashioned florists about Paisley and in Lancashire we know for a fact completely ignored nearly all forms of vegetable life, save perhaps the one, two, or three varieties of which they made a hobby, and it is said there are noted florists of the present day who do not differ from the old ones.

They say that when a poet dies,
Mute Nature mourns her worshipper;

but when a florist dies, it is doubtful if Nature is greatly affected by the event. I have said the florists' "standards of excellence" were arbitrary. One may go further, and say they are seldom based on rational grounds. Florists proceed on no regular or intelligible principle in determining

their "models," nor do they give any reasons for their decisions, but their "should be" is imperative. These statements can be proved from the florist himself, and I propose giving a few examples. If I err in any particular I shall be glad if any florist will set me right.

The Pansy is perhaps the flower which shows the art of the florist in greatest perfection, and I shall take it up first. The Pansy originated mainly from the pretty little *Viola tricolor* of our fields—a most beautiful flower, not excelled except in size by the finest productions of the florist, and a favourite subject of the artist. No wonder it attracted the eye of the cultivator. It is only seen as a weed as a rule, but when placed in good soil and allowed to grow into a plant it makes a gem on a rockery or a border, it is so free flowering, pretty, and so bright. Well, this flower was the parent, on one side at least, with which the florist started on his course of "improvement," and he decided that it had several grave faults that wanted remedying. First, it was too small, and needed to be made as large as possible. Secondly, it was irregular and anything but circular in outline, which he designated "want of form," the perfection of which, in his eyes, was flatness and roundness, and he decided it should be mended in that direction accordingly; thirdly, the colours of the petals flashed into each other in those beautiful and regular radiating lines that have excited the admiration of the lovers of Nature and puzzled the physiologist, and the florist decided they, too, were a fault and ought to be abolished, and the colours confined to distinct belts and blotches, with clearly defined margins, like the strips of colour on a pocket handkerchief; he called those petals "pure" which showed no intermingling, and the others he called "dirty." These were the lines laid down for improving the Pansy, and have been constantly acted upon with considerable success, but why a Pansy should be very large, or round, or flat, or pure, no florist has ever yet condescended to explain, while artists, and those not under the bondage of florists, entirely deny the correctness of such teachings, and treat them with indifference. Next we take

The Dahlia, a flower which came to the florist with a single row of flat smooth petals and a golden centre, and the florist decided that both should be altered or abolished, for although (and here is shown in a vivid light the arbitrary taste which decided all such matters) the Carnation and Pink, which are naturally fringed and crimped, must be flat and smooth to pass muster with the florist, the Dahlia, which is naturally of smooth flat outline, must be cupped, crimped, or folded in the petal to pass the same judge, while we know that throughout the hundreds of generations of seedlings raised by florists, the now popular and pretty single forms have been persistently destroyed lest they contaminated their favourite—lumpy, double flowers. In short, the single Dahlia was considered bad, and anyone showing such a flower at a florists' exhibition would have probably been regarded as crazy; the farther they (the florists) got away from the single form the better they were pleased, and the more prizes they were awarded. And all these things, properties, &c., are insisted on imperatively, and not one word of reason or justification is offered in their support. My descriptions are borrowed from a modern work on florists' flowers, where what are called "models" of each subject are furnished. One might go on enumerating examples—

The Carnation, for instance, which it is stated in *THE GARDEN* is disqualified if it has a flower-stem less than 30 inches long, in addition to other more or less attainable points, all of which simply mean handicapping every raiser of flowers who pays the least attention to them. So long as florists pursue such a course and make such laws, can they blame their more cosmopolitan brethren for criticising them? Was any useful industry hampered and hindered in the same way in these days, those who were the cause of it would soon be thrust aside. We advise florists to recast their creed, to take up broader and better

ground, and join the ranks of those whose appreciation of a flower is regulated by its value as a garden flower which can be grown and admired by everybody. J. S. W.

THE ORIENTAL POPPIES.

THESE great Poppies are without doubt the most gorgeous of our early summer flowers. Their blooms, from 6 inches to 10 inches in diameter, are of a brilliant scarlet colour, and the large black blotch at the base of each petal and the central

they require staking; the great heads of flower are so heavy that the stalk, unless supported, is in danger of breaking down from the very root, but it is best to stake at only half their height—not only that less stake may be seen, but also that the upper half of the stalk may bend about at its own will, for though some stems grow well upright, as in the engraving, a good number, and often those with the largest flowers, twist about somewhat in the way that the singular looking Parrot Tulips do. The only defect of this noble plant is that after flowering it becomes very



Flowers of *Papaver orientale*.

mass of anthers liberally supplied with pollen that looks like deep purple soot make the scarlet petals appear still brighter when the flower is looked at closely; while a group of established plants, each plant well furnished with its flaming flowers, forms the most gorgeous spectacle that can be enjoyed in a garden whether seen from afar or near. There are many cultivated varieties, differing in size, habit, and colour of flower. Some may be called a deep orange, while in others the scarlet is softened in the direction of salmon colour, the buds, when first showing colour, being in this case of a very delicate salmon-pink. A group of five or more strong clumps makes a magnificent effect in a flower border. It is as well to cut away a good number of the weaker flower-stems, as the plants always bear more than are needed. Unfortunately

ragged and unsightly, and for appearance sake must be cut away, thus leaving large empty gaps in the flower border. To cover this defect it is a good plan to intergroup them with *Tritomas*, whose foliage is growing strongly by the time the Poppies are over, then by flowering time they will have covered the whole space. Plantain Lilies would answer the same purpose. A group of these fine Poppies would have a very striking effect among dark-foliaged dwarf shrubs in a shrubbery border, particularly if there were no other flowers near. They enjoy a deep, well-enriched, rather light soil in full sun, and are very easy to cultivate and increase; indeed, in warm soils every little piece of broken root grows. Interesting varieties may be raised from seed. G. J.

ST. BRIGID'S CHRISTMAS ROSE.

(*H. NIGER ANGUSTIFOLIUS*, OR *INVERNIS*.)

WHAT is *H. niger angustifolius*, and who is responsible for the name? I have always regarded the name "*angustifolius*" with suspicion as applied to this plant, which I figured and described in *THE GARDEN*, March 24, 1883. Mr. Barr also fights shy of the name, and after seeing flowers and an actual specimen of the plant itself, calls it *H. niger invernensis* in his catalogue, autumn, 1883. It seems to me to be distinct from Miss Hope's *H. niger intermedius* (*H. niger angustifolius* of the late Mr. McNab) and *H. niger scoticus* of Barr, or what Mr. Brockbank persists in calling, as I think, erroneously, "the true Christmas Rose." In Ware's catalogue for the current year it may be noticed that he uses the names *H. niger* "minor" and "*angustifolius*" as synonymous, which cannot, I think, be correct, seeing that what I call *H. niger* var. *angustifolius* has flowers as large as those of *H. niger maximus* or *H. altifolius*; whereas, the flowers of *H. niger minor* are in reality smaller than those of the typical or true Christmas Rose, *H. niger*, as, indeed, the Latin varietal name itself implies.

In the *Gardeners' Chronicle*, November 10 (p. 591), Mr. Brockbank has tried—but has utterly failed—to prove that the large pale green stemmed variety of *H. niger*, which I call St. Brigid's Christmas Rose, was known to either Gerard or to Parkinson. What they did know, described and figured in a more or less conventional manner, was the true typical black Hellebore or Christmas flower, the typical *H. niger* itself as well, figured by Curtis in the *Botanical Magazine*, t. 8. That Curtis himself thought as I do in this matter is clear, inasmuch as he quotes Parkinson's name in his list of synonyms thus: "The true black Hellebore or Christmas Flower, Parkinson, p. 344."

Bauhin. Pin. 186 calls the same plant *H. niger flore roseo*, which could not possibly be true of the pure white variety which Mr. Barr calls *H. niger invernensis*, and which I named St. Brigid's Christmas Rose, as I said at the time, seeing that its varietal name in Latin, *angustifolius*, was open to doubt and liable to occasion confusion. The *H. niger angustifolius* of Johnson's "*Gardeners' Dictionary*" is described as having pink flowers, and so could not possibly be our plant. It will be quite evident to any reader of Parkinson or of Gerard that the plant alluded to by both authors is the typical *Helleborus niger*, a plant known long before their time for its medicinal virtues. Indeed, as Parkinson himself tells us, it "is called *Helleborus* or *Elleborus niger verus*, and is the same that both Theophrastus and Dioscorides have written of." The reason the word *verus* (true) is tacked on to the specific name is, as Parkinson explains, to distinguish it from two other kinds of bastard or wild Hellebores, and most probably these were *H. foetidus* and *H. viridis*. Gerard's figure (I mean the one in Johnson's edition of 1633) is quite different from that of Parkinson, and might represent *H. viridis*, since some of the flower-stalks are represented as branched—a habit of growth never seen in any form of *H. niger*. Mr. Brockbank himself admits in *Gardeners' Chronicle* (p. 592) that there are three forms or varieties of *H. niger angustifolius*, that is to say, the English variety, the Scotch variety, and our Irish form, and yet he himself includes them under one name, *H. niger angustifolius*, or the true Christmas Rose. Mr. Barr, who knows more about garden Hellebores than perhaps anyone else, tells me that the Brockhurst and the St. Brigid varieties are quite distinct in his trial beds at Tooting, where all who are so disposed may see them side by side. Here is Mr. Barr's description of our variety, as published in his autumn catalogue for the current year:

"*HELLEBORUS NIGER INVERNIS* (St. Brigid's Christmas Rose).—This is a grand plant, with large massive pale green leaves and leaf-stalk, and in this respect altogether removed from any variety we know; it stands conspicuous above all other Christmas Roses in our specimen beds. The public are indebted to Mr. Burbidge for calling

attention to this fine plant. Next year we may be able to offer plants; at present we have only the specimen presented by 'St. Brigid.'

Mr. Brockbank says that the fine variety which he cultivates has abounded near Manchester and in Cheshire for many years. This I readily believe, but why Mr. Brockbank did not tell us of its merits long ago is not so easily explained. If his variety is as fine as "St. Brigid's" variety, which I sincerely hope it may be, why did he hide such a light from us so long? Why did he wait until "Veronica" sang its praises? Another thing perplexes me. If the Cheshire variety is so much finer than the type, which from Mr. Brockbank's description it must be, why have our Barrs and Wares and Clibrans been so slow to avail themselves of a stock. No sooner did I send flowers and leaves of St. Brigid's variety to the London nurserymen than they at once wrote asking where stock of it might be purchased. By the generosity of its owner I was able to send Mr. Barr and Mr. Ware each a plant, and both at once told me it was distinct from any form of *H. niger* they had seen before. And yet here, in Cheshire, and near Manchester we are asked to believe it is abundant—"grown by the acre." This may be true of the kind Mr. Brockbank grows, and I wish I could say that St. Brigid's variety existed in like profusion. When I alluded to this plant last March Mr. Archer-Hind kindly sent me leaves of a seedling from *H. niger*, which very nearly resembled St. Brigid's variety, but was not nearly so robust. Perhaps Mr. Archer-Hind could tell us exactly how it originated, and thus throw a little light on the origin of other *H. niger* varieties. In conclusion, let me ask Mr. Brockbank to send me a plant of his Cheshire variety, and I will promise it a kind welcome and the most generous treatment. F. W. B.

NARCISSUS INCOMPARABILIS.

MR. ENGLEHEART again asks (p. 405) if this plant really produces seeds. I never saw seeds borne by any form of this plant, but of course that is no positive proof that it never does produce seeds. Let us, however, for a moment assume that it never seeds and note the result. If this is true, then it naturally must depend for existence upon chance hybridisation in its wild European habitats, and all our garden forms of it must be the result of crossing some form of Daffodil with some variety of Poet's *Narcissus*. As to garden forms, this view may be the correct one, but one can scarcely believe that a wild plant so widely distributed as *N. incomparabilis* is entirely dependent on vegetative distribution alone. I have before me the copy of a letter written by the late Mr. W. Backhouse, of St. John's, Walsingham, the raiser of those noble Daffodils Emperor and Empress, as also *N. incomparabilis* var. *Stella*. I believe this letter to have been the rough draft prepared by him of a paper on the hybridisation of *Narcissus* which subsequently appeared in the *Gardeners' Chronicle* for June 10, 1865. In this MS. Mr. Backhouse says, "As to *N. incomparabilis*, I early tried crossing with the Daffodil and *N. poeticus angustifolius*; the former merely produced shortish cupped Daffodils, the latter kinds intermediate between the parents with generally a red or orange edge to the cup. . . . *N. incomparabilis* does not seem to seed except when crossed, and then only very sparingly." Although I can nowhere lay my hand upon absolute proof that *N. incomparabilis* never seeds, or that it really does so, it is nevertheless very difficult to take it for granted that it never does seed. Climate or soil (Meehan says "nutrition") make all the difference as to plants seeding. Take the blue Passion-flower for example, which in some localities does seed, while more generally its very showy, egg-shaped fruits are quite destitute of seeds, and in other places again even these are never seen. The late Miss Hope, who cultivated *Helleborus altifolius* (maximum) very well, never, I believe, saw a single seed upon her plants, but last spring I gathered ripe seeds of it, and saw it seeding quite freely in a garden in Kildare. Here with us garden varie-

ties of *N. incomparabilis* produce large inflated ovaries only, but next season I hope to touch a few flowers with pollen from other individuals on the chance of obtaining good seed; meanwhile let us hope other evidence may be forthcoming.

F. W. B.

Antirrhinums.—The value of these, in a gardening view, is easily conceived and generally acknowledged. They are ornaments suitable for almost every situation out of doors. The beds of the flower garden, the borders of the shrubbery, vases, rockwork, ruins or even old walls may alike be made verdant at all times, and truly beautiful through the autumnal months by means of them; nor are they more particular in choice of soil than of situation, only requiring that it be not excessively wet. Established plants may remain three or four years in the same place, or indeed until they become too large, with no further care than cutting off the old flower-stems and spreading a little mulch about their roots when the borders are dug. By not allowing the decayed flowers to remain on the plant, we have always a second and sometimes a third crop of flowers each season. In short, Antirrhinums are anybody's flowers who will give them room to grow.—A. D. W.

5083.—Carpeting plants.—Your correspondent does not say what kind of Allium bulbs he has growing in the corner of his garden. If he has the strong growing yellow kind (*A. Moly*), I do not think it would be harmed by having the Sedum growing over it; in fact, if he has a bed of this sort and it is the green Sedum that covers the bulbs they will look well issuing from it in early summer. On the other hand, if the Allium is *A. neapolitanum* or some similar weak grower, I should think that the carpet would be better removed; though it may look well, it harbours slugs, and then they feed upon whatever may be coming through if at all palatable to their tastes. Such has been my experience. I have put such a carpet over Scillas, Crocuses, and *Iris reticulata*, and thought how charming I had covered the bare places left by these plants, but great was my disappointment in spring to find that a large percentage of the blooms were one-sided and the foliage crippled through the ravages of slugs.—L. W.

Cineraria maritima.—This is one of the best of the silvery-leaved bedding plants, and moreover quite hardy in most parts of the kingdom. It is readily increased from seed, which if sown in heat in February, and if the young plants are pricked off into boxes as soon as large enough to handle, they will be in good condition for putting out in May. Associated in the form of an edging with dark-leaved plants this *Cineraria* has an excellent effect. It may also be increased by cuttings. Young soft shoots that spring from the base strike root more readily than the tops of the plants, the wood of which is hard and tough. I find this plant to assume a whiter tint in poor sandy soil than in such as is very rich. In summer this *Cineraria* may be effectively employed as an edging to beds of *Coleus Verschaffelti* or *Iresines*, and in winter it looks well along with dark-leaved shrubs in beds, vases, or window boxes. *Berberis Aquifolium*, which assumes a deep bronzy tint in winter, and the feathery-foliaged *Cryptomeria elegans* make good subjects with which to associate it, and as a pot plant for cool houses it is one of the best to employ for toning down the glaring effects that brilliant colours in masses produce. Good large plants of it may be grown in small pots; in fact, when pot-bound and full of roots its foliage is the most silvery.—J. G. H.

Echeveria metallica.—We keep up our stock of this plant in a very simple manner. About the beginning of October, when it is no longer safe to leave plants of it in the flower beds, or wherever they have stood during the summer, they are taken up, the bottom leaves are cut off, and the stem is then cut asunder at about two-thirds of its length. The roots and the lower part are then thrown away, and the other part, consisting of the crown and several well developed leaves, is potted singly in 7-inch pots in rather light sandy soil. They are then placed on a stage in a greenhouse,

and, by keeping the soil rather dry, there is no danger of the stem decaying before roots are emitted. In fact, it takes but four or five weeks to get the tops re-established with a fair amount of roots, and then with care in watering, for they must be kept rather dry than wet, and in a light airy position through the winter, they will be dwarf, compact plants with plenty of leaves in spring, and be fit to do duty during the summer in any situation in which they may be required. It must be understood that by this plan we do not increase our stock. It simply keeps our plants on short legs; whereas we must either raise a fresh stock of plants to have them dwarf, or be content with specimens with long naked stems.—J. C. C.

FRUIT GARDEN.

WINTER DRESSING FRUIT TREES.

THE fall of the leaf denotes the period when active operations should be commenced against all sorts of insect pests that prey upon fruit trees. Owing to the buds being now dormant, stronger remedies can be more safely applied than at any other time. Amongst the worst of fruit tree enemies may be mentioned American blight and various sorts of scale. The latter infest Cherries, Plums, Pears, and other wall trees even more than they do trees of similar kinds in the open garden. For American blight, or, in fact, any of the insect pests that remain on the bark during winter, I find nothing so effectual in reducing their numbers as a

GOOD HARD SCRUBBING, going over the trees first and thinning out the knots and spurs, around which they usually collect in great numbers at the approach of winter. Strong soapsuds or brine may be safely used on the old wood, and after the trees are divested of all that can be reached by these means, the garden engine should be vigorously applied, for if once the insects are loosened from their hold, a good drenching will completely destroy them. Then apply one or other of the various insect destroyers now so numerous, such as Gishurst Compound, paraffin oil, &c. I find a hand syringe a very good means of applying liquids to wall and dwarf trees, and in the case of tall standards I use the garden engine. The principal point is to see that every particle of the bark is wetted, being careful to get well under the branches. I have cleansed trees badly infested with many of the pests just named with that homely remedy—soapsuds. Very recently a lady directed my attention to some creepers on her house front that were gradually dying. I found on examination that they were infested with white scale, which seemed to like the shelter of the overhanging roof. I recommended drenching them overhead every week with soapsuds, and in a short time they grew away most luxuriantly, and the bark assumed that healthy, shining appearance which denotes health. Hundreds of unhealthy fruit trees are in like manner infested with scale, though unnoticed by their owners, who go on applying stimulants to their roots, forgetful that these minute and unobserved enemies are sucking the very life blood from the trees, and that until removed all hopes of improvement are useless. Coating the stems and branches with a mixture of various compounds applied with a soft brush is an effective mode of dealing with these pests, but it takes more time than dressing the trees with liquid applications. From 6 ounces to 8 ounces of Gishurst Compound to a gallon of water and enough clay to thicken it is a safe application, or it may be even stronger if not put over the fruit buds; or paraffin oil may be used at the rate of half a pint to a gallon of water; the latter should be also strongly impregnated with Tobacco juice by pouring it boiling over half a pound of Tobacco, and flowers of sulphur, lime, and clay should be added to the mixture in sufficient quantity to thicken it into a paint. This is a good remedy for all kinds of fruit tree insects, including those of the Vine. Where many trees require attention, a large quantity can be mixed at one time and used as required. Coal tar has lately been recommended as a winter dressing in the proportion of one pint to a gallon

of water, thickening it with clay, as in the former case. If carefully applied it is a valuable remedy, but, like all strong remedies, extreme caution in applying it must be exercised. Of the numerous caterpillar and grub enemies that prey on the foliage of fruit trees and bushes during the growing season, I may mention that they are mostly safe below the surface of the soil in winter. The best way, therefore, in order to reduce their numbers is to break up the soil roughly around the base of the trees, especially in times of frost, for the birds, being then hard pressed for food, will search diligently for anything in the shape of grubs. Moss and other parasitic growths can also be better dealt with now than at any other period of the year. If the trees are large and much Moss-grown, scrape or scrub all the main branches and then dust with finely slaked lime, choosing a damp, still day for the operation, when fog or mist makes the air heavy and the branches dripping. If the lime is fresh a very little will suffice to destroy Moss, which will soon wither up and drop off.

IN WALLS, nail holes and joints get full of insects; a coating of thick whitewash should therefore be worked into every crevice. If the whitewash is too conspicuous, a little cement added will make the effect less glaring and the mixture none the less serviceable; then by way of finish top-dress the roots with half decayed stable manure, which will prevent drought from affecting them. If the soil is poor in quality, or much exhausted by close cropping, remove the top spit to another part of the garden and substitute fresh fibrous turf, a material in which it is surprising how much the roots revel; it contains all the ingredients necessary for building up fruit trees and for keeping them for many years in a fruitful state.

Gosport, Hants.

JAMES GROOM.

CUTTING BACK FRUIT TREES.

MR. BAINES (p. 406) has done good service in calling attention to and sounding a note of warning against the practice of cutting back fruit trees, which is as senseless as it is mischievous, for instead of doing good in any way, or serving any useful end, it causes a severe shock and check to the plants so operated on, and throws them back at least a year, as after having made a season's growth they are no more forward than they were before the beheading took place. If people could only be brought to understand this, we should not meet with the many instances of mutilation now to be witnessed; and, instead of Apples and Pears taking seven years to come into bearing, as was averred by some one at the Woodford congress, they would yield fine crops in less than half that time; they would quickly make and develop large heads that would set fruit buds and furnish plenty of blossoms. The same thing, too, would take place on walls, and it is lamentable to think that valuable space is often left bare that might be covered so much quicker were it not for the knife.

BEGINNERS have hitherto been led to believe that a tree must be cut back to make it break at the base of the shoots—an erroneous idea, for without any such inducement any and every back bud will start if the plants are young and healthy and planted with ordinary care in suitable soil at the proper time. This is not mere assertion, as I have proved it again and again. I never under any circumstances shorten a shoot unless the end is unripe. Trees planted in this full-sized, unutilized state make root quickly and extend their branches rapidly, and may soon be made to cover or furnish any reasonable space. All that is necessary in their management is to disbud in the spring—that is, if they are to be trained—and only lay in the shoots on the upper sides of the branches that are well situated, by doing which there is little or nothing left to prune away in the autumn. In order to make all this more clear, let us suppose a young maiden tree is obtained or a year older plant, and it has four branches, two of which should be trained to the right and two to the left, so as to throw open the middle, as the

next shoots that are formed will fill that, the tendency of the strength being to run in the upper direction, and if the sides are furnished first, or the foundation laid for so doing, the centre may be easily provided for afterwards. This, of course, applies only to fan-shaped trees, which is the best form for most kinds on walls, but if the horizontal system of training is to be pursued, as is often done with Apples and Pears, a central leader must be chosen and the side shoots laid in from that. For pyramids and standards the best way is to leave all shoots to grow at their will till the trees get size and are fully established, when any misplaced may be gradually cut away, and only those left that will make or bring the trees to a good and regular shape.

S. D.

TRANSPLANTING LARGE PEACH TREES.

No fruit-bearing tree submits so readily to sudden removal as the Peach. No matter how large the tree may be, if it is in fair health and the work is done carefully the crop need not be sacrificed. One of the lessons which the future will teach us, I think, is this: We shall, so far as regards our wall trees at any rate, come to look upon them as portable objects, and not as fixtures. When once planted an occasional shift from one position to another tends to keep the roots in the right position, and to counteract that natural tendency which all things that are not looked after and cared for have to go astray. Very few people plant trees enough. There should always be a few young trees in training to fill in wherever wanted. Maidens may be purchased at a very low rate, and by taking them young the cultivator may make them assume any form he likes. In the planting of Peach houses, what an immense gain it is to have large-sized trees to fill them with, and so obtain a crop of fruit at once; there should be no waiting in this case. I remember once moving a tree from the open wall to a house, to meet an emergency, when the blossoms were expanding and the tree set a fair crop; but then the Peach bears so many blossoms in proportion to our real requirements, that there is no fear of losing the crop if the tree is in good condition and is well cared for afterwards to counteract the effect of the evaporation which is going on, and by shading and moisture to supply its wants till the roots set to work again, which they will do almost immediately, especially if a nice mellow turf be used. It is wonderful how fond the roots of fruit trees are of this material.

E. H.

GLASS COPINGS.

THE reference to glass copings in THE GARDEN (p. 407) is not without interest, but it must not be supposed that copings of any kind will under all circumstances insure a crop of fruit. I make this assertion after eight years' experience of a 3-foot glass coping on a considerable length of south and east walls. At the same time I have not a word to say against them further than that I have not found them to make a crop of fruit a certainty. They, however, aid the production of a crop, inasmuch as they afford valuable shelter to the trees at a time when they most need it. In the eight years during which glass copings have been over our Apricot trees we have always had at least a third of a crop, and in some seasons heavy ones. Before the copings were put up we rarely had a full crop, and frequently total failure, but now failure altogether is unknown to us. In the case of Pears our experience is quite as decided. Taking an average of the eight years during which we have had copings, our crops have been increased one-third, and the size and flavour of the fruit have been much improved. In cases in which copings have failed local conditions must have been at fault. Such copings should not, however, be permanently fixed; in that case failure may occur, *i.e.*, unless the trees are as regularly syringed as Peach trees are when grown in a house. According to my experience, I would not have as a gift 1000 feet of permanently fixed coping unless I could make sure of the trees getting the attention which they require in the way of regular syringing of the branches and watering at the roots.

Another point in connection with copings is of great importance, and that is, their width should be in proportion to the height of the wall. For a wall 10 feet high the coping should be only 2 feet wide, and however high the wall may be the coping should not be more than 3 feet wide; the lower the wall the less in width should the coping be. The objections I have to wide copings are two: they keep off too much rain from the branches, and too much water from the roots, and for these reasons I prefer copings from which the glass can be removed and replaced when needed. We take out the whole of our glass at the end of May, and only put it up again just before the trees come into bloom. At one time we did not do so, but after a year or two's experience I found that if the same treatment was continued the trees on east walls would not be alive in a few years' time to require protection. Owing to the width of the coping, the branches did not get sufficient moisture to keep them in health; they were getting infested with all kinds of insects, and the growth was gradually getting weaker. Now all this is altered. The trees are both vigorous and clean. As regards wood copings, I may remark that we used them for two or three years, but they were soon exchanged for glass, which I think in every way better than wood.

J. C. C.

Pears damaged by tom-tits.—If "I." (p. 348) thinks it worth his while he can preserve his damaged Pears (next season) by the following simple means. As soon as possible after the damage is done by these troublesome little birds, and before decay has commenced, fill the hole with fresh, dry Portland cement. Let it remain till the fruit is wanted, then pick it out with the point of a knife. I have saved a good number of large Pears in this way. Of course I should not dish them up for a dinner party if I had anything better, but I have used them on ordinary occasions and have had no complaints. "Half a loaf is better than no bread." I may also mention that I have found Portland cement very useful against canker in Melons, and two or three applications of it will stop bleeding in Vines. In fact, it is a capital thing to dry up wounds and prevent decay.—T. S.

English-raised Grapes.—"S. D." laments the want of a white Grape to match the Black Hamburgh, and he is quite right when he says we have none equal to that well-known variety. Such a Grape would be a great acquisition, and raisers of new Grapes have been aware of this and tried to produce such a Grape. Golden Champion, Duke of Buccleuch, Buckland Sweetwater, and others have all been recommended and intended to fill the gap, and the two first would do it if they would only ripen as well as the Hamburgh and keep a short time, but they will do neither, and are fast going out of cultivation. The best Grape to come in with the Black Hamburgh is undoubtedly the Royal Muscadine, which grows freely, fruits with certainty, and is really a good Grape to eat when well ripened. It is as much a market dessert Grape in Paris as the Black Hamburgh is in this country; in fact it is the only Grape.—J. S. W.

Grapes cracking.—So far as my experience goes, I should say that cracking is certainly due to atmospheric moisture, and that Madresfield Court will not bear the treatment generally pursued in regard to other varieties in the way of damping down, evaporating troughs, &c. As every little note on the subject may help to the solution of the difficulty, allow me to record the result of some observations taken from a small viney in a neighbouring place. The house in question is planted with five varieties—Black Hamburgh, Black Alicante, Foster's Seedling, Bowood Muscat, and Madresfield Court. With the exception of Madresfield Court, which has cracked badly, these have all done well. They are planted inside, the fruit wall being on arches in order to allow the roots to run outside. No particular care, as far as I can learn, was taken in making the border in the way of draining, &c., and the compost was the ordinary garden soil (a moderately stiff loam) with

a little mortar rubbish in it, and a little thoroughly rotten material from a spent hotbed. The Madresfield Court (a single rod) is this year carrying 24 bunches, good in bunch and berry, well coloured, and half a dozen would comprise the total number of cracked berries. The change for the better is said to be due to withholding water from the inside border. Up to the present year this has received a good soaking two or three times during the season; but as the idea gained ground that the amount of moisture generated inside the house by this watering was conducive to cracking, and also that there would be comparatively few roots inside to derive any advantage from the water, it was determined to examine the border during the winter in order to ascertain if the latter supposition was correct. The result of this examination was that hardly any feeders were discerned inside. Therefore no water was put on all through the summer, and as the Vines were strong and the foliage clean, no more damping down was practised than was deemed necessary to the actual well-being of the other varieties, that are side by side with the Madresfield Court. I do not think it can be said that the absence of water inside prevented cracking through any effect it could have had on root action, as the number of roots under cover with hardly any fibre could be counted on one's fingers. It seems pretty clear that the prevention in this instance was the maintenance of a drier atmosphere inside the house. It would be interesting to hear something as to when and how water is applied where roots are entirely under control. I should imagine that a slightly increased artificial temperature, coupled with extra ventilation, would be likely to have the desired result.—E. B.

Notes on Pears.—I was glad to see Autumn Bergamot included in the list of Pears given by "J. C. C." in last week's GARDEN. I am at a loss to understand why it is comparatively little in favour with planters, for whatever disadvantage it may have in point of size is more than atoned for by its excellent flavour and productiveness. It is a most useful variety with us, coming in after Louise Bonne and Marie Louise, and standing far before Beurré Diel and Beurré de Capiaumont. These are disappointing, the first-named being very coarse and altogether without flavour, whilst the greater part of Beurré de Capiaumont have to be consigned to the rubbish heap before they are ripe. Can "J. C. C." say if there are any varieties of Autumn Bergamot? I remember large standard trees under this name in Sussex that bore immense crops, and though our fruit is identical with it in season and flavour, it is rather lighter in colour and a trifle larger. The latter point, however, may be owing to the advantage of a wall, and as our old trees have well responded to the treatment recorded in a late number of THE GARDEN, and have made very sturdy growth where the old spurs were cut hard in, I fancy in future seasons the size may be considerably increased. I may add that Louise Bonne, Marie Louise, and Bergamot have been our most serviceable varieties this season, older sorts, such as Citron des Carmes, Bon Chrétien, and Jargonelle having received such a severe thinning to get them into decent shape that our crop of fruit from them was very light. Napoleon and Winter Nelis are good crops, but fruits of the latter are very small.—E. B.

Evergreens.—This is the best time of the whole year to put in cuttings of Evergreens. Insert them in a partially shaded position where they will strike root readily. Half-ripened wood is best for the purpose; if too young and tender the shoots flag and rot away without forming roots, and if old and hard-barked, they keep alive for a time and look like growing, but the majority fail to emit roots and perish as soon as spring sunshine exerts its influence on them. Dwarf bushy young shrubs are so useful at this season for filling window boxes, vases, beds and borders, that one can scarcely be overdone with them, and when too large for this purpose they come in well for making fresh shrubberies or filling up existing

ones. The only way to keep them satisfactory is to always have a good supply of young plants to fill up gaps and failures.—J. G., *Hants.*

GARDEN FLORA.

PLATE 415.

ALPINE ERYSIMUMS AND CALIFORNIAN SEDUMS.

(With a plate of *E. pumilum* and *S. spathulifolium*).

THE ALPINE ERYSIMUMS are among the prettiest of the mountain flowers of Europe. The genus is an enormous one, but there are comparatively few

accident, and associated with the choicest and most minute alpine plants. It is very nearly related to the alpine Wallflower, *E. ochroleucum*, but is at once distinguishable from that plant by its minuteness and the dull greyish green colour of its leaves.

E. OCHROLEUCUM is a handsome and distinct plant, forming, under cultivation, very neat, rich green tufts, 6 inches to 12 inches high, and is in spring covered with a dense profusion of beautiful sulphur coloured flowers. Rockwork will be found to offer the most congenial home for it, though it does very well on good level ground, but is apt to get somewhat naked about the base, and will per-



Erysimum rheticum (two-thirds natural size).

species in it showy enough for cultivation, and, with the exception of the well-known biennial *E. Peroffskianum*, only some half dozen alpine perennial species are in general cultivation. These include the charming little

E. PUMILUM, which is represented on our plate. It is a remarkable little plant, and is often called the Lilliputian Wallflower, as it resembles in the size and colour of its flowers the alpine Wallflower, but without the vigorous and rich green foliage of that species, producing flowers very large for the size of the plant, often only an inch high, above a few narrow, sparsely toothed leaves barely rising above the ground. Sometimes the flowers are nearly as large as those on healthy tufts of the alpine Wallflower, and yet the whole plant, flowers and all, can be almost covered by a thimble. In richer soil and less exposed spots it grows larger. It is a native of high and bare places in the Alps and Pyrenees, requiring to be grown on rockwork in an exposed spot in very sandy or gritty loam, surrounded by a few small stones to guard it from excessive drought and

happens perish on heavy soils during an unusually severe winter. It seems to thrive best when rather frequently divided. It may also be propagated by cuttings. It is a capital dwarf border plant on light soils, and in spring dense tufts of it are covered with clear yellow bloom. It is a native of the Alps and Pyrenees, flowering in spring and early summer. There are several varieties.

E. RHETICUM is somewhat similar to *E. pumilum*, but is a larger plant altogether, as may be seen by the annexed woodcut, which represents a tuft two-thirds its natural size. The flowers are a bright lemon-yellow, and so numerous produced in early summer that no foliage can be seen. It is a vigorous little plant, thriving, like the rest of the alpine Erysimums, in loamy soil with an admixture of limestone, and always in an exposed and well-drained spot in the rock garden. A native of Rhaetia.

E. RUPESTRE is another alpine gem of the first water, than which there are few more desirable rock garden plants. Like the others, it is dwarf and tufted, but is more inclined to spread into



broad, flat masses. In May and June it flowers profusely, the colour being a clear yellow. *E. pulchellum*, a native of Asia Minor, is a similar plant, with flowers of a citron-yellow, which brighten up the plant in late spring. It is a somewhat recent addition, but is a welcome one. Among the little-known species found in botanical collections are *E. lanceolatum*, *E. canescens*, *E. suffruticosum*, *E. virgatum*, and *E. australe*, but they are inferior in beauty to the foregoing. Much resembling the alpine *Erysimum* are some of the dwarf species of *Cheiranthus*, such as *C. alpinus* and *C. Marschalli*, two worthy plants for any rock garden.

THE CALIFORNIAN SEDUMS.—Of the very large number of *Stonecrops* now known it is singular that so few inhabit the western hemisphere. Only about half a dozen are natives of the United States, and about as many are found in California; but, singularly enough, only the *Roseroot*, *S. Rhodiola*, also a European plant, is common to the Eastern and Western States. The other species indigenous to California are *S. spathulifolium*, *oreganum*, *obtusatum*, *stenopetalum*, *variegatum*, *Douglasi*, and *pumilum*. As far as we know there are but three or four of these species in cultivation in this country, and these happen to be the showiest. Among these is

S. SPATHULIFOLIUM, the most attractive of the group. It has little rosettes of glaucous foliage produced on creeping branches, which spread out rather widely from the parent rosette. The flowers are bright yellow, and produced in dense clusters on erect stems. Very nearly allied to this species is *S. obtusatum*, which so much resembles it, as to be often confused with it in gardens; indeed, our plate may represent the true *S. obtusatum*. The plate was drawn some years ago by the late Mr. Noel Humphreys from a plant said to be the true *S. spathulifolium*, but the plant grown at Kew under this name is somewhat larger when full grown, and bears small leaves on the flower-stems. Both *S. spathulifolium* and *S. obtusatum* are pretty plants for the rock garden. They are quite hardy if grown in a warm sunny spot in light gritty soil, thoroughly drained. *S. spathulifolium* grows naturally in dry rocky places, and *S. obtusatum* is found on granitic rocks in the Sierra Nevada at high elevations. Another very nearly related species belonging to this section of the genus is *S. oreganum*, which we believe is not in cultivation.

The other Californian species are scarcely attractive enough for general culture. *S. Douglasi* and *stenopetalum* have, we believe, been introduced to Kew.

Salting walks.—The system in many gardens appears to be to break the surface of these up once a year, which I think is a most objectionable proceeding, as it entirely spoils them for walking on for a long time, and entails much labour in getting them back to their firm state again. Instead of breaking them up for the purpose of destroying Moss and weeds, I have always found it far better to use salt, which we do annually, the usual season for applying it being the end of May or beginning of June, at which period we endeavour to select a dry, settled week for applying it, or if in any doubt about the weather, we sprinkle the salt with water while lying on the walks to dissolve it more quickly, and thus save any risk of its being washed to the sides by a shower. Managed in this way, weeds and Moss and all other vegetable confervæ disappear after the first rain, and the walks are left as bright and fresh looking as if they had been newly gravelled,

and remain in that very pleasing and desirable state throughout the season. Of course, it will only do to use salt where there are dead edgings or Grass verges, as, however carefully it may be applied, it is almost sure to injure Box, which soon shows how much the salt disagrees with it by the yellow colour it turns.—S. D.

SEASONABLE WORK.

FLORAL DECORATIONS.

CHRYSANTHEMUMS of many kinds will now be yielding an abundant bloom; but where the plants are arranged for effect it is not expedient to cut the most prominent flowers unless required for very special purposes. A plentiful supply for all ordinary uses can, however, be taken from plants that have not been too severely thinned, and also without spoiling the general effect. For decorative work the flowers of some kinds are prettiest when of a medium or even small size, such, for instance, as *Mrs. Rundle* and *Golden George Glenny*. The abundance of side blooms on these valuable kinds will cause them to be in much request where any amount of cut flowers is required. *Julie Lagravère* is another good kind in a cut state, having stiff and sturdy growth. Its dark flowers associate well with that fine yellow *Pompone*, *St. Michael*, which when cut is one of the most enduring *Chrysanthemums* grown. For coat flowers and bouquet work, as well as for arranging with either of the two foregoing varieties, we find *Mdlle. Marthé* to be one of the prettiest amongst whites. Two very distinct and pleasing sorts are the white *Marabout* and *Adèle Frizette*, a lilac form of the same; for small specimen glasses these, when used in conjunction, will be found to be very effective. For bolder forms of arrangement with large flowers, *Jardin des Plantes* and its bronze sport are excellent; whilst of dark varieties *Progne* and *John Salter* are both good. *Virgin Queen* is a very useful white, its large flowers standing erect; and *Lady Talfourd*, rosy lilac, is another kind distinct in colour. Of the Japanese section, we find the following to be all excellent in their respective colours, viz., *Elaine* and *Fair Maid of Guernsey*, whites; *James Salter*, lilac; *Peter the Great*, yellow; *Fulton*, bright yellow; *Fulgore*, rosy purple; *La Frisure*, rose; and *Red Aragon*, chestnut-red. Having grown and proved these varieties to be good for floral decoration, we can recommend them. Of foliage to associate with them, nothing looks prettier or more appropriate than the shoots and leaves of *Berberis Aquifolium*, varying as it does in colour from deep green to bronzy red. The deep tints of some of its leaves look most effective associated with white and yellow flowers. A few shoots arranged first in a fair sized vase, and then some of the larger blooms of two or three distinct shades with sufficient length of stem to stand just above them, will make a striking arrangement and one that will last for several days in perfection.

INDOOR PLANTS.

HEATHS.—The different varieties of winter-flowering *Heaths* are always effective when in bloom, grouped as they usually are with other plants in greenhouses and conservatories; nevertheless, when subjected to the treatment they often receive, their cultivation is far from being satisfactory, inasmuch as they frequently fail to survive their first season of blooming. Similar to the whole *Erica* family, they like cool, airy treatment, with a position where they receive plenty of light, in place of which when used in conservatories that are kept above a greenhouse temperature that at once has the effect of starting them into growth, more especially if, for appearance sake, they are stood in the body of the house, crowded and overhung with other plants. It is very much better to confine their use to structures where a lower temperature is maintained, and in all cases to keep them as near the glass as possible, even if some little sacrifice is made in

the arrangement for general effect. They should be frequently looked over to see that they are free from mildew, for if this attacks them, in a very few days so much of the foliage will be destroyed as to endanger their existence. Dry flowers of sulphur is a safer application at this season than syringing with water impregnated with sulphur. Where spring and summer-flowering *Heaths* are grown, they should be looked over for mildew every ten days during such moist weather as we have had through the autumn; this is the more necessary after a cool, sunless summer, in which the season's growth has had less than the ordinary opportunity of getting fully hardened up. It is a pity that in so comparatively few places *Heaths* are now included amongst the greenhouse plants. An impression often exists that even when required for home decoration, they must necessarily be subjected to the stiffly trained, formal condition in which they are frequently seen on the exhibition stage; this is altogether a mistake. Most of the many varieties now in cultivation are naturally of a compact, bushy habit, requiring little support from stakes and ties if the groundwork has been properly laid by judicious training in the first stages of their existence. After this, when they have to be no further moved about than from one house to another, very little support, with a total absence of the formality present in highly-trained specimens, will suffice. But to arrive at this the plants should be well cut back each season after flowering. With a judicious selection of the freest growing, vigorous kinds, a collection can be kept up at a less cost than is often expended on plants that do not possess half the beauty and interest which they do. Anyone disposed to begin the cultivation of these plants, or add to the stock they already have, will find this a better season to get them in than waiting until spring, when the soft growth then present is much more likely to get injured by packing and transit. Where a house or pit is devoted to them they should be kept well up to the glass and have air admitted liberally every day when not frosty, avoiding a direct draught on them as much as possible by letting it in on the side opposite to where the wind happens to be. For the next three months the plants will require less water. This applies more particularly to the hardest wooded, slowest growing kinds.

BULB FORCING.—The last lot of Roman *Hyalcinths* should now be put in heat, to give a succession to such as were brought on earlier; at the same time a selection of the most forward large flowered varieties ought also to be put in warmth, bringing them on gradually, as if at all hurried both the foliage and the flower-stems will have a drawn, sickly appearance that goes far to destroy their beauty. In all cases see that plenty of roots have been formed before they are submitted to heat.

PANCRATIUMS.—So manageable are these plants that with a sufficient supply they may be had in bloom almost all the year round. There is scarcely any flower in cultivation that gives such a finish to an artistic bouquet as do these elegant fragrant flowers. In such arrangements they produce an effect that even the choicest *Orchids* fail to do. By putting a few, say half a dozen, plants in a brisk heat once a month through the winter a succession may be had that will permit of a few blooms always being available. All that is necessary is that the plants should have had from their last blooming a sufficient time to make and mature a fair proportion of leaf-growth, with a subsequent rest through somewhat drier and cooler treatment.

EUPHARIS.—Some growers of the useful *E. amazonica* fail to bloom it satisfactorily by the usual treatment of growth, rest, and excitement. The cause of this will usually be found in the growth never being fairly stopped through the presence of combined heat and moisture—too much to allow the necessary cessation. When any difficulty in this way is experienced, they can be made to flower by turning them out of their pots, and shaking the soil from the roots and repotting. This rarely fails to induce

strong bulbs to flower. With some, *E. candida* does not bloom so freely as the older kind, but shaking out and separating has a like effect in inducing it to flower. When better known this sort is likely to be a general favourite, its smaller, more elegant blooms being better adapted for some purposes than those of *E. amazonica*.

BOUARDIAS.—Where a good stock of these is at hand in the shape of plants possessing the full complement of vigour, there are few things that yield such a continuous supply of flowers. Where they have been grown on the planting-out method in pits or frames during the summer and taken up and potted some time ago, each plant will have several shoots, something like 18 inches or 20 inches long, and as thick at the base as an ordinary pencil. Growth such as this will produce flowers from six to eight joints below the leading points, coming in in succession after the first are over; but to bring these up to their full size, they must be kept in a brisk growing temperature close to the glass, so as to counteract the effect of the warmth. Without this the flowers will be soft and liable to flag when cut. Plants that have been grown on the planting-out system are better able to give a succession of full-sized flowers than the weaker examples resulting from pot-growth all through the season. Such as are cultivated in the latter way should be regularly supplied with manure water once every ten days or fortnight, otherwise the successional bloom will be weak and poor; this is especially the case if much restricted to root room.

HELIOTROPES.—Where sweet-scented flowers are in demand for cutting, these plants should be grown in considerable quantities, for so accommodating are they, that with an intermediate temperature they will keep on flowering the greater portion of the winter; but to have them at this season, the plants should be specially prepared. Small examples struck from cuttings in the spring and grown on in 6-inch or 8-inch pots, and well hardened up by exposure to the sun through the latter part of summer, will bloom freely now with a temperature of 55° in the night. Old plants grown in large pots and placed out-of-doors during the season will answer equally well and furnish flowers in such quantities as will well repay for the room they occupy, but in all cases they should have all the light it is possible to give them, with a little air on mild days, or the flowers when cut will be more liable to flag than many other things. These and other plants that bloom from growth that is made during the winter are very different from those that make growth and set their flower-buds in summer; with the latter winter forcing simply causes the development of the bloom already formed without the shoot extension that goes on with the former description of plants, and which, from the diminished light and air which are present in winter, are necessarily softer and less able to bear the hard usage to which cut flowers are usually more or less exposed.

PERPETUAL CARNATIONS.—If these are grown in sufficient quantity, and they have been treated so as to give the requisite succession of bloom, there will be many of the old plants that flowered in the spring, or seedlings where these are grown, that will be furnished with flower-stems, the buds of which are well advanced in size; if these are placed in the temperature of an intermediate house they will go on opening slowly and be found very useful. See that the plants before being put in warmth are quite free from aphides, to which they are subject. These insects may be destroyed by dipping in tobacco water or fumigating with tobacco, but aphides that subsist on the sap of such hard-leaved plants as Carnations are proportionately more difficult to kill than when they live on more succulent foliage; consequently a second or third application of whatever is used may be necessary.

LAPAGERIAS.—These are amongst the best climbing plants that can be used for the roof of a conservatory or greenhouse, not growing so vigorously as to much injure whatever other things are grown under them; but to have them continue in

a strong, healthy state they should be planted out where the roots and the sucker-like stems they make can have some room to spread; yet it is not advisable to turn the plants out of pots until they have attained a moderate size, otherwise from their slow growth and the moist condition the roots require keeping in the soil gets sour before they take possession of it. For similar reasons it is not advisable even where good-sized examples are to be planted out to make the bed over large to begin with; in place of this it is better to follow the course adopted with a Vine border by adding to it as the roots extend. The best time I have found for planting out or in any way disturbing the roots of *Lapagerias* is about the present, when in most cases the flowering will be nearly over, for although there will not be much visible signs of growth for some time the young underground shoots produced from buds formed below the surface will soon begin to run, and any disturbance of the roots that is to take place ought to be carried out at once. A thorough cleaning should be given to all *Lapagerias* now when the shoots and leaves are in a hard, mature condition, as they will be better able to bear any dressing it may be necessary to apply with a view to free them from insects.

FLOWER GARDEN.

HERBACEOUS BORDER.—Many of our plants have outgrown their positions. Some have spread to the injury of adjoining plants; some are too tall for their present places; and so we are lifting them all, and this will enable us to prepare the border thoroughly by trenching out all the old roots and adding liberally both fresh loam and manure. This done, the arrangement of plants will be something after this fashion: For the most part the tall growers will be in groups of three plants at the back part of the border, but there will be here and there a group nearer the front, as uniformity either as to height or position seems out of character with this class of plants. In the front part of the border will be arranged the weaker growers; these will be in groups also, and vary in number from three to nine according to the varying height and spread of the plants. This done, so far as plants and time to do it will allow, the more naked spots both between and over such plants as *Lilies*, *Pæonies*, and *Funkias* will be carpeted with evergreen *Sedums* and other suitable plants; and those portions of border not so treated will be surfaced either with finely sifted leaf-soil or Cocoa fibre. If there is likely to be a scarcity of herbaceous subjects, small evergreen shrubs, disposed at regular intervals throughout the border, may be used with excellent effect, and of course can be moved at any time that the herbaceous plants need additional space. This, together with re-travelling of walks and planting a clump or two of *Rhododendrons*, constitutes some of our present doings in the flower garden.

SOIL AND MANURE FOR ROSES.—As all *Roses* are fond of deep, rich soil, the beds or positions intended for them should be trenched or double dug, and have plenty of rotten manure worked in as the digging or trenching proceeds. In cases where the land is very stiff and heavy the best manure to use is that from horses, as this contains much vegetable matter, and is a great help in preventing the stiff soil from binding too closely and shutting out air, which has such a sweetening, beneficial influence on the character and texture of all soils. For light sandy ground, cow manure is the most suitable, on account of being cooler in its nature, and when in a decomposed state highly congenial to the roots of most plants, and particularly so to those of the *Rose*. What improves light land more than anything else for growing the queen of flowers is clay; not the sticky stuff one so often sees, but the flaky material to be met with in layers in pits where brick earth is got, which, when exposed to the atmosphere, crumbles to pieces. These fine nodules mixed up and buried retain moisture for a very long time, and it is surprising the way in which roots thread their course along and through them, and with what avidity they find them out and feed upon them. Knowing

this to be the case, and having witnessed the good effect of such clay as that mentioned in the culture of *Roses* in light land, we strongly recommend its use, but it should be applied in moderate quantity and kept well under the surface. In the planting of *Roses* all the preparation they require when received is just to trim the ends of any roots that may have become jagged or injured in the process of taking them up, as the tops are best left intact till the spring. As soon as the planting is finished and the soil made tolerably firm around the plants by treading, the next thing is to mulch the ground over with some light, half-rotten manure, which is a most important matter to attend to, as it insures the safety of the plants against frost by protecting the most vital parts, viz., the collars, or, say, the junction of the *Rose* with the stock. Not only is mulching requisite for freshly planted *Roses*, but it is just as essential for those established, and if *Teas* are to be saved from injury by the severity of the weather, additional protection must be afforded. The best way to treat standards of these is to bind haybands round about the part where they were budded and at the base of the lower branches, which, with a mulching over the roots, will carry them safely through any ordinary winter. *Teas* in beds may be easily sheltered by working in among them some fresh, dry leaves or Bracken, which may be kept securely in their place by sticking some *Gorse* or other evergreen twigs thickly between the plants, and the twigs will also be a great help in warding off sharp, cutting winds. To have *Tea Roses* in perfection and get flowers from them both late and early, there is no situation equal to a warm, sunny border under a wall or fence or other similarly sheltered position, but they should be far enough from trees to escape being robbed by their roots. To prolong the season of such sterling useful sorts as *Maréchal Niel*, *Celine Forestier*, *Climbing Devoniensis*, and *Gloire de Dijon*, it is a good plan to plant on different aspects where they all have plenty of room to ramble, as it is only the long, free shoots that afford the fine flowers. To train these and other climbers on walls strained wire is best, as by its use there is no occasion to nail and spoil or deface the bricks.

ORCHIDS.

EAST INDIA HOUSE.—We are now getting into the season of the year when great care is necessary to keep the plants in a healthy condition. We have evaporating troughs fixed in the house, but after this time of the year they are not used; we rather prefer to obtain all the moisture required from damping the paths and stages twice a day—in the morning and in the afternoon. Nothing need be said about re-potting or disturbing the roots of any of the occupants of this house at present. That is much better delayed until the days increase in length after Christmas, although there may be reasons for repotting isolated specimens even at this time. The spikes of all the popular species of *Phalænopsis*, such as *P. amabilis*, *P. grandiflora*, *P. Schilleriana*, *P. Stuartiana*, *P. violacea*, and others will now be pushing freely. See that they receive no injury in any way from drip. The cold water dripping into the centre of a valuable plant would do it much injury. If by no other means, the appearance of the plants will show where it is either by the extra green colour of the *Sphagnum* or by the wet state of the compost. Snails and slugs would soon injure the spikes if they were not captured by setting baits for them where they can be caught feeding at night and also early in the morning. Although *Phalænopsids* do not like to be exposed to the sun, they succeed best when suspended near the glass, and better in teak baskets than in the shallow pans in which they are also grown. *Angræcum sesquipedale* and others of this genus are also showing their flower-spikes. These also seem to do well in a shady part of the house, with the strong-growing species placed on the stages and the dwarf species suspended from the rafters in pans or baskets the same as the *Phalænopsis*;

indeed, the treatment suitable to *Phalænopsis* is that best adapted to the dwarf *Angræcums*, such as *A. citratum*, *A. Ellisi*, &c. We had some *Angræcums* imported from Madagascar this season which have been a source of much trouble to us owing to their being infested with red thrips; this seems to be a distinct species, and is also very difficult to destroy. These Orchids seem to like a goodly supply of tepid water, and it must not be withheld now, as the plants seem to be pushing into growth in some cases. There is no difficulty at present to keep the temperature up to 65° at night, but no one need be alarmed if the glass should drop to 5° less than this. The *Calanthes* that are not yet in flower may be pushed on in this house, but they will do in the *Cattleya* house temperature if this cannot be afforded them.

MEXICAN HOUSE.—One of the most esteemed, and consequently most valuable, of *Cattleyas* is *C. Mendeli*. Of this there have been some large importations recently. One large specimen was purchased for fifty guineas at Stevens' rooms just as it was received from abroad, and the bulbs very much shrivelled; this may not always be a fault, for we have often found when the bulbs were shrunk that they started from the base quite as strongly as those that were more plump, and also made a stronger growth. All these imported *Cattleyas* should be potted in clean potsherds and charcoal only. All dead and decaying matter should be removed, the stems and bulbs well washed with soapy water, and the plants to be laid out to dry before potting them. *Vanda tricolor* in its many varieties and others of this type will now be getting into the resting stage, even although they may be flowering. The varieties of *V. tricolor* are very numerous, and as they flower more freely than *V. suavis* at this season of the year, they are more valuable on that account, for autumn bloom does not seem to prevent their flowering freely again in April and May. The *Vandas* do not seem to be so liable to be attacked by insect pests as some other Orchids; and nearly all the attention required by them is to wash the leaves with a sponge and weak soft-soapy water. It would depend something upon the stage of growth the plants are in whether they would require much water; if the roots are pushing vigorously, they must be kept rather moist; but if from the appearance of the points of the roots they do not seem to be growing, then but little water will be required. Just a word to those who have *Dendrobiums* going through their season of rest, that is *D. Wardianum*, crassinode, nobile, *Falconeri*, moniliforme, *crepidatum*, *Cambridgeanum*, &c. It is best, of course, to have them in flower at different times, and for this purpose they should be brought into this house. In our experience we have found that by removing them from their cool quarters to a high temperature they are apt to be injured; they receive such a check, that the flowers will drop off. This does not happen if they are gradually inured to the heat and also to the moisture. A gradual change to heat and also to moisture at the roots will prevent much disappointment.

COOL HOUSE.—Where the collection is a miscellaneous one, comprising *Masdevallias* and Orchids that do not like so low a temperature as *Odontoglossums* of the *O. crispum* type, it may be well not to let the temperature fall much below 50° if it can be avoided; the ordinary cool house temperature of about 45°, falling to 40° in cold weather, is rather too low for some species of Orchids usually relegated to the cool house. Some species, as previously advised, may be removed to the *Cattleya* house. The very handsome *Dendrobiums*, *D. infundibulum* and *D. Jamesianum*, succeed best in the cool house; but we fancy they do not like the temperature to fall so low as the cool *Odontoglossums*; they also like to be near the glass, and to have the lightest part of the house. It may be that the difference of 5° exists between the temperature at the extreme ends of the house, or even more; in that case the Orchids that like the most heat may have the warmest end. A house well exposed to the sun is the best for the *Dendrobiums*, and one

behind a north wall is the worst. These *Dendrobiums* are both natives of Moulmein; and although *D. formosum* is a native of the same country, and is so nearly related to them, it does best in the warmest house. The Japanese *D. japonicum* also succeeds well in the cool house. Then there is also the Australian species, *D. Johannis*, which also succeeds well in this house; being very distinct and sweet, it is worthy of a place. The old *D. speciosum* is not the least desirable of the species that succeeds in a cool temperature. Unless under exceptional circumstances, it may be as well to do no repotting. From now until January plants almost without exception do not like to be interfered with at the roots. Preparations may be made to get ready for the work when the time arrives. Nearly the whole of the cool Orchids succeed best in peat, Sphagnum, and clean potsherds mixed with a little charcoal. With few exceptions the *Odontoglossums* and *Masdevallias* do best in pots, draining them, so that there is no danger of the compost becoming sour. It does not need that much water should be sprinkled on the paths and borders at this season; a moderate degree of moisture is preferable to the atmosphere being always at saturation point.

FRUIT.

VINES.—As soon as the leaves are down Vines infested with insects must be made thoroughly clean. Stop all suspicious holes and cracks with pure Gishurst, and paint with a solution of the same, 8 ounces to the gallon of water, thickened to the consistency of cream with sifted loam. On the other hand, Vines which have not been infested with insects may be passed over with a good washing, as nothing is gained by dressing where there is nothing for the dressing to destroy. Of all the insects with which the Grape grower has to contend, the mealy bug is most to be dreaded, as it too often springs into life year after year where the most careful attention has been devoted to its destruction. Spirits and oils of various kinds have been used, and all of them kill where they touch, but it generally happens that some escape, and the only way in which they can be successfully exterminated is by careful watching and searching in the spring, when every bug may be destroyed as it emerges from its winter quarters by dressing the place with Gishurst compound or methylated spirits of wine.

LATE HOUSES.—If the laterals and extension growths have not been removed, take them off at once, as they hold moisture and keep the sap in motion. Remove the ripe foliage as it parts freely to the touch, but not before, as many late Vines often carry their foliage well into December. In damp or foggy weather keep the front ventilators closed, and give a chink of air at the apex with just sufficient fire heat to expel moisture. On bright, dry days create a circulation of air by opening the top and bottom ventilators for a few hours, warm the pipes to set it in motion, and shut up in time to prevent the temperature from descending below 45° after the heat is turned off. Get all external borders well covered with Fern or litter, and place lights or shutters over all where the Grapes are intended to hang until after Christmas. From this time forward the bunches must be looked over twice a week, and if Gros Colmar do not keep well in the low temperature which suits the other kinds, cut and bottle them, and place them within the influence of warmth from the pipes in the Grape room or Muscat house.

ORCHARD HOUSES.—Though the weather is still favourable, yet the little frost we have had is a proof that the time has arrived for getting all pot trees now standing out of doors well plunged to protect the pots from injury by the expansion of the soil. When thus taken care of the general stock may remain out in the open air until the middle or end of January, when they will be the better under glass. Meantime steps must be taken for cleansing, painting, and preparing the interior of the house particularly where it is or has been used for soft-wooded plants like Chry-

santhemums, which sometimes leaves an unwelcome legacy behind them. The general pruning having been performed early in the autumn, shortening back and washing will, as a matter of course, be deferred until the time arrives for housing, but on no account allow the last named operation to be neglected, as the work is quickly performed, and careful washing with strong soap water is quite as beneficial to young wood, be it ever so free from insects, as sponging is to plant foliage. A few words may here be said with regard to shortening back, as serious mistakes are sometimes made by cutting the dormant trees into shape, when shy kinds like the *Noblesse*, which only make terminal wood buds, lose some of their most promising shoots by their removal. Practical men who know that it is always safe to prune to a triple bud can make no mistake; but the amateur, whose great delight is centred in the performance of his own knife work, will do well to wait until the buds begin to swell, or if he leave it until the fruit is set no harm will be done. Where pot Figs are grown in the cool orchard house they need not be removed from beneath the glass, as a severe winter like that of 1880-81 might render them useless, or nearly so, for the following season. If Strawberry plants intended for this house are removed from the open air, set them on the floor in preference to placing them on shelves.

HARDY FRUITS.—Get all pruning and nailing pushed forward during the prevalence of mild weather, as, independently of the fact that the men can do more work, the ground will be clear of refuse and ready for the reception of manure when weather suitable for wheeling sets in. If not already done, now is a good time to unnaill all the Cherries preparatory to pruning and washing with a strong solution of Gishurst compound or any other insecticide most in favour. When dry tie the shoots together in small bundles, secure them to stakes, and wash the walls; if old and full of nail holes, with strong brine, lime water, or the composition recommended in our last paper upon hardy fruits. These precautions this season are extremely needful, otherwise the myriads of black and brown fly which, owing to the low vitality of the trees, made such persistent attacks upon the enfeebled growths, will again appear in increasing numbers. Where labour is equal to the demand the same treatment applies to Plums, Apricots, and in some cases to Pears, but where the latter are quite free from scale they may be nailed in without delay. When pruning old trees it is a good plan to thin out the spurs and to scrape the Moss and Lichens off the branches for the twofold purpose of letting in warmth and air to the fullest extent and increasing the size and quality of the fruit. Trees on the Quince stock soon become one mass of spurs, and unless annual attention is paid to this operation, the fruit on many of the kinds becomes small and gritty; further, the root run being limited, mulching with good rotten manure is an important factor in the production of fine fruit; but as this annual dressing would soon raise the borders inconveniently high, the difficulty may be got over by casting the old mulching over the border to be forked in for vegetable crops and by replacing it with fresh from the frame ground. The best time to do this is early in autumn, and if within reach, the remains of an old Melon bed, soil included, will be found a suitable material for the purpose. Notwithstanding the fact that Peaches and Nectarines are holding their leaves a long time, the growths are clean and kind, and the blossom buds are fairly prominent. If it is the practice to unnaill the trees every winter, the sooner it is done the better, as nothing more in the way of ripening must be expected from the elements, and removal from the walls does not render the young growths more liable to be injured by severe frost. Get Raspberries staked and tied ready for mulching, but defer cutting off the tops until the buds begin to swell in the spring. Untie Figs, rub off the half swelled fruit, and tie the shoots together in bundles. Have protecting material ready, but do not apply it during the continuance of mild weather.

PINES.—Maintain a bottom heat of 85° to 90° in the house where Smooth Cayennes and other winter kinds are now swelling their fruit. Keep them fairly moist at the roots until the fruit begins to change colour; then withhold water altogether, as too much is apt to produce black hearts at this dull season. When ripe the fruit may be cut, or the plants can be removed to a Muscat house, where Cayennes, Rothschilds, and Jamaicas will keep sound for several weeks if not wanted for immediate use. Late starters will require and repay all the attention that can be given to them, as they will come in at a time when English Pines are very scarce; and here again the sectional system of management will tell, as a light pit with a strong bottom heat of 90° and a top heat ranging from 70° at night to 80° by day will be the most suitable structure for keeping the fruit steadily progressing through the winter. Avoid wetting the fruit or allowing much water to accumulate in the axils of the lower leaves, but give just enough tepid liquid with the syringe to keep the stem roots moist and to throw up stimulating vapour from the surface of the bed in which they are plunged. Suckers that were potted in September will now be well rooted and in a fit state for resting through the dark, dull period now before us. If the bed has settled too far away from the glass, take advantage of a favourable day for introducing more partially spent tan or leaves, and replunge the pots up to the rims to reduce the necessity for frequent watering. Aim at a bottom heat of 75° to 80°, and a top heat of 55° to 58° when sharp firing is needed on cold nights. Give a little air on bright mornings when the glass ranges between 65° and 70°, and shut up with sufficient atmospheric moisture to keep the plants steadily progressing in preference to allowing them to become stunted in their growth.

POT PEACHES.—Where the first Peaches and Nectarines are obtained from trees in pots, such kinds as A. Bec, Early Grosse Mignonne, Hale's Early, and Alexander Peaches, Lord Napier and Stanwick Elruge Nectarines should now be taken into the house and placed on the bed or pedestals if fermenting material is to be used for exciting them into growth. Avoid the use of fire-heat at first unless the night heat falls below 40°, and then apply it through the early part of the day, when air can be admitted and the trees can be syringed with tepid water to help the buds forward. Pay particular attention to the roots, as stone fruit trees are often ruined for the season by being allowed to suffer from want of water. Always apply it at a temperature exceeding that of the house and in sufficient quantity to insure a satisfactory state of the balls quite down to the drainage. Wash the trees with soap and water either before or after they are taken in. Top-dress with well-rotted manure, thin the flower-buds if, as is often the case, well managed trees of this class are so thickly set that the flowering process is likely to weaken them, and defer shortening back until the wood-buds on shy kinds become prominent.

EARLY STRAWBERRIES.—Where early fruit is wanted, the first batch of Vicomtesse Héricart de Thury or La Grosse Sucrée, an equally valuable variety, should now be under glass, as the plants must have an abundance of time allowed to enable them to throw up their scapes and perfect their flowers. If the Strawberry house proper is not ready, a spent Melon or Cucumber frame with a little latent heat in the bed and linings will answer very well for a time, provided they are kept well up to the glass and the roots are regularly attended with water. If worms have found their way into the pots, lose no time in dislodging them with lime water; examine the drainage, wash the pots, and top-dress with rich manure as they are placed in position. Many people plunge their plants or place them on a bed of fermenting material at the outset, but we have never felt quite satisfied with the plan, as the premature excitement of the roots induces a weakly growth of white fibres, which are injurious to the crowns, as they rob them of matter which should go to the formation of leaves and flowers. When the crowns

of Strawberries, like the buds of Vines, are fairly on the move, then is the time to slightly stimulate the roots with genial warmth from fermenting materials.

KITCHEN GARDEN.

WE are now just lifting Rhubarb and Asparagus for forcing. The former forces best when kept quite dark, but the latter must have air and light if flavour is wanted. We are provided with a capital place in which to force this delicacy, viz., an old Pine pit just emptied of Tomatoes. This pit will again be planted with Tomatoes in January and February; therefore, Asparagus just fills up the blank. We have Mint in shallow boxes, Tarragon, Mustard, and Cress, and a host of other little things, including most kinds of spring flowers for forcing, also in this pit; therefore it is a most useful and accommodating structure. Outside we are manuring, trenching, and digging every available inch of land, throwing it up rough. By February it will be like a bed of ashes, well pulverised and well sweetened—certainly one of the main things as regards kitchen garden cropping. Our site for Onions next season is just cleared, having being cropped with Snow's Broccoli, which is now laid in a spare border. To this ground we give a thorough manuring, dig it deeply and roughly, and in the meanwhile we mix up old night soil with ashes and wait for frost; then we give a good top-dressing with this mixture, and as we never sow our Onions before the end of March, ample time is given for all to be mixed and worked together. Cos Lettuce should now be lifted and protected. Endive we find most useful, and the same may be said of Chicory, which we blanch in the Mushroom house; we find that a sprinkling of powdered charcoal among the plants helps to dispel damp.

INDOOR GARDEN.

CUPANIAS AND THEIR CULTURE.

SINCE handsome leaved plants became so popular for cultivation under glass many species have been used that grow naturally to a size such as would preclude the possibility of their being accommodated in ordinary sized structures when they have attained their full stature, but by confining their roots in the pots and heading them down at intervals they can be kept within bounds. Of this description are the Cupanias; the best and most suitable for cultivation is *C. filicifolia*, a West Indian species that, in its native country, grows to a height of 15 feet or 20 feet. Its beautiful green, finely cut, Fern-like leaves are unsurpassed for their elegant plume-like appearance. The plant is one of those that should always be confined to a single stem; if more are permitted to grow much of its elegance is wanting. It is easily grown with enough warmth at command, a desideratum which its native country at once suggests.

PROPAGATION.—It may be increased at any time of the year, when cuttings composed of the young shoots 5 in. or 6 in. long can be taken off with a heel, such as are obtainable from a plant that has been headed back; they will root in sandy loam in a brisk heat with a confined, moist atmosphere, and shaded from the sun, so as to prevent their flagging. When well rooted gradually inure them to the air of the house, which keep at an ordinary stove temperature. Let them be where they will have abundance of light and enough air at suitable times to keep them stout and short. This is necessary with plants, like this, that are not to be stopped and grown in bush form, the object being to get them to make large leaves as near the base as possible; otherwise they will have a thin, straggling appearance, that can never be corrected until they are headed down. As this Cupania is a strong grower, it prefers good fibrous loam to peat for it. Move the young plants into larger pots before the roots get cramped; 6-inch or 7-inch will not be too large. During the spring and summer they will bear as much heat as any of the ordinary stove

occupants, with a little shade in the middle of the day and air proportionate to the weather, syringing daily during the growing season. This is necessary to keep down red spider and thrips, both of which frequently attack the plant. A lower temperature in the autumn and winter will suffice, but it is not well to let the heat get below 60° in the night. Move into larger pots as more root room is required; the size of pots which are ultimately given will depend on the size the plants are required to be grown to consequent on the size of the house they are intended to be kept in. This Cupania is very effective for an exhibition group when it gets 8 feet or 10 feet in height, but smaller examples will be more generally useful. When larger than required the best way to proceed is in the spring just before growth commences, to let the soil get moderately dry, and then to head down to within 6 inches or 8 inches of the pots, putting them at once afterwards in a brisk heat to assist them to break. All the shoots that are made, except one to each plant, may be taken off and struck in the way described; the stools should then be turned out of the pots, any small roots that are matted at the bottom of the balls cut off, and most of the old soil shaken away, transferring them to smaller pots, but large enough to admit the roots with a little fresh soil. Treat afterwards similarly to when the plants were younger, giving them above all plenty of light, so as to keep the growth short. After heading down, the young shoots will make much larger leaves near the bottom than were produced by the first growth, and be proportionately more effective amongst large plants. Heading back may be repeated as often as requisite. Where a brisk heat is maintained, two years will generally be as long as the heads can be kept within the bounds of an ordinary stove. *C. undulata* is a handsome plant, but inferior to *C. filicifolia*.

INSECTS.—In addition to thrips and red spider, aphides, scale, and mealy bug will live on Cupanias. The least objectionable of these pests can be kept under by syringing with tepid water; for scale and bug syringe with some insecticide and sponge carefully. T. B.

SALVIAS.

AMONGST the many kinds of greenhouse plants now in cultivation few are more useful than *Salvias*, flowering, as many of them do, through the autumn and dullest months of winter. One of the earliest as well as the finest is *S. splendens* Branti, a kind which bears dense spikes of dazzling scarlet flowers from almost every shoot, and these spikes go on elongating till they reach 9 inches or more in length, when they make a grand show. Although this *Salvia* is capable of becoming so effective, it requires special treatment to have in perfection. It must not only be well and strongly grown, but must be kept in a genial atmosphere, which should not be lower than 55°; when in a less degree of heat the plants soon assume a distressed look, and commence shedding both leaves and blossoms, instead of the side shoots extending, as they do when sufficient warmth is afforded, and producing a continuous succession of flowers. To assist them in doing this, the roots should be well fed with some liquid fertiliser, the best for the purpose being that made from cow manure with a little soot added; this not only suits this *Salvia*, but all soft-wooded plants that require a stimulant. To succeed *S. splendens* Branti, *S. gesneræflora* should be grown, as this variety comes in about March, just after the beauty of the first named is over. Being of a hardier nature, *S. gesneræflora* requires less heat, and during the winter is best kept in a light, airy house, otherwise its shoots become drawn, and, as a consequence, more weak, when the heads of blooms the plants produce are small and poor to what they are when well treated.

ANOTHER *SALVIA* equally deserving is *S. Heeri*, which is perhaps the freest of any, as not only does this kind send up long, tapering spikes of flower, but all the main ones branch out and form others at their base, and the whole last a long

time in perfection. *S. Heeri* is the latest to bloom, and plants of it should be still growing; but, like the one above mentioned, they must be kept cool with plenty of air, or they will become very long in the stem. *S. rutilans* is in favour with some, but the spikes and flowers are too small, and are not sufficiently showy to be of much decorative value, although being of a different shade of colour it affords variety, and is perhaps worth growing on that account to mix with the others. *S. Bethelli* is a large, bold kind, and very distinct, sending up strong spikes of plum-shaded blooms. The richest, however, of all the *Salvias* is the lovely old *S. patens*, which is quite unrivalled among flowers for its great depth of blue. Hitherto this variety has been but little grown except as a border plant, and yet it is one of the most desirable *Salvias* anyone can have in a house, where, if the tubers are kept back late in the spring, or young stock propagated and grown on from them, it lasts in beauty till well on into the winter, as outdoors it is an autumn bloomer, and is often about its best when cut off by the frost. *S. Pitcheri* comes next to the last named in nearness of colour and intensity of blue of its flowers, which, though small, are exceedingly beautiful, and are borne by the plants with the greatest of freedom. In habit this kind is sparse and thin, showing the nature of the Sage more than any of the others, as the leaves are not only hard and of a dry texture, but the slender stems partake of the same character, and are woody and stiff. It is on this account that the cuttings are not easy to strike, neither are the plants at all free of growth, and the best way is to raise them from seed, from which they come stronger, and attain more size in the season.

ALL THE OTHERS being soft propagate freely, and by putting in cuttings at different times after March, plants of different sizes may be had for furnishing, those of about a foot high in 6-inch pots being very serviceable for inside window boxes or the low stages in front of a greenhouse. Where large specimens are required the best way is to turn the plants into the open ground about the first week in June, and lift and pot them again in the autumn; by doing this they are not half the trouble, and much finer and healthier plants may be obtained. As they are very brittle and snap to pieces when exposed to the wind, it is necessary to pick a sheltered place and to support the main stem with a stake, especially *S. splendens* Bruntii, which is the most tender of all. To facilitate the lifting and keep the roots in fair bounds, it is a good plan to run a sharp spade round the plants once or twice during the summer, which will induce fresh feeders nearer home, so that when the plants are taken up they will feel little or no check from the change. To prevent this they should be placed under the shady side of a wall for a few days, and be frequently sprinkled overhead, which will keep the leaves fresh and stop them from flagging, and the same treatment will be required for a short period after they are housed if the atmosphere proves dry at the time.

S. D.

IMPATIENS JERDONIÆ.

THOUGH very different from the common Balsam of our gardens in general appearance, this plant is botanically nearly related to it. To those who love and grow flowers for their own sakes it is frequently a matter of surprise that plants, beautiful in themselves, very distinct in character, and, as one might suppose, possessing every property to recommend them for growing generally, should too frequently, through caprice, fashion, or some unknown cause, be allowed to go almost out of cultivation. Such has been the case with the plant in question. When first introduced, if my memory serves me rightly, some twenty-five years or so ago, it quickly became a favourite, so much so, that few people possessing a stove were without it. Its compact habit and profuse disposition to flower were such at that time as to place it within the means of culture by those who had little heated glass space. Another advantage possessed by it is that it does not require great

heat, but there is one matter connected with its cultivation essential to its very existence, and that is in the winter when at rest and all but denuded of leaves it must be kept very dry at the root, and also in a comparatively dry atmosphere, as well as near the light, otherwise its succulent stems are apt to decay. The whole texture of the stem and branches of the plant is very similar as regards their fleshy character to the ordinary Balsam in general cultivation, consequently it will be seen that in

PROPAGATION the cuttings will not do to be kept too close or confined, and they must have comparatively little moisture about them. It is best propagated in the spring about the beginning of March, taking for cuttings portions of the mature preceding season's growths, as in the case of a healthy plant these branch out freely, attaining during the season a length of from 4 inches to 10 inches. The smaller size severed at the base will be found most suitable. They should be inserted singly, or two or three together round the sides of small pots well drained and half filled with a mixture consisting of equal proportions of fine peat and sand, the upper portion all sand. The sand must not be made more than very slightly damp—in that condition best described as neither wet nor dry, a state in which it must be kept until the cuttings have formed roots. As before said, they must not be subjected to close confinement in a frame or under propagating glasses, or they are almost certain to become a rotten mass. They do best on a shelf near the roof or set close to the upright front or end glass of the house or pit in a temperature of 65° at night, with a proportionate rise during the day. Thus treated, they will emit roots freely in a few weeks, the presence of which will be indicated by the points of the shoots beginning to grow. If the cultivator is anxious to get the plants on in size quickly, two or three of the newly-struck cuttings may be placed together in a 3-inch pot, or singly if deemed preferable. This Balsam succeeds best in material of a light, open nature, partaking more of the character of that in which Orchids are grown than any compost more retentive. Two parts good fibrous peat added to one of chopped Sphagnum with which is mixed a liberal sprinkling of charcoal, broken to the size of Horse Beans, and some silver sand, will answer perfectly. The pots should be one-fourth filled with crocks or charcoal for drainage, and the material ought to be pressed moderately close round the roots. The temperature may be raised as solar heat increases, but the plants never require so much warmth as many stove subjects; the heat kept up in an intermediate house suits them best. They will also do with more air than is liked by the generality of stove plants. The nearer they are kept to the glass the better, using a very thin shade in the middle of the day during bright weather. Through the season of growth they will bear watering at the root freely and will also be benefited by syringing overhead once a day, but this should be done early enough in the afternoon to allow the moisture to get dried up before night-fall. By midsummer sufficient

ROOT PROGRESS will have been made to admit of the young stock being transferred to pots an inch or two larger; or, in the case where two or three were put together and are intended to be grown so, they will bear a little more. It is naturally of a bushy habit, to still further assist which the points of the growths may be taken out, but every operation of this kind should be done with the knife, as a bruise resulting from pinching is not unlikely to cause the shoots to rot. The singular shaped yellow and pink-tinged flowers are produced so freely that in all probability some of the plants will bloom the first autumn. After the flowers are faded pick them off and dispense with shading as the sun begins to decline in power, at the same time reducing the temperature of the house; they must likewise be kept drier at the root and not syringed at all. During the growing season a shelf near the roof will be the most suitable position for them, winter-

ing in a house or pit where the night temperature is about 55°, giving very little water from the time they cease to grow. In fact, the soil through the whole season of rest should be kept, as to moisture, much in the same condition as that of the majority of Mexican Orchids during their dormant period. Towards the end of February give a little additional warmth with more moisture in the atmosphere, and as soon as growth commences more water to the soil. By the beginning of April the roots will commence to fairly extend, and pots 2 inches or 3 inches larger may be given, using soil similar in character to that advised the preceding season. The plants will now begin to grow apace, and will require two or three neat sticks each to support them; little further stopping will be needed, treating in other respects as to shade, moisture, heat, and air during the first summer. If all goes well they will now grow freely, and by the end of July or beginning of August will have their shoots fully clothed with flowers. As soon as these show themselves cease syringing, or it will sometimes have the effect of causing the advancing bloom-buds to fall off. During the

TIME OF FLOWERING they may be placed on the front stage of the stove or intermediate house, where, associated with other blooming or fine-leaved plants, they will form a very distinct feature. When the flowering is over it will be well to move them to their original quarters on a shelf near the glass, treating them during autumn and winter as before; the ensuing spring they will bear pots 2 inches or 3 inches larger, but in this it is well to be guided by the quantity and condition of the roots, as they are impatient of too much pot room. When the potting is carried out, as much of the old soil may be removed as can be got away without injuring the roots. During this summer the plants will attain a size that will enable them to produce flowers as abundantly as may be expected, however long they are grown, although with treatment such as advised they will usually last for years, but being essentially what may be termed plants of small growth, they have a better appearance, and are more useful cultivated in numbers of medium size than when grown larger; consequently it is advisable to each year propagate a sufficient quantity of young ones to take the place of those that get less shapely and not so well furnished. This *Impatiens* is an excellent subject for growing in small or medium-sized wire baskets suspended over the paths, and in no position is it seen to better advantage when in flower; but when so used, instead of being trained upright, the shoots should be tied in a horizontal position over the edge of the basket. For this purpose it is also better to use three or four of the young struck cuttings together. It is likewise better to keep them in pots, plunging these in the baskets, filling up with Sphagnum, in which a few pieces of Lycopodium are planted in the spring, which much improves the appearance of the baskets and adds to the general effect when the plants are in bloom. Their treatment in other respects when in baskets requires to be in no way different from that which is advised for pot culture. When they flower sufficiently early in the summer months before the cool autumn weather sets in, they may be put for a few weeks in a conservatory, not exposing them during the time to currents of cold air.

INSECTS.—I have never seen this *Impatiens* attacked by any of the usual stove pests, except green fly, for the destruction of which fumigate repeatedly, but not too severely. T. B.

Nerine Fothergilli.—We find this to be very useful for flowering in August. Indeed, we are rather struck with its serviceable character. Five or six bulbs in an 8-inch pot make fine specimens for placing in vases of a rather large size, and what is more they flower at a time when other bulbous plants are scarce. We treat it as an ever-green bulb; therefore it is never dried off, and no particular care is paid at any time to the amount of water which it gets; nevertheless the soil is never allowed to get at any time dust dry. When kept constantly in a greenhouse temperature it

never flowered. Now we keep it in an intermediate temperature all the winter, returning it to the greenhouse early in May, and under this treatment it flowers regularly every year.—J. C. C.

CULTURE OF COLUMNNEAS.

THESE are remarkably free-growing and equally free-flowering Gesnerads, and they continue in bloom for a long time. Plants of a scandent habit when grown with nothing to cling to or support them naturally droop, and in this respect become suitable for hanging baskets, but many that possess this form grow too long and straggling to be of use for cultivating in this way; hence it is that we have not over-many that can be made to adapt themselves to this purpose. On this account one of the Columnneas, *C. scandens*, is valuable for suspending in the stove or intermediate house, where its bright tube-shaped flowers show themselves off to the best advantage. They bloom for a considerable time during the summer and autumn.

CUTTINGS made of the points of the shoots taken off in April, put singly in small pots in sand, placed in a propagating frame in ordinary stove heat and kept moist, will strike in a short time, as they emit roots not alone from the joints, but all up the stem. After they are rooted treat them similarly to the general occupants of the stove as to warmth, water, air, and shade; the last named they do not require so much of as more delicate plants; only just what is found necessary to keep them from getting scorched. Pinch out the points of the shoots as soon as they have begun to grow, after which move them into 6-inch or 7-inch pots, which will be large enough for the first summer; in July again pinch out the points of all the shoots and repeat the operation later on in the summer if the growth made is such as to require it, the object being to keep them as bushy as may be. Reduce the heat in autumn; a temperature of about 60° will suffice through the winter. In spring, about the end of March, those that are intended for growing in baskets should have these prepared for them; they may consist of the ordinary rustic pattern, made of wood, or of iron wire. They can either be lined with Moss, and then have the plants turned out into them in the usual way, or the plants may be moved to larger pots and plunged in Moss within the baskets; in either case the baskets should be of a good size, as the plants are free growers. If to be grown in the ordinary way they will require 12-inch pots, using good turfy loam with a little sand and leaf mould, again stopping the shoots. They will need more warmth as the solar heat increases, with a plentiful supply of water when free growth sets in. The shoots should then be supported with sticks and ties; if in baskets, as a matter of course they will require to be allowed to hang down. It would not be advisable to again stop them, as this would interfere with their blooming. Treat generally as during the preceding summer.

THE FLOWERS are produced at the axils of the leaves, and have a very distinct and handsome appearance; individually they are not unlike single blooms of some of the larger Gesneras. When they have done blooming, the branches should be cut close in, after which keep them moderately warm, so as to encourage them to break into growth; winter as before. When they are inclined to start in spring, turn them out of their pots, re-

moving a considerable portion of the old soil and replacing it with new. The pots they have occupied last summer will be big enough, unless very large plants are wanted, in which case they must have more room. As soon as the soil has got well filled with roots, give manure water; this will support them without the necessity for large pots. After the second year's flowering they may be discarded, striking young stock to take their place. The family is limited to a few species, the two best of



The Ivory Palm (*Phytelphas macrocarpa*) at home.

which are *C. scandens*, which bears bright scarlet flowers, and comes from the West Indies, and *C. erythrophæa*, which has long tubed, red flowers, and is a native of Mexico.

INSECTS.—The hairy stems of these plants afford shelter for mealy bug, which will live upon them, but the texture of the stems and leaves is such as to admit of their being freely syringed with tepid water if they happen to get affected, laying them down on their sides at the time.

T. BAINES.

Hoya bella may be potted at any season of the year if it is grown in a stove temperature. It succeeds well in a compost of equal parts loam and peat with some sand added.—J. D. E.

VEGETABLE IVORY.

(*PHYTELEPHAS MACROCARPA*.)

THE accompanying view of this remarkable Palm at home on the banks of the Magdalena (Colombia) helps one to form some idea of the luxuriant growth which this and similar Palms make when placed under conditions favourable to their development. The introduction of this Palm to European gardens is due to Kew, whence Mr.

Purdie was sent as plant collector to South America. Purdie succeeded in sending home some good garden plants, as well as accomplishing good work in the interests of botany. Vegetable Ivory was known as a valuable plant product long before its introduction to this country. The nuts are used as a substitute for ivory in the making of various articles. Seeds sent by Purdie to Kew germinated and grew rapidly into large plants, which flowered in 1852 both at Kew and Schonbrunn. There is a fine specimen of it growing in the Palm house at Kew just now, which flowers freely enough, but, owing to the male flowers of this Palm being on one plant and the female flowers on another, the production of fruit is not practicable at present. The cultivation of Palms can only be successfully conducted where there is sufficient space for their full development, as, for instance, in the Palm house at Kew where one may see gigantic trees of the greatest beauty of many of those kinds which to most cultivators are known only in their juvenile state, and to whom the giants at Kew are strangers, although in their young state they may be perfectly well known. Palms generally are very accommodating plants, capable of being kept in small pots for a long time by skilful management, and thus proving of immense service for decorative purposes. Every one knows the value of such Palms as the Kentias, Livistonas, Latanias, and Coryphas in a small state, and the host of comparatively unknown kinds which are well adapted for similar purposes are now being drawn from by those who are alive to the growing taste for Palms. The requirements of the decorator, and also of the cultivator, whose space is limited, are such as to make dwarfing (if I may use such a word) of Palms indispensable if they are to be grown by them. If, however, it is convenient to allow some of them to assume something like their full dimensions, the noble appearance which they have among other forms of vegetable life is especially striking. A walk through the Palm house at Kew is always interesting, the large specimens of well-known kinds as well as rare ones there to be seen towering up high above everything else, and spreading their immense feather-like or Palm-shaped leaves in all directions, giving one some idea of the luxuriant vegetation of the Tropics. *Phytelphas macrocarpa* is there in shape

similar to that represented in the annexed figure, and with leaves over 20 feet in length. *Caryotas*, *Livistonas*, *Sabals*, *Phonices*, *Seaforthia elegans*, *Thrinax*, and *Veitchia canterburyana* are especially noticeable for their gigantic proportions and fine condition.

B.

Salvia Pitcheri.—Flowering sprays of this lovely blue greenhouse *Salvia* were sent to us the other day by Mr. Bedford, gardener at Straffan, and now he kindly sends, for the benefit of our readers, the following account of the way in which plants of it are managed: "After they go out of flower," says Mr. Bedford, "they are stored away in a frame out of the reach of frost, where

they remain till the beginning of March. They are then shaken out and divided, and potted according to size in a compost consisting of two-thirds good sound loam and one-third decomposed farmyard manure, with enough coarse river sand to keep the whole porous. They are then replaced in the frame, allowed to grow as steadily as possible, and potted on as required. In the end of May they are set out on a gravel walk exposed to all weathers until the end of September, when they begin to push up their flower-spikes and are removed to a cool greenhouse, in which they flower. Artificial heat is fatal to them. They may be increased by cuttings put in in spring, but they are of little use until the second year."

BELLADONNA LILIES IN POTS.

THE account given of this grand old Lily at Gunnersbury Park (p. 334) forcibly reminds me of my first acquaintance with it at Bicton some thirty-five years ago. It was then, and probably still is, planted in borders hundreds of feet in length in front of the plant and fruit houses, and it never failed to produce thousands of flower-spikes every year. On these Lilies no culture was bestowed, nor could it be, as some of the borders were not more than a foot or 15 inches wide, and literally crammed with bulbs, which were never disturbed, beyond the surface soil being slightly loosened each year, when their matured foliage was removed. About fifteen years ago I planted in the gardens here some Belladonnas in borders similar to those referred to at Bicton, and I have never had, nor do I expect to have, a bloom from them, our northern climate not being suitable for them. After several years' disappointment, I resorted to pot culture, which has been a great success and far exceeded my expectations both as to the quantity of flowers which they every year produce, and as to the value of the blooms when cut. In the conservatory, too, they look well associated with the usual conservatory autumn-flowering plants. When grown in a conservatory the flowers are exquisitely delicate in colour, and their fragrance is more appreciated than that of any other plant at present in bloom. My mode of culture is simple, and does not entail much labour. The bulbs which I used were imported ones with flower-spikes 2 inches or 3 inches long. Such bulbs should be avoided if possible, the best results being obtained when both root and flower start together. The pots were 4-inch, 5-inch, and 6-inch ones, according to the size of the bulbs. The soil was fibry loam. They were kept in a cold pit until winter and severe spring frosts were over; then they were plunged in ashes fully exposed to the sun. In autumn, when the foliage is quite matured, it should be removed and the pots drawn out of the ashes and laid on their sides on the ashes as before. This latter operation, viz., laying the pots on their sides, I find to be most important, as it properly matures the bulbs and gives them a period of absolute rest. In September they should be removed to a dry, warm pit or house and given no water until the flower-spikes are 2 inches long. Then, with a little water and a more humid atmosphere, they grow and strengthen rapidly. One great advantage is they do not, under pot culture, show flowers all at the same time. I have a third of my bulbs with their flower-spikes only a few inches long, so that I get a succession of blooms extending over two months. I could not say how often they should be potted. Those I have were potted three years, and I have not had them so strong as this year; some of the bulbs bear two spikes, and some of the spikes have eight flowers on them. I am of opinion that the less Lily roots of any kind are disturbed the better. They should never be shaken out except for reasons unavoidable. RD. WESTCOTT.

Raby, Darlington.

Schizanthus pinnatus.—Those who grow this for flowering in pots in spring should put it into the pots in which it is to flower some time in November; 7-inch pots are large enough to pro-

duce specimens from 2 feet to 3 feet high. It is best to pot a few more than the quantity wanted, and in March select those with the dwarfest and most compact habit. If kept in a light, airy house where fire-heat is only used to keep out frost they will make better plants than those grown in a warmer temperature.—J. C. C.

The Zanzibar Balsam (*Impatiens Sultani*).—This is one of the brightest and most floriferous plants that can be grown; indeed, it is rarely, if ever, out of bloom, and as it is so easy to cultivate, and may be so readily propagated and increased, it is likely to become very popular for the embellishment of greenhouses and indoor window boxes during summer, and for cool stoves or warm rooms in winter. Where quantities are required, the best way is to sow seeds in spring, which the plants bear freely, and which if sown on the surface of finely-sifted soil in a pan or pot and placed in moist heat after being covered with a sheet of glass, soon come up. When the seedlings are large enough to handle, they may at once be pricked off, after which they should be kept close for a few days to give them a start, when it will be necessary to place them near the glass in order to keep them dwarf and bushy. If propagated from cuttings, they may be taken off almost at any time, but being of a somewhat succulent character, they must not be kept in very moist, heat or they will quickly damp and rot off. If placed on a shady shelf they root in a few days and soon make fresh growth. Like the ordinary Balsam, *Impatiens Sultani* is fond of rich light soil, and as the plants also require plenty of water, sand should be added to keep it open and porous. With good feeding by giving liberal supplies of liquid manure, it is not requisite to use larger than 6-inch pots to produce fine specimens, and plants of this *Impatiens* flower all the more freely by being a little pinched at the roots.—S. D.

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 438.)

LASTREA PATENS.—An extremely ornamental species found extending a large range, but most plentiful, over in North America, where it is abundant in Florida, South Carolina, Texas, and near the Gulf of Mexico. The fronds vary much in size, according to their habitat from whence they come, but the largest of the North American species are seldom over 2 feet in length by 10 inches wide; they are borne on roundish pale green stalks, which also vary much in size, from a few inches to sometimes 2 feet in length, as in some of the specimens from Tropical America. These stalks emerge from a creeping root-stock a few inches long, slender, and moderately chaffy, with small, lanceolate, brown ciliated scales, which are also found at the base of the stalks. The texture of the fronds, which are pinnate, is thin, and both surfaces are pubescent with fine white, sharp-pointed hairs. In fronds of large dimensions it is not rare to find twenty-two to twenty-five pairs of pinnæ, besides the long, pinnatifid apex. Although the shorter pinnæ are rather deflexed, they are about the same length as the others—about 6 inches in length, narrowly linear, and slightly acuminate, rarely more than half an inch wide at the base; they are, besides, incised more than half way to the mid-rib into very numerous, obliquely oblong, acute, and often curved segments. It is of a very pleasing pale green colour, and very graceful in outline. There exists at Chiswick a variety which originated in the gardens of the Horticultural Society, which by far surpasses in elegance any of the other kinds in commerce. Greenhouse.

L. PATENTISSIMA (*Aspidium paleaceum*).—A very robust-growing kind, producing from a short stout, erect caudex a quantity of handsome fronds of large dimensions, often measuring 3 feet in length by 15 inches in breadth, and borne on

strong short stalks which, like the caudex itself, are densely paleaceous with the broad lanceolate scales of a tawny or golden colour which thickly cover them. These large and ornamental fronds are pinnate with pinnæ patent, deeply pinnatifid and segments very closely set, oblong in shape and more or less sharply toothed towards their extremity, while their margins are copiously ciliated. This plant, although by some author, considered only as a variety of *L. Filix-mas*, comes from Ceylon and requires stove temperature.

L. PROLIFICA.—This, one of the most interesting of the numerous recent Japanese introductions, is a species of comparatively small dimensions. The fronds, which are of a leathery texture, of a shining dark green colour, and triangular in outline, are borne on wiry, green stalks from 6 inches to 9 inches long; they are tripinnate with pinnæ numerous and set far apart, giving the plant an elegant appearance, and seldom exceeding 12 inches in length. They rise from a succulent and decumbent crown which shows very little above the ground. A very remarkable peculiarity of this strange species is that it is the only one of the genus which produces numberless leafy buds either in the axil of the divisions of the fronds or less frequently on the margins of the limb, or even in the centre of the sorus, which in its young stage is of a beautiful red, turning later on to a deep purple colour, as in *L. erythrosora*, to which it seems closely related. The abundance of the sori is also very characteristic, as all the segments are covered with them from top to bottom. It is undoubtedly a most distinct species, deserving a place in every good collection, where, on account of its peculiarities more than for its elegance, it will always prove very attractive. Greenhouse.

L. RECEDENS.—A species native of Southern India, and very rare in cultivation, although a most elegant and thoroughly distinct habited kind, with firm, membranaceous fronds of about 15 inches in length, deltoid in shape, equally broad at the base, more or less pubescent underneath, although nearly quite glabrous above. These fronds, of a somewhat rigid habit, are borne on slender stalks about 4 inches long, which, like the short, thick, ascending rhizome from which they are produced, are paleaceous with subulate ferrugineous scales. They are principally very scaly at the base, and bi or tripinnate, with oblong, acuminate, petiolate pinnæ from 4 inches to 6 inches long, the basal ones being much larger than the others, and generally measuring 2½ inches in breadth. They are very acutely, almost pungently, serrate or pinnatifid, giving the plant a totally distinct appearance. Stove.

L. RICHARDSI MULTIFIDA (*Aspidium Germinyi*).—This is no doubt one of the handsomest of all known Ferns, although it has sprung from a typical form, native of New Caledonia, and which, probably on account of its weedy appearance, has never been much in cultivation. In this exceedingly ornamental variety the fronds differ from those of the typical plant in having their extremities as well as those of the pinnæ multifidly cut into numerous, narrow-pointed, spreading, finger-like lobes. Its fronds which are produced in great abundance from a short, succulent, decumbent caudex, measure about 3 feet in height by about 8 inches in breadth at their widest part; they are borne on round stalks of a pale shining green colour, and from 10 inches to 15 inches long. The pinnæ, which are upwards of 4 inches in length in their broadest part, terminate in a densely fingered tuft of about fifty long, narrow, acute divisions, the extremity of the fronds being also divided into two or more branches consisting of about sixty of these small thread-like segments. The singularly elegant character of this useful plant is produced by the happy combination of its bright green colour, of the arching habit of the fronds, their small pinnules and their bold crested extremities adorned with numerous narrow divisions, all qualities which tend to mark it out as a very ornamental and useful Fern for indoor decoration. Greenhouse.

L. SANCTA.—A charming little species of dwarf dimensions and a native of Jamaica. Its habitat is very peculiar, as its growth is rosulate, that is to say, its numerous dark shining green fronds, which seldom exceed 10 inches in length, are produced from a short, slender, and somewhat upright caudex, and disposed in the form of a crown; they are bipinnate, with the pinnules very small, lanceolate-acute, and densely covered with sori. It is a little gem which, although well adapted for growing in a Fern case, has a great dislike to being watered overhead. Greenhouse.

L. SCABROSA (*Polypodium nigrocarpum*).—This Southern Indian species has a very distinct and pleasing appearance, as its membranaceous, semi-transparent fronds, ovate-acuminate in shape, are borne on robust sub-oblique stalks, 18 inches to 24 inches long, densely paleaceous towards the base, and scabrous above. These very handsome and ornamental fronds are tripinnate below, bipinnate above, and only pinnatifid at their extremity, with alternate pinnæ deltoid-ovate, and from 8 inches to 10 inches long. The pinnules, which are shortly petiolate in the inferior pinnæ, are sessile in the superior ones; they are obtuse at the apex, and more or less pinnatifid, with segments obtuse also; the stalks and rachises are covered with weak, whitish hairs on both sides. Stove.

L. SAGENIODES (*Phegopteris obscura*).—A very handsome species from the Philippine Islands, with submembranaceous fronds from 12 inches to 18 inches long by 8 inches to 10 inches wide, ovate-acuminate in shape and pinnate, with pinnæ rather wide apart and nearly horizontally set, 4 inches to 5 inches long by about 1 inch wide, oblong-lanceolate, and somewhat contracted in the lower portion of the sterile fronds, whereas in the fertile fronds they are uniformly and deeply pinnatifid to the rachis. The whole plant is of a pleasing glossy dark green. Stove.

L. SETOSA.—A very delicate and beautiful species from Moulmein, nearly allied to *L. scabrosa* and recedes, from both of which, however, it is readily distinguished by its elegantly tufted fronds, sometimes measuring 3 feet in length, borne on robust stalks about 1 foot long, and sparsely covered with small flaccid scales, light brown in colour, and subulate in shape. These fronds, which have a very graceful habit, are tripinnate, with pinnæ from 8 inches to 10 inches long. The lowest pair of them are nearly as long as the central ones, but they gradually decrease in size towards the summit of the frond. The pinnules, which are closely set, although pinnatifid nearly to the rachis, are always more or less connected by a narrow, membranaceous and flaccid wing, furnished on both sides with long, weak, pellucid scales. The segments of the pinnules are of about the same breadth at their base throughout the length of the frond and more or less pinnatifid, giving the whole plant a comparatively light and feathery appearance. Greenhouse.

L. SIEBOLDI.—This thoroughly distinct Japanese species, which has for a long time been known under the name of *Pycnopteris Sieboldi*, possesses very little of the appearance of a *Lastrea*. From a very succulent and decumbent caudex the fronds, highly ornamental, are somewhat sparingly produced; they attain the height of 2 feet, and are borne on roundish light green stalks, whose base as well as the whole of the crown is thickly covered with broad, subulate, chaffy scales of a light brown colour. These fronds are pinnate and seldom possessed of more than three pairs of pinnæ from 6 inches to 8 inches long by 1 inch broad, perfectly entire, with edges quite smooth. The whole plant is of a very pleasing light and somewhat glaucous green, made more conspicuous still by the contrast of the bold, copious dark brown sori which nearly cover the whole under surface. It is a kind which suffers very much by being wetted overhead. Greenhouse.

L. SPARSA (*Nephrodium purpurascens*).—A noble habited and distinct Fern from Ceylon and Java, with short, erect, stout caudex, covered above with copious ovate-acuminate, chaffy scales.

Its fronds, subcoriaceous and ovate-acuminate in shape, grow to about 2 feet in length, and are borne on stout stalks from 12 inches to 18 inches high; they are bipinnate, with primary pinnæ 5 inches to 6 inches long, set rather far apart and much petiolate; the secondary ones are ovate, obtuse petiolate, whereas those above the middle of the frond are rhomboid-cuneate, and all more or less pinnatifid at the base, especially in the lower half of the frond, where the lobes are entire and rounded; the pinnules are broad, lobed, and dark green in colour, and the base of the fronds is covered with chaffy scales of the same colour as those with which the caudex is completely and effectually clothed. Stove.

L. SPLENDENS.—This is a widely distributed species, being found alike in the Himalayas and in the Malay Islands. It is a strong grower, whose ample, coriaceous, broad, lanceolate-acuminate, bipinnate fronds often attain 4 feet high, and are, besides, borne on stalks from 12 inches to 18 inches long, with their bases more or less clothed with closely set deciduous scales of a dark chestnut brown or sometimes ebony-black colour. The primary pinnæ, subpetiolate, oblong, finely acuminate, and pinnatifid at their very extremity, are from 6 inches to 12 inches long by nearly 2 inches in width; these are sessile, acute, and generally broader at their base, with lobes obtuse, short, entire, or dentate. There exists also a variety, angustifrons, which is very rare in cultivation, and which only differs from the species in being of smaller dimensions throughout, and in having the stalks black or deep brown and the fronds copiously tripinnate, with pinnæ more closely set. Greenhouse.

L. STANDISHI (*Aspidium concavum*).—A very fine Japanese species of robust growth and beautiful habit. Its very handsome tripinnate fronds, which measure sometimes 3 feet by 18 inches broad at their widest part, are produced from a thick, fleshy, and roughly scaled decumbent caudex, creeping on the surface of the ground. The pinnæ, lanceolate in shape, are in their turn pinnatifid, and the pinnules, acute, sharp-pointed, are, like the pinnæ themselves, set closely and very numerous giving the plant a very plumose, massive, and beautiful appearance. Besides there is nothing rigid or coarse about the foliage, although being that of a strong grower; on the contrary, the fronds have a most elegant arching habit, and being of a pleasing light green colour, it is not surprising to find that this Fern is a general favourite wherever an attempt is made at securing first-rate Ferns for the decoration of the greenhouse.

L. STRIGOSA.—A beautiful evergreen species from the Mauritius, but at present somewhat rare in collections. Its handsome fronds, which are of a light green colour, vary from 10 inches to 15 inches in length, and are about 4 inches wide, pinnate, with pinnæ divided nearly to the rachis, and about 2 inches long. They are borne on comparatively stout, round stalks, densely clothed with long black hairs, which are longest near the crown of the plant. It is, indeed, a most ornamental species, and one which will not bear any water overhead, as the slightest amount of permanent moisture on its delicate fronds causes them to become dark brown in colour, and decay in a very short time. Stove.

L. SYRMATICA (*Aspidium spectabile*).—A robust-growing kind from Southern India, of very distinct appearance, chiefly on account of its having firm, membranaceous fronds, from 2 feet to 3 feet long and about 18 inches broad, being broad-oblong or ovate-acuminate in shape, pinnate, with pinnæ patent and nearly 2 inches broad, oblong-acuminate, and deeply pinnatifid. Their segments, oblong and rather obtuse, are subfalcate and rather sharply serrated. These light-looking fronds are produced from a fleshy, erect caudex, and borne on stalks about 1 foot high, clothed as well as the crown itself with long brown ovate-acuminate scales. Stove.

L. THWAITESII.—A very pretty species from Ceylon, nearly allied to *L. deparioides*, of which

it may possibly be only a form, but if so of most distinct habit, as the lanceolate or triangular fronds, which are borne on short stalks very scaly at their base, rise from a fleshy, stout crown, hardly showing above ground. They seldom measure more than 2 feet high, stalks included, and are pinnate, with lanceolate-acuminate pinnæ, and pinnules lanceolate, crenato-lobate, and whose lobes are sparingly denticulate. The whole plant is slightly pubescent. Greenhouse.

L. THELYPTERIS.—A thoroughly cosmopolitan species, as it is found in both hemispheres in quantities—in North America, Florida, Louisiana, New Brunswick, in South Africa, New Zealand, Southern India, and many parts of Europe. It has even been found in boggy meadows and marshes, especially where the soil is gravelly, near Settle, in Yorkshire, at Allesley, in Warwickshire, in a bog on Waterdown Forest, near Tunbridge Wells; in Wales in a moist dell at the foot of Snowdon, near Llanberis, and at Beaumaris, in Anglesea; it also occurs in Ireland on the marshes at Glencree, in Wicklow, and at Nevercuss, Killarney, but in all those places the plant, although indigenous, remains quite a local subject. The fronds, which rise from a very slender, creeping rootstock, nearly black and almost devoid of chaffy scales, keeping just beneath the surface of the ground, are borne on long, slender, naked stalks, scattered at long intervals along the root-stock; they vary in length from a few inches to nearly 2 feet, but are commonly of about 15 inches high by 4 inches or 5 inches wide. They are pinnate, with about twenty-five to thirty pinnæ on each side, sometimes regularly arranged in pairs to the apex, but frequently also more or less alternate. The lower two or three pairs are usually a little shorter than those above them, for fronds are occasionally found in which they are conspicuously reduced. The texture of the fronds is very thin and membranaceous; the pinnæ are lanceolate and usually broadest at the base, where they join the rachis by a short, but evident petiole; the segments are ovate-oblong, with mostly entire edges and a rounded apex, which often in fertile fronds becomes acute on account of the frequently revolute margins of the segments; the lower ones are pinnately toothed or lobed. The plant is of a delightful light green, and although its surface appears smooth, careful examination shows a slight pubescence along the midribs and veins, especially under the surface. Greenhouse.

L. UNDULATA.—This is a very elegant and most distinct species from Ceylon, somewhat resembling in general appearance that most peculiar looking Fern, *Adiantum Feei*, as the fronds possess a zig-zagged outline, produced by the flexuose habit of the rachis, which is also covered with numerous short light brown scales, as well as the roundish stalks on which its extremely curious fronds, deltoid in shape, are borne. These are tripinnate, with pinnæ alternate and deflexed, deltoid-lanceolate, and whose rachis is also very flexuose and paleaceous; the inferior pinnæ are larger than the others; the pinnules, rhomboid-oblong in form, are more or less decurrent and dentate, the lower ones being lobed and even sometimes pinnatifid. The whole plant, besides being essentially curious, is also rendered very attractive by its very bright green colour. Stove.

L. VARIA.—A beautiful and exceedingly useful Japanese species, or perhaps merely a form of the more common and better known *L. opaca*, which it resembles in general outline. Like this kind, it is a robust species, whose handsome fronds often attain 20 inches to 24 inches in height. They are triangular in shape, and borne on robust round stalks, sparingly covered with black scaly hairs. The base of these triangular fronds sometimes measures from 12 inches to 18 inches across; they are of a most peculiar, very dark green colour, with a velvety hue when mature, and of a most lovely copper colour in their young state. As in *L. opaca*, the sori are black and very prominent. Greenhouse.

L. VESTITA.—This is a very fine evergreen Brazilian species, which is not grown so extensively as it deserves to be. It has a very striking appear-

ance produced by the long cinnamon-coloured hairs, which form a dense covering throughout the entire length of the stalks and rachis of its very decorative fronds. The latter are broadly lanceolate in shape and of good texture. These grow to about 30 inches high, and are bipinnatifid, with pinnae over 6 inches long, and whose segments, rather obtuse, are divided nearly to the rachis. It is a most effective plant for the greenhouse.

L. VILLOSA.—A West Indian species of evergreen habit and truly majestic appearance, which in proportions equal many of the arborescent kinds. Its beautifully arching fronds, of a dark green colour, grow to about 6 feet long and measure in their widest part nearly 3 feet in breadth; they are tripinnate, with pinnae almost 2 feet long and villose; the pinnules themselves, which are deeply pinnatifid, measure nearly 6 inches long. The stalks, which are very stout, are completely hidden by a dense covering of large scales of a very chaffy nature and dark brown colour, giving the whole plant a most interesting and distinct aspect. Stove.

L. WALKERÆ.—A very handsome species from Ceylon, which produces an abundance of ample coriaceous, somewhat rigid fronds oblong-lanceolate in shape and often reaching 30 inches high by about 10 inches broad; they are borne on stout, hard stalks nearly 18 inches high, whose base is rendered densely paleaceous by the ovate-acuminate glossy scales of a pale brown colour with which they are covered, in conjunction with a smaller quantity of more slender linear setaceous ones, which, in fact, are found all the way up the rachis. These fronds are pinnate, with pinnae nearly entire in the normal form, but sometimes more or less pinnatifid, as it is a most variable species as in the variety *macrocarpum*, or even pinnate with the pinnules deeply pinnatifid, as in the variety *pinnatifidum*, where the pinnae, often furnished with a large auricle at the superior base, are pinnatifid almost to the rachis. The whole plant is covered more or less densely with setaceous scales, which produce a very striking and pleasing appearance. Stove. **PELLÆA.**

GARDEN DESTROYERS.

DESTROYING INSECTS.

THIS is best done in the case of evergreens when the leaves are hard and matured, and the buds less forward than they will be later on. During such conditions much stronger applications of insecticide can be used than when the leaves are soft and growing. Mealy bug on Vines should be attacked as soon as the leaves are off—the sooner after that the better, as the buds being quite dormant there is no danger of injuring them in the way that would be likely to happen further on when they have moved ever so little. The same holds good with Peaches; many a case has occurred where the ensuing season's crop of this fruit has been destroyed, or injured, by dressing the trees with some or other of the mixtures used; whereas if the work had been done as soon as the leaves were off no mischief would have ensued. Mr. Clayton's details of what he has accomplished by the use of the coal tar mixture on Vines suffering from mealy bug go to confirm that which has been effected by others who have adopted this remedy. In some cases with which I am acquainted where the mixture has been tried the bugs have not been completely destroyed; nor is this to be wondered at when one considers the difficulty of getting at them when they have got possession of the wood and brickwork, to say nothing about the difference in thoroughly or imperfectly applying the dressing. The same thing sometimes happens in the case of using paraffin and water. Some who have tried this mixture never seem to have realised the powerful character of the oil, the persistent way in which it floats on the surface of the water, unless forcibly and continually kept stirred whilst being used, preventing it from taking effect. Then, in

addition to mistakes in this way, some who have used paraffin have acted on the principle that if a weak application was good, a stronger must be better, and have used too much of the oil, and so injured their plants. Here, for example, is a case of this kind. An acquaintance of mine, who grows probably four times as many Gardenias as anyone else, dressed his plants with the oil when it was first recommended. The application was incautiously carried out, and the plants were injured so that he has been since deterred from trying it, although scores of other growers use the mixture continually with perfect success, thereby saving labour to an extent that few can understand unless they have had the intolerable pest to deal with in a large collection of plants. Beyond the saving of labour, too, there is an equally important gain in the condition of the plants when the insect is destroyed outright, or even kept down, the state of the foliage and the flowers produced being vastly better than is possible where continuous sponging and brushing have to be practised. So it is with

VINES AFFECTED WITH BUG; to have the fruit in a condition at all presentable, cleaning by hand is resorted to, and the appearance of the fruit is spoiled. What gardeners have now to contend with in the shape of insects on flowering and foliage plants, and equally so on fruits grown under glass, is a very different affair from what it was within my recollection, not alone as regards the quantities of plants and fruits so grown at the present day, but owing to the fact that go where one will, and, however much glass there happens to be, so much is required that, with the exception of very few places, the houses appropriated to fruit growing are more or less occupied with plants at some time in the year, so as to make it impossible to keep whatever insects the plants are affected with from getting on the Vines, or other fruits thus brought in contact with them. The result of this is that the work of keeping down the various pests is such that there is seldom labour enough to cope with it successfully. As a means of greatly reducing the work in keeping down

BUG AND SCALE, the worst pests that effect plants grown under glass, paraffin has turned out an immense boon, as with it an intelligent hand will do more in an hour than could be effected in a day by sponging and brushing. But in using it, its powerful nature should never be forgotten. It must not be applied too strong, or without the precaution of keeping it continually stirred. The crudest least pure oil, being heavier and less inclined to float on the water than the best is preferable. In most cases a wineglassful to a gallon of water will be found strong enough to kill any of the insects that affect plants. To free woodwork from bug it should be used without any mixture of water, brushing the whole over, ironwork included, similar to painting, giving it two coats and getting it well into every crack, which should afterwards be stopped with putty, and the whole well painted. If the work is done as it should and can be, there will be neither insects nor eggs left, and if in addition Mr. Clayton's plan is followed of lime-washing the brickwork with a plentiful addition of paraffin to the lime-wash, and the joints, crevices, and other harbouring places stopped, I should have little doubts about a perfect riddance being effected. With Vines or Peaches I should hesitate before applying paraffin, although it has been used by some without any mischief resulting, but in many more cases it has done serious harm, very different from that which follows from the

TAR AND CLAY PAINT where reasonable care is used; the tar, although destructive to plant life if employed too strong, being thick is not so penetrating, consequently it does not soak in so as to reach the living inner bark in the way paraffin does. If the senseless practice of scraping the outer bark off Vines, still sometimes practised, is followed until the green inner covering is visible, even a less potent material than the tar mixture would do harm; in such case a moderate dressing of the ordinary clay paint with sulphur in it, and

without which some think they would not get a crop, will do injury. **T. B.**

QUESTIONS.

5090.—Oiled calico.—Where is this to be had? and is it the best material to keep out rain and wind from an aperture which it is not convenient to cover with glass or boards?—**W. S. F.**

5091.—Dendrobies not flowering.—How can I stop the flower-spikes of *Dendrobium formosum* from going off? They shrivel up and die away when about three-quarters of an inch long. The plants are in a stove amongst other plants and in good health.—**P. J.**

5092.—Bananas.—Will some of your correspondents kindly give me information regarding the treatment of Bananas? Can they be grown along with Vines, and what height do they usually attain when fully developed? also, where can they be purchased?—**W. M., Guernsey.**

5093.—Chirita sinensis variegata.—Will some of your readers kindly state if this requires any special treatment? It has been treated like *Genesras*, and has been in a stove for twelve months without moving. It had two small leaves when I got it, and it has not pushed more since.—**J. G. H.**

5094.—Rose leaf-eating insects.—I have some standard Roses which have had their foliage completely skeletonised by some leaf-eating pest; there is nothing left but the midrib of the leaf. I have hunted again and again for the offender, but can find nothing. Will some one tell me what the grub is likely to be and how to prevent its ravages?—**J. H. M.**

5095.—Eucharis candida.—If any of the correspondents of THE GARDEN have succeeded in flowering this plant I should feel greatly obliged if they would kindly give their experience in regard to it. I have had a good potful of it for over four years, and have never succeeded in getting a flower upon it yet, while *E. amazonica* grows and flowers most freely with us in a warm greenhouse under ordinary treatment.—**SANGUINEA.**

5096.—Melons.—Are not "H. G. B.'s" Melons infested with red spider? If so, I would advise him to give them a few good syringings with soapy water, wetting well the underside of the foliage. This should be done in the afternoon when the sun has lost its power; afterwards a few syringings with clean soft water would cleanse the fruit. If not red spider, and the foliage is close to the glass, it may be scalded by not giving air early enough, but I am inclined to think that spider is the cause of the mischief.—**E. K.**

5097.—Oncidium Phalaenopsis.—Is this plant in cultivation? In turning over some plates of *Oncidium* I was struck with its extraordinary beauty, and would like to possess it if at all procurable. The flowers are white, about half the size of those of *Odontoglossum Roezli*, which they resemble in shape, and they are thickly blotched and spotted with maroon. Although bearing the name *Oncidium*, the column and lip of the plant as here represented would suggest *Odontoglossum* rather than *Oncidium* as the genus. It is not, however, *Odontoglossum Phalaenopsis*.—**K.**

5098.—Wireworms.—What are the best means to adopt in order to get rid of what I take to be wireworms, only they are a dark brown, and I understand that wireworms were yellow? They caused sad destruction to almost all vegetables, but especially to Brussels Sprouts, Broccoli, Cabbage; of Beans and Peas they eat the seed—in fact, almost everything that I plant. They attack the plants near the roots, and if any of the latter survive they are covered all round with knobs. These worms also eat Strawberries, scores of them being found in a fruit. They are about an inch long and the thickness of a small needle. I have at various times given the land a good dressing of lime, gas lime, salt, and soot, but still it swarms with them. It has been garden ground for about twenty years. If any of your readers could advise me in any way as to how to mend matters they would be doing me a favour.—**F. H., Leeds.**

5099.—Winter bedding plants.—I have an oval bed 10 feet by 4 feet, rising slightly towards the centre, in which is a Yucca; border, Box. What will look best in concentric bands? The plants must be inexpensive and easily cultivated, quite hardy, and evergreen. I am not anxious to have flowering plants, but propose to leave a band next but one to the border for planting with suitable spring and summer flowering bedders alternately. Soil rather stiff; aspect south east, open, and exposed to east and south-west winds. Should not mind Conifers or evergreen shrubs to group in the centre around the Yucca. The bands should, of course, contrast somewhat in colour, e.g., silver, green, gold, &c. Nothing which would present a shabby and ragged appearance during any part of the year (except, perhaps, in the worst part of winter) would be acceptable. At present I have a band of Golden Feather round the edge of the bed.—**SEMPERVIRENS.**

****** Our readers will greatly oblige by replying so far as their knowledge and observation permit to these questions. The title and number of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

5081.—**Conservatory boiler.**—To heat a house 40 feet by 16 feet of ordinary height, I should recommend a small cast-iron saddle 24 inches long. A boiler of this size if well set will be quite big enough to keep up all the heat required, even if wanted warmer than needful for such plants as are usually located in a conservatory. But with this, as with all small boilers set in brickwork, care should be taken to make the furnace big enough to hold a good body of fuel; without this too frequent attention is required. With enough room it may be left even in severe frost for nine or ten hours without the temperature getting too low. Two rows of 4-inch pipes round the house will be requisite for such a house as this. I give the preference to a cast-iron boiler rather than wrought iron, as it will last double the time wrought iron will. Except for a very small house, I much prefer a boiler set in brickwork to one of the independent make, being more certain in its action and costing less in fuel; with a good draught, anything in the shape of refuse house cinders can be burnt. But for a small house, such as so many amateurs now have, and where often there is no place that a stove-hole can be conveniently put, an independent boiler will answer very well. The great fault that most of this make have hitherto had is that they are in a great measure made of wrought iron that burns away quickly. But one on the independent principle made of cast iron, called the horse-shoe boiler, was exhibited in May last at the Royal Horticultural Society's show at South Kensington by Messrs. Kinnell & Co., to which a first prize was awarded; this boiler is not open to the objection attached to wrought iron, and seems in every way calculated to answer. It can either be fixed altogether without brickwork, or else, what is still better, 4 inches into the brickwork of the house, say at one end—as a matter of course feeding it from the outside.—T. BAINES.

KITCHEN GARDEN.

HEAVY CROP OF JERUSALEM ARTICHOKE.

I HAVE just dug up a crop of these, and the result is 246 bushels (a bushel weighing 50 lbs.) of fine tubers from sixty-three poles, or something like thirteen tons per acre. They are used chiefly for soup, several bushels per week being required for this purpose in this institution. The ground from which this crop was obtained is naturally of the poorest description, lying low and wet. Some twenty years ago it was enclosed and drained (I mention this to show what may be done with such poor soils under fair cultivation). It is to be regretted that this root is not more used than it is, as there is very little difference between its nutritive properties and those of the Potato; and while not more than eight tons of Potatoes per acre could be expected from such land (to say nothing of disease, which would be sure to make sad havoc in such a low-lying situation), thirteen tons of Artichokes of fine quality without any disease were obtained. The cultivation has been of the simplest description. The ground was trenched about 2 feet deep for Parsnips in the winter of 1882; a few fine coal ashes were scattered on the surface after trenching, and the seed was sown in the ordinary way in the spring; a good crop of Parsnips was obtained, and the ground allowed to lie till the spring. At the end of March the Artichokes were planted in rows 3 feet apart, 18 inches being left between the sets. No manure was given, and all the attention which they received between planting and lifting, consisted in running the hoe through them two or three times after they appeared above the ground. My practice is to change the ground every year for this crop, as I would for any other. After cutting off the stems (previous to lifting the roots), I have them taken to the Rhubarb quarter and laid in ridges between the rows to keep the frost out of the ground in the winter, and to act as a mulch in the spring and summer. Between these ridges of Artichoke tops I lay the Asparagus haulm over the crowns of the Rhubarb, and I find that so treated

it comes cleaner and earlier than it otherwise would do, owing to the shelter afforded; while, too, rows not so treated suffer from dry weather, those mulched go on flourishing and the stalks keep crisp and tender.

R. LLOYD.
Brookwood.

KITCHEN GARDEN NOTES.

Summerhill Lettuce.—Apart from this being an excellent summer Cabbage Lettuce, I find it to be one of the best for keeping up a supply in autumn, and even until near Christmas. At the present time we have plantations of All the Year Round, Hardy Hammersmith, and others, but not one of them has produced such fine crisp heads as the Summerhill. It is not now so large as in summer, but its fine heads are very acceptable.

Tomato cuttings.—Where Tomatoes are desired very early in the spring there is no better way of securing them than rooting cuttings in the autumn and growing the young plants on throughout the winter, but unless where special means exist to keep them growing with the object of having them in bloom soon, and this cannot be done without a great deal of heat and light, it is best to keep them quiet and merely treat them as stock planted until the turn of the year. They may be kept in any place where bedding Pelargoniums will succeed, and they should be kept dwarf by means of pinching, and robust by being fully exposed to the light, until they can be fairly set agoing for blooming and fruiting, and this is much more easily accomplished after the new year than at present.

Tomato fruits.—Of these we have many bundles cut from plants on open walls about the end of September. They are hung up on the roof of the potting shed, and we find them ripen better there than in the glasshouses. A humid atmosphere soon causes them to decay, and that, too, very often before they ripen, hence the reason of a dry shed suiting them so well.

Mushrooms in sheds.—These are a great success, and the more experience we gain of this mode of culture the better do we like it. Several beds made up in the early part of October in flower-pot bins in the potting shed are covered with Mushrooms. The beds measure about 4 feet square, and on that space we have counted 200 Mushrooms of various sizes. So long as cold draughts can be shut out from them they do admirably. In calling on a neighbour the other day I was pleased to find a fine crop of Mushrooms on a bed in a cowshed; these and other instances go to prove that Mushrooms may be grown wherever horse droppings and the shelter of a shed can be had.

Autumn Peas.—November is the proper month in which to sow autumn Peas, and all seed should be got into the ground as soon as possible. Under favourable circumstances seed sown now will produce plants which will bear pods some weeks sooner in the spring than any which can be put in after the new year. Autumn sown Peas will bear a great deal of frost and snow without being injured, but wind is very much against them, and it is that which must be guarded against as much as possible. Only a sheltered spot should be selected for sowing in, and the soil cannot be too deeply dug or well manured. William I. is still a good Pea to sow generally at this time, and the rows should never be closer together than the height to which the stems grow. If the kind sown attains a height of 6 feet, put the rows in that distance apart, and the dwarf ones, which only grow 1 foot or 18 inches high, may, as a rule, be grown as close as that together.

Forcing Asparagus.—Our first forced Asparagus was cut on November 1, and, much as this delicious vegetable is valued during the spring months, it is doubly so now. When the roots are placed widely apart and thoroughly matured they force as readily now as during any of the spring months, and the produce is equally strong and

plentiful, while the flavour gives the utmost satisfaction. A bottom heat of 75° and a top heat of 65° or thereabouts are necessary for its production, and we like to have it near the glass in order that it may have the full benefit of light and air. Our favourite forcing place is a Cucumber pit heated with a flue. In lifting the fleshy roots are kept as entire as possible, and when finished off for forcing they are merely covered with soil. Strong liquid manure water is given each time water is required, and this has a good effect, especially when they show signs of flagging. As to the forced roots being of use for open-air culture, as some affirm they are, I must say that we have never found them to be so good as seedlings, which are easily raised annually to succeed those taken up for forcing.

Horseradish.—A little of this should be grown in all gardens, but in many cases it is allowed to run wild, and as it runs and spreads rapidly it may quickly take possession of good ground, and occupy far more space than it ought to do. In a semi-wild state the roots are very small and not very acceptable in the kitchen, but when kept within bounds and properly cultivated, the roots may be had as thick as one's wrist. When this is the case a few roots will meet all demands for a long time. The present is a good time to renovate old plantations. The whole of the roots should be trenched out of the ground, and all the small pieces should be thrown away, saving only the strong and straight portions. Part of these may be covered over with soil for use throughout the winter, and two or three score of the best should either be replanted now or be laid past until further on, with the view of forming new plantations. Where Horseradish has long occupied the one piece of ground it is not wise to put it there again, as the soil will be poor, and require manuring, trenching, and cleaning. A fresh spot, where the soil is rich and deep, should be set apart for the new crop.

Variegated Kales.—These are very hardy and grow freely in all soils and climates, but it is only about this time their leaves begin to assume their rich markings. When well coloured they are both beautiful and valuable for garnishing fruit on the dinner table. The young leaves which, under favourable circumstances, come out on Beet-root stored away in a dark shed are also very useful for this purpose.

Brussels Sprouts.—Where these are very early and fully developed, mild weather like that which we are now experiencing may cause many of the finest to burst, and then they are next to useless; where there is any danger of this happening it may be effectually prevented by heeling over the plants in much the same way as is done with Broccoli in winter. J. MUIR.

Lifting and storing Parsnips is decidedly labour in vain, for Parsnips keep better in the ground than in any other way. Moreover, the roots continue to grow very late in the season; therefore to lift them before growth is complete is to reduce the weight of the crop. That the Parsnip continues to grow until nearly mid-winter I am certain from the difference in size and weight between early and late-lifted roots. Some seem to think that exposing the roots to frost is beneficial, but that is a mistake.—J. G., *Eants.*

Chou de Burghley.—I cannot agree with Mr. Muir as regards the character of this vegetable; on the contrary, I am rather inclined to support "W. I.'s" estimate of it given at p. 342, and I am rather pleased to see that I am not alone in this respect. Your correspondent "J. C. C." says it is no more than a Cabbage, and nothing superior to the Sugarloaf or Little Pixie. With me it has not been so good in any one respect, save that of having a finer flavour. The heads never fill up properly, being so loose that when taken in the hand the fingers sometimes break into the very heart, and it is inclined to have more superfluous leaves than I care to see. I shall try it once more on poorer and firmer soil. There is

only one thing which will cause me to grow any quantity of it, and that is, it is what we may call a distinct vegetable, and possesses a fine delicate flavour. It is also useful about this time and onwards.—R. STEVENS, *Paston*.

Early Paragon Pea.—Now is a good time to sow Peas. I have had a dry warm border deeply dug and well manured and sown with Paragon, one of the finest of all early Peas, and ready for gathering at the same time as William I. It is excellent in flavour, fills its pods well, and is a heavy cropper. It moreover continues a long time in a bearing state, and possesses a very hardy constitution. It is a blue wrinkled Marrow, grows from 3 feet to 4 feet in height; the pods are of large size and each contains from ten to fourteen large Peas. This Pea should not be sown, but planted thinly in drills.—RICHARD NISBET, *Aswarby Park, Fellingham*.

ORCHIDS.

NEW ORCHIDS.

LÆLIA MONOPHYLLA.—I am informed that this plant is extremely rare in Jamaica, whence it was introduced to Kew, and where alone it is known to exist in a wild state, so that large importations of it are not likely to occur. The plant at Kew is in excellent health and promises to flower well. It is grown in the cool Orchid house along with the *Masdevallias*, where it appears to be quite at home. Although new to gardens, this pretty *Lælia* has been known for fifty years, Dr. Bancroft having collected it on the mountains of Jamaica upwards of half a century ago. The discovery of a new locality for this plant may perhaps occur, as it did in the case of the allied *L. harpophylla*, whose existence in collections in this country until recently was limited for a long period to but one or two solitary plants.

PHALÆNOPSIS SANDERIANA.—In the Clapton Nursery a fine plant of this new *Phalænopsis* is bearing a strong raceme of flowers. *Phalænopsis* are, however, cultivated so exceptionally well at Clapton, that the vigour and free flowering character of *P. Sanderiana* grown there may not be a safe criterion to be guided by generally. Still, it seems not at all unlikely that this recent addition to the already large number of cultivated *Phalænopsis* will prove a very manageable plant. It would be difficult to describe the delicate colour of the flowers on the plant which I saw at Clapton, the soft rosy pink of the petals and a portion of the lip with the pure white of the remainder of the flower being simply charming. Whatever botanists may think as to the specific character of the plant, there can be but one opinion as to its exceptional beauty. It is to be hoped that a reduction in the price of good forms of it may enable all Orchid growers to become possessed of it. To buyers of this plant it may be hinted that the dark green purple-tinted foliage, and not the glaucous green to be seen in some of the plants offered under this name, is the character to be relied upon for large, well coloured flowers.

MASDEVALLIA RACEMOSA (Crossi).—I saw the other day living plants of this rare *Masdevallia*, Messrs. Shuttleworth & Carder having after many failures at length succeeded in securing one or two with life in them. That it is a difficult species to import is clearly shown by the fact that out of 12,000 plants collected by Mr. Carder, and carefully watched over by him during the journey hither, the only survivors were those which I saw at Clapham. To possess living plants of this long-wished-for *Masdevallia* promises well for its becoming established in collections here; and as there seems to be a desire for information as to the merits and character of this much-talked-of treasure, the following may be acceptable: As has been stated elsewhere, *M. racemosa* has been known to botanists since 1845, when Lindley named it from specimens collected by Hartweg. I have seen two of Hartweg's specimens, as well as the excellent ones brought home by Cross, the Cinchona collector, some six years ago, and I have

now a fine specimen from those collected by Mr. Carder. Cross was the first to make the plant known to horticulturists, and this accounts for his name being attached to it. Since Cross's visit many attempts have been made to introduce the plant alive, but, owing to its "buttery" character, they have all been failures until just recently, when Mr. Sander makes known its existence in this country by sending a plant to Stevens' auction rooms, and again last Thursday, Nov. 22, Messrs. Shuttleworth & Carder offered a plant for sale. The specimens collected by Hartweg, and which I saw at Kew, are not nearly so fine as either Cross's or Carder's, showing in one plant a raceme which had borne six flowers and in the other one with five flowers; whereas, one of Cross's showed seventeen flowers on one raceme, and several of Carder's show as many as eighteen flowers. Both Cross and Carder state that the whole or nearly the whole of these flowers are open at the same time, so that if this can be realised in this country we have in this *Masdevallia* one of the finest Orchids ever introduced. The spike which I have before me shows the remains of eighteen flowers, four of which are still on the upper portion. Each flower is $1\frac{1}{2}$ inches in length, the tube and ovary measuring exactly an inch, and the two rounded lobed blades three-quarters of an inch in length and $1\frac{1}{4}$ inches in width. The apical petal is small, measuring only half an inch, including the short tail. Generally, the flower may be said to be not unlike that of *M. amabilis*. The peduncle is 9 inches long, so that there is a flower for every half inch. The leaf, including the petiole, is 6 inches long, the petiole measuring 1 inch, and the blade, which is nearly 1 inch in width, tapering gradually to each end. The stem is trailing, with internodes quite 1 inch in length, and roots rather plentifully up to the last leaf. The colour of the flowers is not yellow, as stated by some, but a bright orange-scarlet, at least such is the information received from Mr. Carder; and, allowing for loss of colour, the dried specimen which I have before me bears out this description. Judging from the altitude at which *M. racemosa* grows (12,000 feet to 14,000 feet), the temperature of the cool Orchid house will most likely prove suitable for its cultivation here.

B.

RECENTLY INTRODUCED ORCHIDS.

DENDROBIUM WARDIANUM GIGANTEUM.—The November number of the "Orchid Album" contains a coloured plate of this *Dendrobe*—a handsome form which has appeared amongst the many recent importations from Burmah. The stems are described as growing from 4 feet to 5 feet in length, and as these are usually furnished for two-thirds of their length with flowers, such a variety must be very beautiful indeed. Before these recent introductions this fine *Dendrobe* was very scarce, and consequently very expensive. Now it is so cheap that anyone may obtain plants of it, and anyone possessing a vinery can grow and flower it. During the time the vines are making their growth they require as much heat as this *Dendrobium* does, and while the Vines are at rest it is also resting time with this choice Orchid. When in flower it may be placed in a greenhouse, where it will remain in flower as long again as in a stove.

TRICHOSMA SUAVIS is a very pretty epiphyte, the flowers of which are small and creamy white, and the lips barred with crimson. They are sweetly scented and produced on a slender stem, which rises between two lanceolate leaves at the apex of the narrow pseudo-bulbs. It is described as doing very well in a *Cattleya* house temperature and treated very much as *Cattleyas* are. There is a demand for certain showy *Cattleyas*, *Odontoglossums*, &c., while modest, sweetly-scented Orchids like this are often a drug in the market.

CATTELEYA WHITEI is a very fine form of the *C. labiata* section. It was flowered by Mr. Holbrook Gaskell, Woolton Wood, Liverpool, in July last. It is evidently a much more highly coloured flower than the old autumn flowered form of *C.*

labiata, and flowering, as it does, between the time of which that variety flowers and that of the more numerous early forms, it must be very valuable as an aid towards circling the year round with wreaths of *Cattleya* blooms. *C. Gaskelliana*, which I saw in flower in Messrs. Veitch's nursery, at Chelsea, last month, is doubtless an early form of *C. Trianae*, and if it is constant to its time of flowering, will prolong the bloom of that species for at least two months. The late forms of *C. Trianae* mingle with the equally desirable *C. Mendelli*. Then we have *C. Mossiae*, *C. Warneri*, and numerous other species, quite independent of the numerous hybrids which will always be expensive.

AERIDES VANDARUM, a singular plant, reminding one of *Vanda Hookeri* or *V. teres*, is not often seen in flower, but it should be grown in most collections of Orchids. The flowers are pure white, and are produced two on a spike, reminding one more of the blooms of a *Vanda* than an *Aerides*. The way to bloom this, as well as the terete *Vandas*, is to grow them freely near the glass in a warm house in summer, and to rest them by keeping them dry and rather cool in winter.

J. DOUGLAS.

Burlingtonia decora.—A most beautiful little Orchid, but unfortunately not generally happy under cultivation. I saw a plant of it bearing a nice spike of its white rosy spotted flowers in the Clapton Nurseries, where it seems to do fairly well. Do we give this Orchid sufficient moisture in our treatment of it? The shrivelled appearance of the pseudo-bulbs and dried-up look which the whole plant generally has indicate absence of sufficient food. So desirable a little plant is worth a considerable amount of trouble to find out what the proper treatment which it requires really is.—K.

Phalænopsis at Clapton.—The thousands of the three most popular of the Moth Orchids (*P. Schilleriana*, *P. amabilis*, and *P. grandiflora*) grown in the Clapton Nurseries will soon be in full flower—a perfect thicket of strong, vigorous spikes, promising an abundance of blossoms. To anyone desirous of seeing *Phalænopsis* in their best condition a visit to these nurseries in the course of a fortnight or so will afford a treat. It is to be hoped that the fog, which in most places near London has such fatal effect on the flowers of *Phalænopsis*, will not prove so disastrous as it generally does at Clapton during the flowering period for these plants.—B.

Cattleya labiata (true autumn flowering).—Mr. Murphy (p. 424) does not, in my opinion, speak one whit too highly of the great beauty of this *Cattleya*. There have lately been two plants of it in bloom in the ordinary plant stove at Oxton Hall, Tadcaster. To say the least, they were a grand sight; one spike had five well-developed blooms on it, each bloom 8 inches in diameter. The plants in question have been under the same grower's care for nearly twenty years, at least the original plant has; it was, however, divided some year or two ago. They get the same treatment as is given to a good selection of well-grown stove flowering and fine-foliaged plants, and appear as grown, along with a few other good-sized *Cattleyas* of different sorts, to be quite at home, thus proving that with judicious care and cultivation it is not absolutely necessary to have a separate house for Orchids, as many people think.—H. J. CLAYTON, *Grimston*.

SHORT NOTES.—ORCHIDS.

Vanda Boxalli—There is in Mr. Bull's nursery an uncommonly distinct form of this Orchid. The sepals, instead of being waxy white, are a primrose-yellow, to which the deep amethyst lip is a beautiful contrast. The spike is unusually large for this *Vanda*.

Pielone Reichenbachii is a sweetly pretty Orchid, and particularly valuable, as it flowers just after the early flowering *P. lagenaria* and *maculata*. The flowers are larger than those of either these species, and of a uniform deep lilac tint with a beautifully fringed labellum. In flower at Mr. W. Bull's nursery.

Sophrontitis grandiflora.—This is the brightest little Orchid one can possibly have in bloom at this season. The fiery scarlet blossoms, produced numerously from the tiny bulbs, have an extremely pretty effect when grown on suspended cork blocks, as it is in Messrs. Veitch's nursery, Chelsea, where in the Odontoglossum house it thrives admirably. Mr. Bull grows it in pots, and is equally fine; indeed, we have never seen such a charming gathering of it as he has now in bloom.

Oncidium phylloglossum.—This new species is now flowering in Mr. W. Bull's nursery at Chelsea. Its are very handsome; they are about the size of *O. crispum*, and the plant evidently belongs to the same section. The outer sepals are of a kind of chocolate-brown; the incurved petals are of a lighter shade, and exquisitely fringed and edged with gold. The crest of the tip also is golden, and the lip itself is olive, tipped with primrose-yellow. The flower-spike is long and flexuose, and produces numerous flowers even on small plants.

Cypripedium Spicerianum.—A group of flowering plants of this charming Lady's Slipper, about sixty in number, is now one of the most attractive features in Messrs. Veitch's nursery at Chelsea. Never before probably has there been such a large gathering of flowering plants of this Orchid in one place, for hitherto the plant has been very rare. The flowers, with their white standard sepals, firm as if cut out of alabaster, have an exceedingly beautiful effect when seen together in quantity. Among them are some considerably larger than others, and possibly they may be permanently fine varieties. The Orchid houses at this nursery are commencing to assume their wonted gay winter aspect, and particularly the Cattleyas, of which there are thousands of sheaths developed, and the Odontoglossums are also producing spikes in greater profusion than has been seen here for years.

Dendrobium Wardianum blooming twice in one year.—The theory laid down by Mr. Douglas (p. 443) regarding the necessity of rest for Dendrobiums, and especially for *D. Wardianum* and crassinode, is no doubt correct, according to hitherto recorded experience; but it is a fact that *D. Wardianum* will not only flower freely without going to rest, but will flower twice within the space of one year if allowed to do so. We have several varieties of this Orchid, and have been struck with the fact that while some go readily to rest and remain so, others show a disposition to bloom even before all the leaves have faded or turned yellow, pushing their bloom buds out along the bulbs as fast as their leaves are shed; and if allowed to grow on, such plants would produce fresh growths that would flower early the following season. Mentioning this to a nurseryman who exports extensively not long since, he assured me that a large number of his Wardianums had bloomed twice within twelve months. Our own plants, which have always manifested this tendency, have been kept cool and dry ever since they completed their growths, but before they had shed their leaves, and they are now pushing rapidly into flower. Both bulbs and blooms are fine, and this continued growth goes on under exactly the same treatment which produced the 4-foot bulbs clothed with flowers that I sent to THE GARDEN office last year. I am glad to say our pruned *Dendrobium Wardianum* from which these bulbs were cut last year has an equal number of bulbs this year of just about the same dimensions, notwithstanding "T. B.'s" predictions to the contrary.—J. S. W.

Cool Orchids in Scotland.—While on a recent visit to the north I was struck with the size and vigour of the Odontoglossums, especially *O. Alexandræ* and *Pescatorei* in various collections. *O. Pescatorei*, indeed, might often be seen with from 80 to 100 flowers on one spike, and *Alexandræ* with from 20 to 40, and not by single plants, but by sixes, and even dozens. Such, indeed, was the strength of these plants, that I concluded that Scotland possesses some advan-

tages over England as regards their growth. In the first place, I suppose the mean temperature in Scotland is 5° cooler than ours; this on a hot day in summer must be a great advantage. Then, again, the frequent rains help to keep the air cool and moist; and how the Orchids must revel in the Scotch mists. Moreover, they can be grown in span-roofed houses, and so get more light, and these houses can be kept cooler than north houses. I was frequently assured that the temperature rarely, if ever, exceeded 70°, and who could say that in England? I was also puzzled at seeing Vandas grown in some collections along with Odontoglossums, and extremely well, too, although in a house in which the temperature fell to 50° regularly on winter nights, and sometimes even lower, as I myself can testify, for at Dr. Paterson's on Oct. 22, at 7.30 a.m., the thermometer in the hottest house stood at 46°; here were Vandas, Aerides, Saccolabiums, Cattleyas, and a plant of *Phalenopsis Schilleriana* twenty years old, all growing luxuriantly. Orchids certainly adapt themselves wonderfully to circumstances, but can those whose lowest temperature is 50°, and others whose temperature is 70°, both be right?—E. A. WALLACE, Colchester.

Gunnery Park.—I was glad to see Gunnery Park noticed lately in a number of THE GARDEN. It is frequently mentioned by Horace Walpole in his "Letters," where he recounts his visits there, commanded by Princess Amelie, aunt to George III. In the ode addressed to Her Royal Highness is the following stanza in a "Letter to Lady Ossory," vol. ii., p. 259, date February 10, 1786:—

Oh! why is Flaccus not alive
Your favourite scene to sing?
To Gunnery's charms would give
His lyre immortal spring.

Alterations, perhaps additions, may have been made since the Princess's demise.—RICHARD OWEN, Sheen Lodge, Richmond Park.

MR. JENNINGS, long in charge of the alpine and herbaceous plant department at the Wellington Road and Pineapple Nurseries, has resigned his situation.

Vine roots (Acan).—I have carefully examined the roots sent and cannot find any insects upon them; they are evidently very unhealthy, and in parts there are places which suggest by their appearance the attack of some insect. I should suggest a careful examination of the more healthy portions of the roots to see if any grubs or Phylloxera are attacking them.—G. S. S.

Helleborus niger altifolius.—I hope you will allow me space for a final reply, purely upon the botanical aspect of the matter in dispute, as to the value of your beautiful plate of the above Helleborus. I challenged any botanist to show that I was wrong. Mr. Frank Miles says that *H. altifolius* is not often so dark a purple as indicated, but from plants exposed to the winds in entirely open positions he has several times seen blooms, late in the blooming season, turn to the colour represented, and that if the plants are not exposed to the searching winds and cold rains of March, the blooms seldom are as dark as represented! Mr. Goldring, on the contrary, says that near London, about the flowering season, he thinks I would find several flowers identical in colour with the plate in THE GARDEN, but that the high colour is only to be seen in flowers that have been expanded some time, and where the plant is growing in a light soil and an exposed position. Now, against these allow me to quote from THE GARDEN, March 10, 1883, p. 222, Mr. Archer Hind's remarks on this very picture, of which I was unaware until he kindly directed my attention to them. He wrote, "As regards the exquisite coloured figure given in THE GARDEN, I cannot agree with 'Veronica' that the flowers are past their best, too old for figuring; on the contrary, the artist reproduced bud, perfect flower, and on fading bloom, all pink, all true to Nature, as they are occasionally, but not as regards the perfect flower of the usual colour, which is white. In this respect it was misleading, and actually did mislead, since in this case I was applied to by an unknown correspondent to say whether any such pink variety existed. My answer, of course, was in the negative."—WM. BROCKBANK, Brockhurst, Didsbury.

—I was very glad to see Mr. Miles' note as to the correctness of Mrs. Duffield's fine drawing of this noble plant and earliest of all the Christmas Roses. Mrs. Duffield's sketch is so good that it would be impossible to mistake the representation for aught else except the plant it purports to be; it is in form a true portrait of *H. altifolius*, and could not be mistaken for anything else. I have seen flowers quite as deeply coloured at Parker's and in Barr's grounds and elsewhere. On the Surrey gravel it colours highly. If you place a handlight over a clump of *H. altifolius* as it comes into flower you may get flowers nearly white, but the rosy strain is always evident outside the sepals.—F. W. B.

NOTES OF THE WEEK.

Exeter Nursery.—Mr. Samuel Elliott, F.R.H.S., has sent us a circular announcing that he has purchased the old-established business of Messrs. Lucombe, Pince & Co., of the Exeter Nursery and Bedford Street, Exeter, and stating that in future it will be carried on by him under the old name.

Gardeners' Royal Benevolent Institution.—At a meeting of the committee of this institution held on the 15th inst. it was decided to add twelve pensioners to the list on the 10th of January next. Of these two will be placed on the pension list without election, in conformity with rule No. 6; and they also ordered the sum of £350 3 per cent Consols to be purchased on account of the trustees, making the total amount standing in that stock £15,100.

Benthamia fragifera.—From Mr. Sangwin, Trellisick, Truro, come branches loaded with fruit of this fine shrub or rather small tree, for at Trellisick there are several trees of it from 20 feet to 30 feet high. Of these many of the branches are breaking down with the weight of fruit which they are now bearing, a really beautiful sight at this time of year, and they are equally beautiful in spring when covered with their cream coloured flowers. It is to be regretted that this tree is not more hardy than it is, for even in Cornwall it sometimes suffers from severe frosts.

Ealing show.—The annual autumn show of the Ealing Horticultural Society, held on Wednesday last, was a success in every way. The spacious Drill Hall presented a gay appearance, being filled to overflowing with fine groups of Chrysanthemums and other autumn-flowering plants. The great feature, however, of the exhibition was the grand display of vegetables made by the cottagers of the district. At no other show have we seen such good productions, the bulk of which would have done credit to a nobleman's garden. The excellent system of allotment gardens in Ealing and its neighbourhood has doubtless conduced to this high class system of vegetable culture. A somewhat novel feature was introduced in setting two classes, apart for cooked Potatoes. It is evident that this is the correct and only way to test the quality, the chief point, of the various sorts of Potatoes. Prizes are often given to fine looking Potatoes got up for the occasion, but which may be quite inferior when put to the crucial test of cooking, thus causing disappointment to the buyers of such sorts.

Chrysanthemums (S. Leary).—Very fine incurved blooms indeed; as large as we have seen at any show this season, and as perfect in form.

MR. DERRY, who for some time has had charge of the Fern department at Kew, has gone to the Government Experimental Gardens at British Guiana to fill an appointment under Mr. Jenman.

Names of fruits.—Constant Reader.—4, Dumelow's Seedling; 2, Sturmer Pippin; 14, Winter Strawberry.—H. C. H.—1, Afriston; 2, Dutch Mignonette; 3, Forge; 4, Somerset Lusting.—S. M.—Waltham Abbey Seedling.—S. K.—3, Keen's Seedling of the North, not Northern Greening; others are not recognised.—D. P.—Whorle Pippin.—G. C.—1, Drap d'Or; 2, Wellington; 3, Pine Golden Pippin; 4, King of the Pippins.—W. G.—1, Hoary Morning; 2, Bess Pool.—Enfield.—The Apples you send are clearly Cox's Orange Pippin, a well-known variety, which is, as you say, a first-rate dessert fruit.—Others will be answered next week.

Names of plants.—Sanguinea.—1, Cotoneaster affinis; 2, C. microphylla; 3, C. Simonsi; 4, C. rotundifolia; name of Escallonia next week.—R. G. Brown.—1, Davallia bulbata; 2, D. Mooreana; 3, Adiantum polyphyllum; 4, Davallia Iyerianni.—A. Z.—Colutea arborescens.—W. Forrester.—1, Oncidium reflexum; 4, Rhododendron ferrugineum.—G. I.—Fernandezia elegans.—Carter & Co.—Hakea suaveolens.—Miss Littledale.—Cystopteris fragilis.—L. L. T.—1, Biota orientalis elegantissima; 2, Cryptomeria elegans; 3, Thujaopsis dolabrata; 4, Thuja occidentalis.—Dix.—1, Retinospora lycopodioides; 2, Cupressus macrocarpa (probably); 3, Cupressus Lawsoniana erecta viridis; 4, Biota orientalis pyramidalis.—S. K.—Eucalyptus globulus (calyx and corolla form a lid or cup, which falls away when flower opens; you do not say whether this flowered in the open air or not).—W. Forrester.—2, Cypripedium venustum; 3, Pernettya mucronata.—M. P.—Apparently Hemanthus pubescens, but cannot be certain without seeing leaves.—J. G. K.—1, Maxillaria picta; 2, Lelia autumnalis; 3 and 4, varieties of Epiphylllum truncatum.—Subscriber.—1, specimen not sufficient; 2, Adiantum concinnum; 3, Maranta Lindenii; 4, M. zebra.—H. T.—1, Gynogramma tatarica; 2, Pteris quadrifida var.; 5, Adiantum Sanctæ-Catharinæ; 6, apparently Davallia dissecta. Our rule is to name but four plants each time.—J. C. Sand.—1, Adiantum gracillimum; 2, Davallia dissecta; 3, D. canariensis; 4, Adiantum tenebrum.

No. 628. SATURDAY, Dec. 1, 1893. Vol XXIV.

This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

MARIE LOUISE VIOLET.

SEEING no mention made of this very valuable Violet in an otherwise excellent article on the cultivation of Violets in *THE GARDEN* (p. 403), allow me to say a few words in its praise. As I am expected to supply Violets nearly all the year round, I have at different times given most of the so-called good varieties a trial, and I have now discarded nearly all for the Marie Louise. My experience differs in some respects from that of Mr. Kevan, as I find that all my plants for frames are best grown under a north wall. Thus grown, I find, with a very little attention in regard to watering and syringing, that they keep quite free of red spider, their greatest enemy. Our frames of Marie Louise bloom continuously and very profusely all through the autumn, winter, and spring, and when not wanted for propagating purposes, by judiciously shading them on bright sunny days, we have sometimes kept the same plants blooming from the middle of April till the middle of June. No other variety with which I am acquainted will yield such a continual supply of sweet-scented flowers for such a length of time. We commence to

PROPAGATE our stock of this variety for frames early in May. I use a frame for that purpose, as I find that they root more quickly and without flagging in a frame. We begin by placing a two-light frame under a north wall, leaving a space between the wall and the frame for the convenience of working; fine sandy soil is then thrown in to the depth of 3 inches. The plants are then taken from their winter quarters and divided, always selecting the strongest pieces or crowns with small roots attached to each for this purpose. They are at once inserted in the frame. After planting, they are, of course, well watered with a fine-rosed pot. About three weeks after insertion they will be well rooted and ready to transfer to their summer quarters, under a north wall. A piece of well-manured ground is there prepared for them, and they are planted out in beds 5 feet wide, with a space of 10 inches or a foot between the runs, and 6 inches or 7 inches from plant to plant. When planting is finished another good soaking is given, and from that time they are never allowed to become dry. A good syringing is also given them after every warm day. Owing to being planted under a north wall, and the constant syringing in dry weather, our plants are never attacked by red spider. From the middle to the end of September, when they have attained a large size, we proceed to

PREPARE THE FRAMES for their reception. A good layer of long litter is first put into the frames, as the slight warmth from the litter gives the plants a start, and afterwards acts as drainage. Upon the litter 8 inches or 9 inches of any good soil is put, and into this the plants are planted with a trowel as closely as possible without crowding. Should the weather be sunny, it will be necessary to shade with mats for a week or two. I have omitted to say that we place the frames to contain the plants for winter blooming in the sunniest position we

can select, and from these frames we have no difficulty in getting a good supply of Marie Louise Violets for nine months and sometimes ten out of the twelve. G. T. B.

CHRYSANTHEMUM REFORM.

THE GARDEN will be doing a good work if it will lend its influence towards bringing about a revolution in Chrysanthemum culture. Chrysanthemums are rapidly becoming as prominent a feature in November as Roses are in July, and will come still more to the front if it is true that we are soon to have a national exhibition. The largely increased attention now given to the Japanese class shows that the public taste is being improved already. It is not very long ago that a great authority upon florists' flowers wrote: "The quilled or tasselled varieties should never be admitted to be shown, except in a separate class, as 'fancy Chrysanthemums;' and in that class we can only say that those least offensive to the eye should receive the prize." But there still remains a very great deal to be done. The road here, as in the case of other flowers, is still barred by the truly Philistine notion that the biggest and coarsest blossom is the most admirable. If it is answered, "Why should not our flowers be grown to as large a size as possible?" I reply that on this same principle the fat woman of the penny show at the fair should take the place of the Venus of Milo. These huge exhibition blooms are produced by an altogether unnatural treatment of the plant, a treatment which ruins not only the plant, but in many cases, if not always, the flowers also. I go, for instance, to the Temple exhibition. In front of me stands a plant of Elaine with all but its top hidden by other plants. But if I stoop and look under them, I see that it has long, naked stems. Above these there is some foliage, perhaps pretty good, and above this about three enormous spherical flowers, so large, it may be, that the outer petals have turned yellow before the centre ones have had time to expand. They are something the size and shape of a common double Peony, that is to say, so large that no lady could wear one, and no ordinary vase could hold one without danger of toppling over. I come back home to my own little glasshouse, and find a plant of Elaine covered with a hundred flowers as large as lovely snow-white Roses, flat and yet full, which I maintain is the natural form of Elaine. I can gather a dozen sprays and scarcely miss them from the plant, and the great beauty of each spray consists in the harmony and contrast between the little starry flowers and the full-sized ones all nestling together along the grey-green stems. But where can you find such a spray at a show? Even the "specimen plants" are like umbrellas dotted over with blooms the shape and size of small pickling Cabbages; or, if there happens to be a group of more naturally grown plants, the little flowers have all been carefully picked off to increase the bigness of the big ones. The true character of the looser Japanese flowers is often entirely destroyed by

THE ONE-BIG-BLOOM METHOD. Such a flower as James Salter, for example, so treated becomes a great, tightly tied and twisted knob, round and heavy, with a look of coarseness about it which is difficult to describe, but unmistakeable. As I write I go into my greenhouse and bend down towards me the nearest spray of this same variety. It measures nearly a foot across; at the top are five flowers, touching, but not pressing one another,

full, but quite loose, each one as large as a fine Rose. An inch below these, on the same stem, are two others, one on each side, nearly as large; and 3 inches lower still are two more the size of a crown-piece. This one spray, cut with a long stem, and put just as it is into a vase, would make a perfect bouquet. Or to turn to Chrysanthemums which are, in their true nature, compact and globular, of these it would be hard to choose out three more beautiful kinds than Mrs. G. Rundle and her two children, Mrs. Dixon and George Glenny, pure white, golden yellow, and cream-yellow. These at shows, whether as cut blooms or studded at regular distances on specimen plants, appear always as isolated knobs, 6 inches or more across, or so large as to be both coarse and useless. At the present time I have on eight plants of these three kinds out-of-doors and under glass, or cut from them and in vases in the house, literally hundreds of single blossoms and sprays, every spray containing one or more perfectly full and incurred broad-petalled blossoms about $3\frac{1}{2}$ inches across, and almost every one of these flanked and wonderfully set off by two or more smaller and looser flowers. Elaine I have in masses and sheets of the purest white, the flowers averaging something over 4 inches across, many much larger. From many of my Chrysanthemum plants I do not remove a single bud. If anyone reading this thinks these dimensions small, let him draw circles on a sheet of paper from $3\frac{1}{2}$ inches to $4\frac{1}{2}$ inches in diameter, and then tell me what he wants with Chrysanthemum flowers any larger than these. At all events I should like to bring him straightway from one of the great Chrysanthemum exhibitions to my little winter garden and show him my

TWO BANKS OF PLANTS, all covered with green foliage right down to their pots, and with masses of blossom and bud, creamy and snow-white, primrose, sulphur, golden, and bronze, ruby red, scarlet and pink, round and ragged, cupped and tasselled; here shining out as single stars, there in sprays and clusters, and then ask him which he thinks the better way of growing Chrysanthemums, whether as plants or for cut flowers, my way or the way of the exhibitions. But how is the reformation to be effected? First, the judges must be educated. We might almost have hoped that enough light had already been thrown upon the dark places of gardening to drive out the umbrella specimen plant from our shows. A step would be taken on the right road if prizes were offered for so many cut sprays of Chrysanthemums instead of, or at least as well as, for so many single cut blooms. And if THE GARDEN will with importunity insist that the use of our exhibitions is to show us plants and flowers in their highest natural perfection—that is, with their several natural characteristics not obliterated, but preserved and heightened by perfect culture, and that the nature of the Chrysanthemum is to send up erect and leafy boughs laden with sprays or clusters of flowers small and great together, then THE GARDEN will be helping us on towards the good time when a lover of flowers will be able to stand in a Chrysanthemum exhibition with pleasure, and not disgust. G. H. ENGLEHEART.

Applesham, Andover.

Columbines from seed.—Apropos of the remarks about improving Columbines in last week's GARDEN, in which it is stated that some object to the process of hybridising, I would state

that I saw in a private garden at Norwich during the summer a number of plants which charmed me. They were most luxuriant and striking in habit and colour, which included shades of orange-scarlet, while there were a few with grand flowers of shades of violet, with bold white centres, apparently of *A. Whitmanniana* or *glandulosa* blood. I believe they were from seed hybridised by Mr. Nelson.—E. H. EYLES.

SIDE-SADDLE PLANTS.

AMONGST the singular forms now and then assumed by plants, few can match the *Sarracenias*, or Side-saddle Plants, as regards grotesque shape and beautiful leaf-colouring, and this wholly independent of their equally curious and beautiful flowers, which, like the plants, are entirely different from those of all others. All the species have hollow leaves more or less extended; some, like *S. purpurea*, stout, short, and much distended, others like the different forms of *S. Drummondii*, funnel or horn shaped, and as much as 3 or 4 feet in length when well grown; in all the leaf-blade is more or less extended, so as to form a lid to the mouth of the pitcher—not very decided in *S. purpurea*, but large and completely overlapping the orifice in some of the varieties of *S. flava*. The whole of the family belong to what have recently been called insectivorous plants. The *Sarracenias* are easily grown, *i.e.*, if their wants are fairly well supplied. Where failure occurs it is mostly traceable to their being kept too warm. An intermediate temperature both summer and winter suits them best, although some of the kinds, such as *S. purpurea*, will grow in a cold frame or even live out-of-doors in certain places, but its appearance is not nearly so good as when grown in a little heat. A night temperature of 48° or 50° in winter, and 60° in summer at night, and from 70° to 75° in the daytime will be found to suit them.

Soil is another most important matter. The fibrous material with all the earthy matter shaken out of the best Orchid peat, added to an equal part of chopped Sphagnum and a good sprinkling of potsherds or charcoal, with a little sand, should be used. The crowns should be divided about the beginning of February before the roots have begun to move; they may be potted singly, or grown several together in pots proportionate in size to the numbers occupying each. A 4 or 6-inch pot is big enough for a single crown. The pots should be one-third filled with drainage, and the material pressed moderately firm about the roots, giving them immediately as much water as will soak the whole. The plants should then be stood on some moisture-holding medium. The nearer the glass they are the stouter they will grow, and the higher coloured the pitchers will come. They are swamp plants, and should be watered twice a week in winter, and every day through the growing season, at all times keeping the soil quite wet. If shaded in summer it should be with very thin material, and not at all unless the sun is found to burn the leaves. They are better not syringed overhead, as water applied this way to the tall growing kinds makes the pitchers weak and scarcely able to support themselves. They look the best when a number of crowns are grown together, say as many as will occupy a 14 or 15-inch pot. It is important that they should have the whole of the material shaken away once a year and replaced with new, or it will get sour and cause the roots to rot, a condition from which the plants take years to recover. All the kinds, except the different forms of *S. Drummondii*, should be repotted about the time mentioned for propagation by division of the crowns, that is, before growth commences. The varieties of *S. Drummondii* ought to be potted in July, as the principal season of producing their pitcher-like leaves is in autumn. The spring growth of these varieties is mostly confined to leaves that do not develop to pitchers, although when very strong they will produce a number of pitchers along with the other leaves in spring. If the shaking out and potting is done after any root-growth has begun, the pitchers that follow are liable to be deformed. Propagation by pieces of the root-stems should be carried out at

the time of the winter potting. If the plants are wanted to gain strength fast, the flower-stems should be pinched out as soon as they appear.

SPECIES AND VARIETIES.—All the undermentioned kinds are well worth growing:—*S. Drummondii rubra*.—A beautiful highly coloured sort, with stout, tall, erect pitchers, the upper portions white, suffused and nested with red. Flowers crimson-purple. *S. Drummondii alba*.—The tallest of all; I have had this sort with pitchers 4 feet high. The upper part of the pitchers is white, distinctly mottled and veined with green. Flowers crimson-purple. *S. flava maxima*.—This makes the largest pitchers of all the family. The lids of a strong example will attain a width of 6 inches, the upper portion of the pitchers is of an olive yellow shade, the lid streaked with purple. Flowers yellow. *S. flava ornata*.—A large stout-growing, very handsome sort, the upper portion of the pitchers and their lids covered with a close network of reddish brown. Flowers yellow. *S. crispata*.—Another fine kind, handsomely pencilled longitudinally with red. Flowers white. *S. atrosanguinea*.—A very handsome species, thickly streaked with red on the upper part of the pitcher, which colouring assumes the form of a solid blotch on the greater portion of the inside of the lid. Flowers white. *S. rubra* has medium sized pitchers, deeply veined and shaded on the upper part with red, as also the lid. The flowers of this species are ruby coloured, and deliciously scented like Violets. *S. purpurea*.—A very stout, short-pitchered kind, the pitchers are procumbent and deeply suffused with, or almost wholly, reddish-purple towards the extremities. Flowers purple. *S. psittacina*.—A small, but beautiful kind with prostrate pitchers deeply coloured with red towards the extremities; the lid forms a complete hood. Flowers purple. *S. variolaris*.—A medium grower, with erect pitchers, spotted on the upper part with white; the lids are hooded. A distinct kind. Flowers yellow. *S. Chelsoni*.—A hybrid variety of great beauty. It is a cross between *S. purpurea* and *S. rubra*. The pitchers, intermediate in habit between the two parents, attain the height of 18 inches. In shape they partake of the character of *S. purpurea*, and are highly coloured with crimson-purple. All the species are natives of North America.

INSECTS.—*Sarracenias* are not generally much affected with insects beyond thrips and aphides, which are often troublesome, and immediately these are found they must be at once destroyed, or they will spoil the pitchers. Fumigation and sponging with clean water are the safest means to employ with these plants.

T. BAINES.

NEW MACROZAMIAS.

WE have received from Mr. C. Moore, Director of the Sydney Botanic Gardens, a copy of a paper read by him before the Royal Society of New South Wales, in which he furnishes some valuable information on the species of *Macrozamia* known to inhabit that quarter of the globe, and among which are several new species named and described for the first time. The *Macrozamas*, and, in fact, the whole of the Cycad order, are in such a confused state owing to our imperfect knowledge of many of them, that any information tending to enlighten us on this subject is most welcome. In the paper just named, Mr. Moore contributes some valuable notes on species of *Macrozamia*, which are yet but imperfectly known, as well as introduces to us several new kinds, some of which are likely to prove valuable additions to Cycads already cultivated in gardens here. These new species are five in number, *viz.*: *M. cylindrica*, *M. Fawcettii*, *M. flexuosa*, *M. secunda*, and *M. heteromera*. *M. cylindrica* is described as having leaves 4 feet in length, and pinnae 1 foot long and 4 inches in width. The trunk is short. Judging by the description, this plant may be likened to a strong form of *M. corallipes* of our own gardens. *M. secunda*, a somewhat similar species, is distinguished by

its erect, narrow pinnae. *M. Fawcettii*, is a dwarf plant with dark, shining green leaves, and a very woolly stem. *M. flexuosa* is apparently a graceful species, resembling rather closely some of the cultivated forms of *M. spiralis*. The most distinct of the new ones is *M. heteromera*, of which there are several well-marked varieties. The leaves of this species are erect and rather plumose, sometimes spirally twisted, and light green in colour. The pinnae are very curiously forked, and in some cases bifurcate, the segments being very narrow and almost cylindrical. The whole plant, which is rather ornamental, is much in the way of *M. plumosa*. Of this and several of the varieties of it, along with *M. flexuosa* and *M. secunda*, we recently saw living plants in the collection of Cycads at Kew. Whether the characters on which Mr. Moore has founded his species are sufficient in a botanical sense or not remains to be seen. With regard to Cycads, the great difficulty is to ascertain what are substantial characters on which to rely with respect to any botanical arrangement of the Order. In some cases foliar characters are proved to be too variable, owing to the widely different forms of the leaves of young plants compared with those of the same plants in a mature state.

FLOWER GARDEN.

FUCHSIAS IN THE OPEN GROUND.

I FEEL sure that were it generally known how happy Fuchsias are planted out permanently in the open ground, they would be more largely used for that purpose than they are. Even the choicest kinds of Fuchsias will survive our winters out of doors unharmed with little or no care. The tenderness of the wood and foliage probably induces the belief that the roots are equally tender, but this is by no means the case, as with a simple covering of some 3 inches of ashes they will withstand the severest of our English winters. Plants that I have had in open ground for these last five years were some two or more years old when put out and were simply meant, in the first instance, for summer decoration. They bloomed well, and were not, however, lifted in the autumn. The wood was killed to the ground, but the next spring they shot up strongly from the roots and bloomed well early in the autumn and up to the setting in of the winter. They have since been mulched with leaf-mould, rotten manure, or something similar every year about the latter end of November, and each spring they have thrown up more and stronger shoots, at last developing into fine bushes, 3 feet or more through and some 2 feet high, carrying when in full flower hundreds of blooms. The only attention in addition to the mulching alluded to they have received has been frequent soakings with liquid manure during the growing time. This they need when established some years in order to induce the vigour necessary to render them really effective. Those who have a large extent of pleasure ground to embellish would certainly find Fuchsias useful; they cause little or no labour—an important point; they commence to flower just when they are most needed, that is at the close of the summer, when heavy rains have so dimmed the beauty of the flower garden generally, as to render their perfect freshness all the more charming. In a general way they come into bloom about the last week of August; they are in their prime during September, lasting, however, in beauty, unless sharp frosts occur, until November. This year I could have cut fine

heavily flower-laden branches up to the 10th of November, but this is, of course, later than one can expect to have them generally, as they usually get damaged by frost by the last week in October.

FUCHSIAS HARMONISE WELL in floral decorations, but few would care to cut away entire branches from their pot plants, as this would, in a measure, spoil them for another season; therefore one seldom sees this flower employed in a cut state. But a good bed in vigorous health in the open ground would furnish an abundance of material, and I feel sure that all who need many cut flowers would appreciate the power of being able to cut an armful of flower-laden Fuchsia branches at need. I think, too, that owners of small gardens, or, indeed, where the glass accommodation is of a limited character, would find much satisfaction in growing Fuchsias in this way, as they could thus enjoy a much greater variety, and even the humble cottager may have his collection of Fuchsias without the aid of glass. A collection of say fifty kinds planted in line or grouped together would form as interesting and pleasing a feature in the autumnal flower garden as could be desired. There are some kinds which lend themselves better to outdoor decoration than others, and these are such as are possessed of a stiff, compact habit of growth with flowers of moderate size. Rose of Castile may be taken as a perfect type of outdoor Fuchsia, as it combines all these desired qualities in a high degree, the flowers, moreover, being on such short sturdy footstalks as to render them very conspicuous. Varieties of this character are almost weather-proof; they are but little liable to be broken by wind, and the flowers seem to be able to bear a large amount of rainfall without injury. Curiously enough, those having white corollas resist bad weather extremely well; the corolla appears to be of such substance as to be but little affected by damp. Double kinds, on the contrary, are not so suitable, and I only recommend them on the score of variety.

THE WEIGHT OF THE FLOWERS, which in some varieties is relatively very great, is apt to cause whole branches to snap off, especially when subjected to wind-waving in rainy weather. Neither have they so graceful an appearance in a cut state. Where Fuchsias are grown for greenhouse or conservatory decoration there are frequently plants which have to be discarded for want of room. These will do very well planted out, although they will not come strong for a season or two, as they seem to need time to accommodate themselves to the new order of things, and to form a sufficient number of underground buds to enable them to annually throw up a considerable quantity of flower-stems. But I would certainly prefer thrifty young specimens, having all the vigour of youth in them; and I should best like such as were propagated in August, and were kept just gently moving through the winter, bringing them along in greenhouse temperature during spring, and well hardening off in May. Such plants would make strong growth, and would be effective the first year, and would throw up strongly the following one. I need hardly insist on the previous thorough preparation of the soil, but I may call attention to the fact that these Fuchsias are to be permanent occupants of the outdoor garden, and that, therefore, extra pains must be taken with the body of soil they are to occupy. It should, if light, be deeply stirred to guard them against summer's drought, and if cold and retentive should be mellowed by being thrown up roughly for the winter, at the same time adding liber-

ally any light material. Rotten manure should form an ingredient, and of course the poorer the soil the more of this will be needed. Plant in the middle of June, mulch with short manure, and water well in dry weather. Cut them down about the middle of November, and put about 3 inches of light material over the crowns. J. C. B.

SINGLE OR DAISY CHRYSANTHEMUMS.

THESE were almost bound to follow the single Dahlias, but they have done so sooner than could have been expected. I received a boxful of them from Messrs. Cannell. At first they were mistaken for Dahlias from late pickings out-of-doors or from pot plants under glass. Single Dahlias as they get smaller and more dwarf are likely to have a great future for pot culture in the autumn and early winter. They will then fill up a blank that is apt to occur between the late Pelargoniums and early Chrysanthemums. But what with summer-flowering Chrysanthemums and early autumnal bloomers, even single Dahlias may have difficulty soon in holding their own against them at any season. At present there seems a prejudice against the use of single Dahlias, however small or beautiful, for bouquets. This is not so strong against Chrysanthemums; indeed, it ought not to exist against either. It was but yesterday that it was considered to be good taste to flaunt Sunflowers, and Marguerites of all forms, colours, sizes have long been the rage. These single and Chrysanthemums are so like the latter, that it would need an expert to distinguish them when mounted into bouquets. Among those sent there is a pretty small white and a soft lemon, also a very small pink. These are named Miss Legard, Mr. Toole, and Monte Cristo respectively. Among the larger ones, though all are small relatively to the general run of doubles, Fair Marguerite well deserves its name; the centre is small, and the long, frizzled petals very light, with a faint dash of pink. Willie Beckwith has also a small centre, its recurved pink petals being almost white as they leave the centre. Mrs. Langtry is a most delicate lavender-pink with partially reflexed petals, the points of them returning again towards the centre; a very chaste flower. Henry Irving is a deeper coloured flower, so thickly petalled as to be semi-double. Mrs. Bullock has a fine large centre surrounded with a closely set row of deeper coloured pink petals. Gus Harris has a flatter centre with shorter petals of a lighter shade of pink. Altogether this is a most promising and welcome batch of single flowers in a family where double flowers, and these as large as possible, have been the rage for years.

D. T. FISH.

GLADIOLUS CULTURE.

THOSE who are beginners in the cultivation of Gladioli may be informed that a well-prepared soil is of primary importance for them, and no time should now be lost in choosing the position of the bed in which they are to be grown and in getting it well prepared. I may in the first place state that those who wish to grow them for exhibition purposes must have a soil that is capable of supporting a vigorous growth. A good mellow loam, fairly deep and well enriched, is doubtless best; but in some cases an addition of loam and manure to the staple soil will prove sufficient; but an attempt to grow these flowers in a proper manner in a thin, poor soil, will certainly fail. In selecting the ground, the space set apart for them must be in proportion to the number of spikes required at one time; where as many as twenty-four spikes are required quite two hundred bulbs must be planted to produce sufficient choice at any time between the middle of August and the end of September. In preparing the soil the work should be done as early in the winter as possible; a depth of 18 inches of well-moved earth is necessary, and where the soil is poor a good quantity of thoroughly rotted farmyard manure should be mixed with the soil as the work of digging goes on. I find that Gladioli like a bit of good manure, provided it is not fresh; for this

reason I like it added to the soil two or three months before the bulbs are planted. Moreover, early preparation gives time for the ground to settle down to its proper level, and the surface will be benefited by being exposed in winter to the action of frost.

Where the Gladiolus is grown for decorative purposes only I do not consider that expensive and elaborate preparation is necessary. It is desirable to select an open sunny spot for it where the soil has an average depth of from 15 to 18 inches. In most cases such a soil and position will with the aid of some manure prove quite capable of producing good spikes of flowers.

In a general way Gladioli are not suitable to plant as decorative subjects in flower beds which form part of a design. The proper place for them where the spikes are required for cutting is in the mixed border, but it will in most cases prove more satisfactory if a piece of ground is set apart for them in the kitchen garden, where the soil is in all ordinary cases more suitable for them than elsewhere, and can be prepared for them with less trouble.

It is an accepted fact that the Gladiolus, like the Rose, thrives best with a change of soil every year, and my own experience bears out this statement. As a rather large grower of Gladioli and my space somewhat restricted, I change the crop every other year. One year I have Gladioli and the next Potatoes. I manure heavily in October for the Gladioli, but not for the Potatoes, which follow them, early in March. The ground is lightly forked over for the purpose of breaking any hard lumps of earth. This stirring brings the surface into a capital tilth, an essential condition if the bulbs are to succeed well. Respecting the

TIME OF PLANTING, I like to get the corms into the ground by the middle of March, or as soon afterwards as the condition of the soil will allow, for I should not think of working the land when it would tread into a paste, but as the corms suffer from being kept out of the ground longer than is necessary, every effort should be made to get the planting done soon after the time stated. Where Gladioli are grown for exhibition they require plenty of space. There is no better plan than to mark out 4-foot beds, leaving 2-foot alleys between them; this gives room for three rows of flowers in each bed at 1 foot apart, with a pathway between them. Where Gladioli are grown for decorative purposes, I prefer beds 6 feet wide; in these I put five rows of bulbs. For exhibition purposes the corms should be 15 inches apart in the rows, but in the 6-foot beds they may be 12 inches apart. I prefer to plant in drills, as in that case the hoe assists to break up the soil into a friable condition. The drills should be 4 inches deep. I find rather deep planting to be beneficial; in that way the roots are less liable to suffer from drought, and they are more secure from rough winds than when the roots are nearer the surface. In filling in the drills care must be taken to keep the large lumps from getting near the bulbs. We find it best to go over the soil which has been drawn out with a rake and make it as fine as we can. Where a fairly fine soil can be had I do not consider a layer of sand placed round the bulbs to be of any benefit to them, for the Gladiolus is not a tender-rooted plant; it sends out large fleshy roots that strike out at once in search of the best food they can find, and if a lump of well-rotted manure is within reach they soon find it and cling to it in a way which shows that they like it. The fact is this fine plant is too often crippled in its early stages of growth by being grown in a poor soil; but let us return to the

FILLING IN OF THE DRILLS. Where the soil is dry and lumpy some fine earth should be prepared to place immediately over the bulbs, and then they will take no harm even if the surface is not quite so fine as it might be.

The cultivator for exhibition will find frequent calls upon his time during the months of July and August. It will be necessary to keep the ground free from weeds, and to run the Dutch hoe occasionally between the plants to stir up the surface, unless the ground is mulched with some material to prevent too rapid evaporation from the soil. In that case the surface should be stirred up with a

hoe an inch or two deep, and the ground well watered before the mulching is put on. If this is done early in July it will be in good time, but all depends on the state of the weather, whether mulchings will be beneficial or not. When the rainfall is heavy enough to keep the ground sufficiently moist down to the roots mulchings are unnecessary, but in bright hot weather both watering and mulching are necessary to the production of good spikes of flowers. In dry weather the supply of water must be liberal, sufficient to reach the lowest roots, and it must be given at short intervals, say every four or five days. Even a good mulch will not do away altogether with watering, although it will help to reduce the amount required. Respecting

MULCHINGS, I am in favour of their use, especially on light soils, and I find there is nothing better as a mulching than half-rotten manure laid on the surface 2 or 3 inches thick.

For garden decoration and for the production of spikes of flowers for cutting the cultivator may, if he desires it, and the plants are growing in a good deep soil, dispense with the mulchings and waterings, though the growth would certainly be improved by such extra attentions. What I mean is that fairly good results may be obtained without them. It will, however, be necessary to keep the ground free from weeds, and the surface occasionally stirred, especially after heavy rains, which generally cause it to run together and get hard and impervious to air. To secure the spikes of flowers against damage from wind it will be necessary to put a stick to each, and to securely fix them to it, with some soft matting. Those who intend to exhibit must also shade the flowers in order to preserve their colours. Two pieces of board about 4 inches wide and 18 inches long nailed together in the shape of a V, and then securely fixed to a strong stake, from 4 to 5 feet long, will serve as a shade; by placing the back of the flower spike in the angle of the boards more or less firmly, as the case may require all the flowers may be made to face one way. J. C. C.

HELLEBORES OF THE NIGER FAMILY.

IN THE GARDEN, November 24 (p. 459), "F. W. B." asks me to state exactly the origin of my seedling *H. niger*, which, he says, "very nearly resembled St. Brigid's variety." I cannot myself compare them, because I do not possess the latter, but my plant was simply one of many raised from typical *niger*, without, as I believe, any cross-fertilisation. I do not think any two of the seedlings were exactly alike, but this differed from the rest and from the type by having leaves more glossy, more sub-divided, and with each segment deeply toothed, and especially in having the leaf-stalk longer, lip erect of pale green, and not mottled with purple; the flower was a pure white. *Niger maximus* has never perfected seed here, but most of the tribe seed very freely, and when grown together the varieties are endless; but although *niger* seedlings vary amongst themselves, I have not found *niger* cross with other kinds, and yet I have had some grown in very close proximity for forty years. With reference to the different forms of *H. niger*, unless a very strong claim can be made for a different distinctive appellation, I agree with Mr. Burbidge, and, from their simplicity, prefer the terms *niger*, *niger major*, *niger minor*, *niger maximus* to any others. If Mr. Brockbank's *angustifolius* and Mr. Burbidge's St. Brigid be distinct from each of the preceding, why not let them take the names of those who have raised or brought them into notice? *Niger*, as given by Curtis, may be safely taken as the type. *Niger maximus* I had always supposed to be an old garden variety until Mr. Brockbank recently called attention to the fact that Hayne found it growing wild in Carniola. The pink tips of

the stigma are a certificate of identity independently of other characteristics. It was called *altifolius*, and as this was twenty years before it was heard of in Scotland, *altifolius* takes precedence of *maximus*; but in Devonshire, as I showed in a notice which appeared in THE GARDEN, March 10, 1883 (p. 222), this plant was grown certainly as early as 1830, and from the fact that it has long prevailed throughout the entire counties of Devon and Cornwall, as well as in parts of Somerset adjoining, to the complete exclusion of any other forms of *niger*, we may safely assume that it was first introduced into these counties rather than into Scotland, where, thirty years later, it was a rare plant, confined to one locality. I therefore think we may use the more convenient name *maximus* rather than the other. As a matter of fact, the typical *niger* is here, except to botanists, utterly unknown. *Maximus* is the popular Christmas Rose.

When I raised the question in THE GARDEN, my statements were fully confirmed by the most trustworthy authorities, viz., Mr. Ellacombe, of Bitton, and Mr. Wolley Dod.

It was an old plant in Bitton garden long before 1863. With regard to Mr. Brockbank's plant, I know no earlier authority for the name of *angustifolius* than Mr. McNab; but a collector of Hellebores, whose collection dated many years before the recent revival, told me that twenty years ago he bought what is now called *angustifolius* from Mr. Salter, of Hammersmith, under the name of "*niger major*." All things considered, we may, I think, assume that "*niger*" and "*niger maximus*" are natural species, and that "*major*," "*minor*," "*St. Brigid's*," and Mr. Brockbank's must be relegated to the rank of varieties until some botanical Burke or Walford proves their pedigree, and admits them among the "Upper Ten Thousand." There is one suggestion I should like to make to Mr. Barr, Mr. Ware, and others, to whom we are so much indebted, viz., that instead of massing together species, hybrids, and varieties in one indistinguishable list, they should, as is their custom with Crocuses, give one list with species only, and another containing the daily increasing catalogue of beautiful hybrids and varieties.

South Devon.

T. H. ARCHER-HIND.

HELLEBORUS NIGER ANGUSTIFOLIUS.

MR. BROCKBANK sends us a long letter on this subject from which we select the points essential to his argument:—

"I am asked," he says, "why I did not trumpet forth the merits of this Hellebore earlier? My answer is, that I was not aware that it was rare; but 'F. W. B.' will find that a great many of my floral friends knew of it, and had had it through me. In fact, it was Mr. Wolley Dod who drew my attention to the fact that it was my variety that 'Veronica' had just found out, and was referring to in his notes. What was new to 'Veronica' was old, as gardening, to me. Moreover, I am not a nurseryman. The reason why the London nurserymen have not our variety, is that they import their stocks from abroad and from Scotland. I know of no other reason. I can find at least two gardeners, within three miles of Brockhurst, who have grown this hellebore for fifty years, and who are growing it now. One of these, Mr. Wm. Brownhill, told me a few days ago, that his earliest recollection of it—fifty years ago—was seeing a neighbour who had planted a large plot of ground with it. His next neighbour looked over the fence and exclaimed—'Whatever arto' planting such a big lot for, it'll never sell.' 'But,' added Brownhill, 'it was all sold, and has been bought and sold in great quantities at Manchester market ever since.' It is thus quite evident that it is a very ancient and a very popular plant hereabouts. This variety breaks up readily, and, is thus easily

propagated by division. The other varieties of *H. niger* have running roots, not easily divided; and are much more difficult to propagate by divisions. It is from this peculiarity that the plant has remained unmixed by seedlings over so long a period. The plate to which "F. W. B." refers in Gerard's "Herbal" gives this feature of the plant accurately, just as Parkinson's description gives the time of flowering, the green colour of the stalks and petioles and the pure white of the flowers most unmistakably referring to this plant, and not to the ordinary rosy flowered *H. niger*, with its running roots and spreading habit.

"F. W. B." refers to a note in Mr. Barr's catalogue wherein he states that the Brockhurst and the St. Brigid's variety are quite distinct in his trial beds. I hope that may prove to be the case, but when Mr. Barr wrote that opinion he had only a very small bed of my Hellebore. At his request I have since forwarded him a large plant which, I doubt not, will hold its own at Tooting and will probably lead Mr. Barr to alter his opinion. The three varieties of *H. n. angustifolius* are growing side by side here, and I can see no difference between the Irish variety and ours. At blooming time I shall be ready to send some large plants in pots to any exhibition in London if "St. Brigid" would like to meet me in competition.

PLANTING AND TOP-DRESSING ALPINES.

THE ninth and tenth months of the year seem to be considered the orthodox planting season for hardy plants, and that it is the best time to move such things as *Thalictrums*, *Columbines*, the taller *Lychnis*, and those making a deal of tops is beyond doubt, but some of these I have often moved in summer, or as soon as they have done flowering, with better results than in autumn; in short, I have found that the best time for the nurseryman to divide and transplant his stock is also best for planting new borders or rockwork, and I can only find in experience one important reason why this method should not be generally recommended, and that is, it breaks up the borders, &c., when they ought to be showing with flowers. This is a consideration; but in making plantings or alterations of a permanent character it loses some of its importance.

Personally, I have followed early planting for years, and I never think of leaving much to be done after the early part of the tenth month. Geums, Scabious, Poppies, Gentians, Thrifts, Pyrethrums, Pæonias, Arnebia, Irises, Pentstemons, double Rockets, Carnations, Day Lilies, Anthericums, and many more things, which have been divided and planted during the past summer, all speak for themselves, for when examined they are found by the latter end of October to have masses of bright silvery roots almost out of proportion to the size of the plant, and there can be no mistaking the power of these when the flowering season comes round. I rarely plant

SHORT-ROOTED THINGS in the open after the ninth month, but pot them and place them in airy, cold frames, plunged in clean sharp sand; then, with a minimum amount of care, they are safe, and they can, hundreds of them, be seen at a glance. No time is lost either, but rather there is a gain, as under such condition the roots are more active than they would be subjected to extreme fluctuations of temperature and moisture in the open garden, even if not lifted bodily out of the earth by frosts. In early spring turning these out of their pots in showery weather is a pleasant occupation, and after studying the colour, height, and habit of each during the long winter evenings, they are all the more likely to be better disposed in beds or rockeries as well as more safely planted

than they otherwise would be. Where late planting has either been or has yet to be done it is a good plan to place small stones round the short-rooted kinds. There is also another little service we may do for

THE SMALLER AND EVERGREEN ALPINES, such as the dwarf Gentians—*bavarica*, *ornata*, *verna*, and *brachyphylla*; the rarer Pinks—*D. glacialis*, *D. neglectus*, *D. alpinus*, and all similar things; and it is this: about this time, when the rains should be taken advantage of, sprinkle sharp sand freely over the plants to be washed down solid about their stems; often plants that have not been set a year may be seen to be rather bare and even hollow in the midst of the upper parts of the roots; it is good practice to fill these up with sand at this season, not only to protect the parts from slugs and frost, but also to induce the growth of a set of healthy surface roots. The appearance of the plants after a few days' rain is so snug, that one feels sure that a service has been done them. The smallest kinds of Primula, such as *minima*, *Facchini*, *Allioni*, and *multiceps*, which either from a habit like that of *scotica* and *farinosa*, that seem by their wiry roots to force their crowns out of the mould, or like *tyrolensis* and *marginata*, that have leggy stems, are also greatly helped by a top dressing; and I think it cannot be given at any time better than now. Sharp sand mixed with fine peat is excellent, but dry cow manure, which should always be kept in stock for such purposes, and for sickly alpine, is better. When mixed with sand, made fine, and given half an inch thick to such plants as those just named, the effects are most marked the following spring. J. WOOD.

Kirkstall.

SHOW AURICULAS.

It is most interesting, even at this season, to spend an hour amongst Auriculas; scores of them are in flower; but we are so anxious to get all we can in good form at exhibition time, that autumn bloom is not looked upon with favour. I visited a friend some time ago, who has commenced to grow rock garden plants, of which he has a fine collection. We minutely examined every interesting and rare plant; even those not in flower did not pass without comment; this one was remarkable for its finely divided leaves; another for its pretty white or frosted foliage; others, like *Sibthorpia europæa* or *Thymus rotundifolia*, for the way in which they clung to the rock with their tracery of tiny leaves. So with our Auriculas; they are not only interesting, but beautiful, even in their winter dress. The outer leaves are now going through a process of rapid decay, and must be removed, or injury will be the result. Seedlings are even more interesting than named varieties; they give us so much more variety in form of leaf, and also in the way in which the farina is dusted over them. Some of the leaves are as white as the flowers of *Masdevallia tovarensis*. No one can fail to admire the spotless purity of *Sapphire* (Horner); its foliage is so pure and so white, while its trusses of bluish flowers serve to enhance its beauty. It quite spoils these beautiful foliaged Auriculas to plant them out of doors; moreover, they are too valuable to be trusted outside in our uncertain climate. Many admire them so much that they have built houses specially for their culture. Mr. Turner, of Slough, has a house, 80 feet long, filled with flowering plants for trade purposes. Alpine Auriculas have no farina or powder on leaf or flower; therefore they are better adapted for planting out of doors, but they do not like too much sunshine. A position shaded from the sun from eleven until three in the afternoon suits them best; they do not, however, refuse to give satisfaction in more exposed places if the soil in which they are growing is in any way good and they do not suffer from want of water.

J. DOUGLAS.

Manettia bicolor.—This slender climbing stove plant has a pretty appearance trained where vigorous growing climbers would soon outgrow the space allotted to them. Its foliage is small and neat, and the flowers, which are tube-shaped, bright scarlet with a yellow tip. Its also makes an attractive object trained around a few sticks. It may be seen in the T range at Kew treated in this way, and thickly studded with flowers.—H. P.

Raphiolepis salicifolia.—*R. ovata* is a slow-growing, hardy Japanese shrub, with dark green ovate leaves, but *R. salicifolia* is a more vigorous grower, often reaching a height of 6 feet or more. It has numerous slender branches and lanceolate leaves 3 inches or 4 inches long. Its flowers are borne in loose panicles, and are white, sometimes slightly suffused with pink. They may now be seen in abundance in the temperate house at Kew. It is a native of China, and has been long known in this country, but is rarely seen outside botanical gardens.—H. P.

Chrysanthemums at Kew.—There is an unusually fine display of these plants in the conservatory (No. 4) at Kew just now, the selection of kinds being both large and choice, and the plants both shapely and well flowered. In the case of those who desire to make notes of some of the most useful of Chrysanthemums for general decorative purposes a visit to Kew would not be thrown away. There is no attempt at any outrageous training and twisting, so as to form stiff, unnatural-looking specimens, the only support the plants have being a single stake; the branches therefore hang gracefully and naturally. In providing this display Kew is therefore serving a useful purpose. Collections of ornamental plants from which the public may select the most useful kinds further the interests of horticulture in no inconsiderable degree, and Kew is about the only public establishment where this kind of work can be done to any great extent.

Notes from Baden-Baden.—Vegetation here now looks wintery; herbaceous plants have died down. The last flowers of *Crocus longiflorus*, however, still brave the storm, and open whenever a sunbeam appears; *Primula capitata cœrulea*, the lavender-coloured variety, is also still in full bloom, although it has been constantly sending up flowers since August last. The dark coloured variety (*violacea*) never blooms so late, or so abundantly. *Omphalodes Luciliæ* and its white variety also both flower as late as this if some protection against cold rains be given them. A particular race of *Snowdrops* is in bud, and will fully expand as soon as the weather becomes dry. *Romulea Macowani* likewise only awaits a favourable change to open quantities of its *Crocus*-like flowers, so welcome about this time. Under glass a plant of *Paranephelus uniflorus* is very showy, its branches, even down to the ground, being loaded with *Aster*-like flowers, fully 4½ inches across, of a dazzling golden yellow. It is to be regretted that such a fine plant is so difficult to increase. I tried several times to divide it, but nearly lost the plant.—MAX LEICHTLIN.

SHORT NOTES.—FLOWER.

5085.—*Gladiolus viperatus*.—If "W. G.," Newport, U.S.A., will give his address to Max Leichtlin, of Baden-Baden, he would send him some bulbs of this *Gladiolus* when ripe next summer. No charge, no reciprocity.

Heliotrope White Lady.—Under glass this *Heliotrope* is sufficiently white to justify the name, but planted out the colour is washy and anything but white. Nevertheless, it is a fairly good bedder. It is quite as vigorous as such varieties as *Miss Nightingale*, and flowers as freely, producing large heads of blossoms that are delightfully fragrant.—J. C. C.

Origin of *Galanthus Scharloki*.—This rare and interesting variety of the common *Snowdrop* (*G. nivalis*) was, I find, originally found wild in Western Prussia by an apothecary and botanist, M. Scharloti, of Grandenz. He says that some stray bulbs of it can still be gathered in some copses in that country.—MAX LEICHTLIN, *Baden-Baden*.

Salvia Pitcheri.—Mr. Bedford says (p. 468) that cuttings of this *Salvia* put in in spring are of little use until the second year. In this I differ from him. We have here grown several dozen this year from cuttings struck in March, which have each carried from forty to fifty flowering sprays in 6-inch pots.—J. MAYNE, *Broadlands, Romsey*.

HARDY PRIMROSES FROM SEED.

A FEW years ago when seeds of various coloured Primroses were freely advertised I secured a supply, and the result was, that a good stock of plants was raised, and the variety of colours was truly charming. They ranged from deep crimson to mauve, and to the most delicately tinted yellows, but unfortunately rabbits soon worried the plants to death after they were put out. In order to get strong plants for flowering the next season, the seeds cannot be sown too early in the new year. In our case they were sown in pans which were placed in a cool house, and the soil was kept constantly moist, but as the seeds are very small some care is necessary in watering, or they are liable to be washed out of the soil. It will be several weeks before young plants show themselves, and when they do they come up irregularly; they should not be disturbed until there is a number sufficiently large to bear removal. In our case we did not disturb them until the end of May, when most of the seed had produced plants. Previous to being transplanted the pans were placed in a cold frame for two or three weeks to get hardened. A piece of ground was then prepared for them on a shady border. In order to secure strong plants they must have shade from bright sun, and a cool rich soil to grow in. In our case we placed some finely sifted soil about their roots. The space was marked out into rows 9 inches apart; then a drill was drawn which was filled with the fine soil. In this the plants were put 6 inches apart, and by the end of the autumn they were large and strong. If the weather should continue dry after the young seedlings are put out they should have two or three soakings of water in order to get them established. In mild weather in November they may be planted out where they are to flower. Those fond of early flowering hardy plants could hardly do better than raise two or three hundred plants of these Primroses. Where there are no rabbits to interfere with them they are just the subjects to adorn woodland walks and the fronts of shrubby borders, nor ought they to be excluded from more prominent positions in the dressed grounds. J. C. C.

PLANTS IN FLOWER.

Paper-white Narcissus.—We send you a spike of this *Narcissus*, which has been grown in the open air without any protection whatever. It is not a stray flower, but one out of a bed of several hundred, which will be at their best in a fortnight.—F. J. HUBERT & Co., *Guernsey*.
. Very sweet and pretty.—ED.

Chrysanthemums.—I send you a few flowers of *Chrysanthemums* gathered from plants which I put out in the open ground in May. I took the plants up in the end of September, potted them in 10-inch pots, then set them in a shady place till the middle of October. I then dibbled them, leaving from twenty to thirty buds on each plant, and put them into a cool house, where they now are in full flower.—D. DORWARD.

. Very fine blooms indeed of incurved and Japanese varieties, James Salter among the latter being particularly fine.—ED.

Salvia amabilis alba.—We send you a sketch of this pretty Sage, which we have raised. As you will see, it is very effective, and in order to show the old blue form, we have added a flower of it to the same plate.—DAMMANN & Co., *Portici, Italy*.

. Apparently a very pretty Sage. The illustration shows the plant to be of a bushy growth, somewhat resembling *S. farinacea*. The flower-spikes are slender and overtop the foliage. The flowers, which are about the size of those of *S. Pitcheri*, are arranged densely on the spikes. The drawing of the original species represents them of a deep ultramarine blue, while those of the *alba* variety are pure white.—ED.

Eucharis subdentata.—In the Palm house at Kew this plant is bearing several scapes of bloom. The flowers, which are about 2 inches across, are pure white, pendulous, and borne about half-a-dozen together on the end of a scape about 1 foot in length. Unfortunately, this species is a shy bloomer, otherwise it would prove a useful winter plant. As has been noted before, it has

been distributed as *E. candida*; indeed until recently it was generally accepted as that plant. *E. candida*, however, is a much superior species; it flowers profusely, and its flowers are much larger than those of *E. subdentata*. As there appears to be some confusion with regard to several of the species of *Eucharis*, we intend shortly to give a description of all those known to horticulture, along with figures of some of them. This plant is also known as *Calliphuria subdentata*.

Dahlia imperialis.—This Dahlia, although when in flower a noble plant, is seldom seen in gardens. The height needed in order to allow it room to fully develop itself doubtless prevents many from growing it; yet in structures in which there are a dozen feet of head room, and where it can be kept in an intermediate temperature, it should certainly be grown. Every recurring season it is very attractive about this time in one of the octagons of the temperate house at Kew, but this year it is dwarfer than usual, and the flowers fewer. Even as seen there just now, however, it is a grand plant.—H. P.

Buddleia auriculata.—A flowering branch of this deliciously scented South American shrub has been sent to us by Mr. Green, from Sir George Macleay's garden, at Pendell Court, Bletchingley. It is a slender growing plant with long shoots sparingly furnished with pointed lance-shaped leaves silvery beneath. The flowers, which are small, are produced numerous in dense clusters from the leaf axils on the upper parts of the shoots. Their colour is yellowish white. The perfume resembles that of a mixture of Cowslips and Chinese Primulas, and is powerful enough to quite scent a room. We should like to have some further information from Mr. Green respecting this interesting plant.

Bignonia venusta.—Some beautiful flowering sprays of this showy South American climbing plant have reached us from Sir George Macleay's garden at Pendell Court, Bletchingley, where Mr. Green tells us it is now in great beauty, being furnished with branches as much as 6 feet in length, completely wreathed with dense clusters of bright orange blooms. This is an old introduction, but still a comparatively unknown plant, though better than nine-tenths of the modern introductions. It requires plenty of room and liberal treatment. Where it succeeds thoroughly, as at Pendell Court, there are few more beautiful sights than a large specimen festooning the way, not only with elegant growth, but showy blossoms. A coloured plate of it appeared in THE GARDEN, Vol. XXI., p. 276.

Single Chrysanthemums.—Some uncommonly pretty single-flowered Chrysanthemums have been sent to us by Mr. J. Green from his nursery at Thorpe, Norwich. The prettiest among them is one named Magenta King. Its flowers, which are some 3 inches across, have a double row of florets of a bright crimson-magenta colour, forming a pleasing contrast with the centre, which is bright yellow. Beauty of Elgenberg, a pure white, is also very pretty. The flowers of Fair Marguerite are a dirty white compared with those of the preceding; indeed, it is scarcely worth growing, unless it comes better than the specimens sent to us. Lilac Gem has small deep lilac flowers with a central ring. Tisiphone is the most singular of all, inasmuch as the flowers are deeply cleft and twisted in all directions. The colour, a reddish brown, is peculiarly pleasing. Mr. Green also sends a fine gathering of the new Lady Selborne, assuredly one of the loveliest of white Chrysanthemums in cultivation.

Chrysanthemums from America.—We have received from Mr. J. Thorpe, of Queen's New York, a boxful of fresh blooms of new varieties of Japanese Chrysanthemums which he has raised in his nursery there. They arrived in perfect condition, though twelve days on the journey. The stalk of each flower was inserted in a raw Potato kept in position by a long nail driven through the bottom of the box. Amongst these blooms there are several strikingly beautiful sorts. All of them

are semi-double, that is, the centres are not filled up by florets, and the prominent yellow bosses enhance, we think, considerably the beauty of the flowers. A medium-sized bloom with pure yellow tubular florets is extremely beautiful, and so are others of a bright magenta and a deep maroon-crimson. A white variety, too, is exquisite, inasmuch as the long, slender, pure white florets reflex elegantly, leaving the conspicuous disk exposed. Mr. Thorpe remarks that his seedlings "have caused quite a sensation among New York flower lovers."

WINTER FLOWERS AT FROGMORE.

BESIDES the feast of Chrysanthemums which awaited the return of the Queen to Windsor, Mr. Jones had prepared a charming display of other winter-flowering plants in the Royal gardens. Several of the houses teem with masses of gay flowers, all intended either for the embellishment of the Castle or for furnishing cut flowers, the demand for which in such an establishment is of course enormous. All kinds of plants that can be relied on for affording a large supply of bright and showy blossoms are pressed into the service, and for the most part these are grown in various sizes by hundreds and even thousands. The most noteworthy among those in good condition at the present time are the following:—

POINSETTIAS. The brilliant heads of bracts of these, often over a foot across, light up every warm plant house. Some of the plants are as much as 6 feet in height, but the majority of them are only moderately large specimens, clothed to the bases with foliage. The taller plants amongst them are indispensable for floral decorations at the Castle, in the capacious halls and rooms of which small plants would be ineffective. In one of the houses there is a capital illustration of the value of Poinsettias as decorative plants. In the Chrysanthemum house, described in our columns last week, a rockery, planted with Ferns and other fine-foliaged plants, occupies the end of the house. Among these some Poinsettias were grouped here and there irregularly, and their brilliant scarlet bracts seen against the green background produced a charming effect, particularly in contrast with the sombre green foliage of *Cycas revoluta*, a fine plant of which was encircled with Poinsettias. Only the old Poinsettia pulcherrima is grown here, as none of the newer kinds are considered to surpass it.

LIBONIA PENRHOSENSIS is another favourite plant, judging by the large number grown of it. It is a most valuable winter-flowering plant, and much superior to the older and better-known *L. floribunda*, which is said to be one of its parents. Its habit of growth is neater than that of *L. floribunda*, and it is a more profuse flowerer; the flowers, moreover, are larger and brighter coloured, being of a bright yellow tipped with red. When seen in large masses, as here, it produces a strikingly pretty effect. The plants vary from 9 inches to 7 feet in height, and are perfect masses of bloom. This Libonia is certainly deserving of more extensive cultivation for autumn and winter blooming, being quite as easy to propagate and grow as the older kind. Early spring struck cuttings make nice compact plants by the end of September, and from the middle of October they continue to flower uninterruptedly for several weeks. Like all other winter-flowering stove plants, it requires liberal treatment. *Sericographis Ghiesbreghtiana* is said to be the other parent of *L. penrhosensis*; it is a pretty winter flowerer, and finds a place in the Frogmore selection.

Its tall, slender flower-stems, furnished with deep scarlet blossoms, are capable of producing some charming effects interspersed with delicate Ferns and other plants.

RIVINAS among berried plants are uncommonly fine, and we had never before seen plants so profusely furnished with berries. These Rivinas have an extremely pretty effect when interspersed with groups of flowering and fine foliaged plants, and are most useful for room adornment. *Echeveria retusa*, not a commonly grown plant, is here found a most useful winter flowerer. The blossoms are a bright orange-scarlet, produced in loose clusters. The foliage being covered with a glaucous hue adds to the attractiveness of the plant. *Plumbago rosea*, *Euphorbia jacquiniæflora*, *Centropogon Lucyanus*, *Eucharis amazonica* and *candida*, Persian Cyclamen, double and single Chinese Primulas, and other well-known plants are, of course, largely grown for winter flower. Newer introductions of merit also receive attention, and none more deservedly than the new *Jasminum gracillimum*, which is just commencing to furnish its winter crop of bloom. The elegant habit of growth of this Jasmine, combined with the chaste purity and delicious perfume of its flowers, renders it an invaluable plant, and more especially as it is so easy to grow and propagate, and never fails to produce a profusion of bloom. It is well adapted for cutting from, as the flowers are borne in clusters, terminating slender twigs, and it is also perfectly amenable for growing into presentable specimens without training or tying. The old *Cypripedium insigne* is grown numerous, and some varieties of it here but little inferior to the Maulei form may be found among the general stock. Other Orchids of the most useful class, such as *Lælia anceps*, *Calanthe Veitchi*, are grown admirably. Besides these flowering plants there are housefuls of fine foliage plants, such as the finest sorts of *Dracana*, *Croton*, *Maranta*, *Dieffenbachia*, *Anthurium*, and other genera; in short, every sort of plant adapted for floral decoration on a grand scale grown to perfection. G.

Helleborus niger altifolius.—"Veronica" writes (p. 453). "But who can tell us the native habitat of *H. altifolius*?" I have written in a contemporary a pretty full account of this great Christmas Rose. I have traced it to its native habitat in Carniola. Herr Gusmus, of Villach, has since written me that I am quite correct, and that it occurs plentifully in Southern Austria. It is abundantly in flower here. If any of your readers would like to call and see it they are very welcome to do so.—WM. BROCKBANK, *Brockhurst, Didsbury*

*** Long years before Mr. Brockbank wrote a line about this plant its true name and value were given in THE GARDEN.—ED.

Hardy Ferns.—May I express a hope that "Pellea" will supplement his concise and excellent contributions to THE GARDEN on Ferns by a description of our hardy British varieties, their culture, management, and propagation? With a little information and instruction most of us would be able to grow them in the open, but it is not given to the many the means to command a stove, or even a greenhouse. I feel sure that a continuance of the papers on tender Ferns, if extended to the many beautiful varieties that can be grown in this country in our own gardens, will be gratefully welcomed and appreciated.—WILCHMORE.

Fungi.—Allow me to correct an error which might lead to a serious misconception of fact. In your report of the proceedings of the Scientific Committee of the Royal Horticultural Society (p. 448) you say that Mr. W. G. Smith showed examples of a fungus named *Isaria fuciformis* from the "site" of the Model Farm, Glasnevin. This would imply that that institution was extinct, which is so far from the truth, that the real fact is, it is in a most flourishing condition. Owing to my bad writing, when sending Mr. Smith the material he read the word "Site" for "site." If you will kindly make this correction you will greatly oblige me. I may add that I think the plant in question will probably prove not to be the *Isaria* mentioned.—G. FIM, *Monkstown, Dublin*.

INDOOR GARDEN.

THE ARUM FAMILY.

A BETTER illustration of the water-loving character of the whole of the members of the Arum family could not well be given than that shown in the accompanying engravings, which represent two well-known plants growing under those conditions which Nature provides for them, and under which alone, imitated in our plant houses, can

fluence the air about them is kept ever humid and genial. Travellers tell us that in these forests the evaporation is as excessive as that of a vapour bath, and so it is in the Old World wherever the Arum family is represented—always excessive. Like Ferns, Arums thrive best under extremely moist conditions. In the case of both there may be exceptions, but one cannot err in imitating Nature. No one could desire to have *Spathiphyllum Dechardii* better grown than we here see done by Nature herself. To neglect to supply it with an abund-

THE SPATHIPHYLLUMS, including the species here represented, along with *S. candidum*, *S. floribundum*, and *S. Patini*, known in gardens as Anthuriums, are all natives of the humid forests of Columbia. Some good specimens of these, along with several others, are to be seen in the Aroid house and in the Palm house at Kew. The *Caladiums*, *Alocasias*, *Colocasias*, and *Xanthosomas*, all nearly related to each other both in affinity and appearance, are best planted out, or, if kept in pots, they must have a liberal amount of root room and abundance of water. The noble appearance of some of these plants when planted out has been well exemplified in the Palm house at Kew this year. There might have been seen *Xanthosoma violacea*, whose enormous leaves and violet-purple leaf-stalks are highly ornamental, *X. robusta*, with foliage 3 feet across, and 6 feet in height; *X. versicolor*, *Alocasia macrorrhiza*, whose stem is 6 inches in diameter, and 6 feet high, and crowned with a head of large sagittate green leaves; *A. zebrina*, characterised by a leaf-stalk with a zebra-like variegation, and many others, all eminently adapted for large tropical stoves, in which they can be planted out.

THE AMORPHOPHALLUS and allied kinds are other noble members of the Arum family. Attention has already been directed to the fine appearance created by a bed of the *A. campanulatus* at Kew, and there are now in the Palm house several fine specimens of this plant, whose singular appearance, which may be likened to that of a gigantic vegetable umbrella, contrasts effectively with the plants among which it stands. The colossal member of this section of the Order—viz., *Conophallus Titanum*—has not yet developed to its full dimensions under cultivation, but in time it is to be hoped it will reach its best in our tropical houses. In addition to the above, there still remain hosts of good garden plants among the Anthuriums, *Aglaonemas*, *Dieffenbachias*, *Philodendrons*, and *Syngoniums*, to which it will be well worth the while of those who have large tropical houses to fill to devote attention.

CALLA ÆTHIOPICA, *Richardia*, *Arum Lily*, or *Lily of the Nile*, by whichever name one cares to call it, is one of our every-day plants, grown by all and admired by all both for its handsome leaves and for its large white, sweet-smelling, trumpet-shaped flowers so-called, but I suppose everyone knows that they are no more flowers than the sheath that envelops the Wheat ear. The flowers are, however, inside that white trumpet, and it is to their distilling energy that the sweet odour emitted from the tube is due. Arum Lilies are much used for the decoration of churches about Christmas time, and again at Easter they play a prominent part in the same kind of work. In order to have a good supply of the flowers of this plant the following directions may be followed with advantage: Early in June the plants should be shaken out of their pots, cut up into as many pieces as possible, and planted in trenches prepared as for Celery—that is, to three parts of loam add one part of fresh cow manure, and place a layer of it in the bottom of a trench about 1 foot deep. All through the summer an abundance of water should be given with a liberal addition of liquid manure as the plants advance in growth. About the end of September lift each plant with a good-sized ball of earth attached to it and repot, placing them afterwards in a shaded position in a cool house for a few days so that no check may be experienced. When established they may be placed in a light airy position in a greenhouse or frame, and as near the glass as possible. The temperature should not exceed 55°, a degree of warmth which will be sufficient to bring them into bloom by Christmas time and onwards, until Easter. Resting or drying off for a time after flowering is not good treatment for these plants; they should be well supplied with water always. There is a variety of *C. æthiopica* known as *C. hastata*, distinguished by its yellow flowers. Both these plants are natives of the Cape, and not of the Nile region. It is strange that neither the *Lily of the Nile*, nor the Sacred Lotus (*Nelumbium speciosum*), nor the Sacred Reed (*Papyrus antiquorum*) are



Spathiphyllum Dechardii at home.

anything like success in their cultivation be achieved. Arums frequent only the moistest of situations, and whether found in the dense jungles of the western or eastern Tropics or in the more temperate regions, they are always either luxuriating on the banks of a stream or under the shade of some forest in which moisture is abundant. The headquarters perhaps of the Order is Tropical America, especially the southern portion. Here Anthuriums, *Philodendrons*, *Monstera*s, and *Caladiums*, along with hosts of others, are found clinging round the limbs of the gigantic forest trees to whose shade they are indebted for protection from scorching sunlight, and under whose in-

fluence the air about them is kept ever humid and genial. Travellers tell us that in these forests the evaporation is as excessive as that of a vapour bath, and so it is in the Old World wherever the Arum family is represented—always excessive. Like Ferns, Arums thrive best under extremely moist conditions. In the case of both there may be exceptions, but one cannot err in imitating Nature. No one could desire to have *Spathiphyllum Dechardii* better grown than we here see done by Nature herself. To neglect to supply it with an abund-

now found wild in Egypt, nor does there appear to exist any proofs of their ever having been wild there other than the name, which stands for but little. B.

CONSTRUCTION OF GLASS HOUSES.

THE more we see and hear on this subject the more are we driven to the conclusion that the future glass roof will have to cover all in and leave neither woodwork nor putty exposed to the weather. In other words—glass roofs will be put together like slates upon the roof of a dwelling-house, or in some similar way. The only objection to this plan is that the rain would get in between the panes laid edge to edge,—flush, for there is no difficulty about the lap over at the tops of the panes. If any means could be devised by which the panes could be fixed together at the edges when laid flat we should at once overcome the difficulty and do away with guts, astragals, putty and all outside projections. This is the point which horticultural builders have now to study. At present, in any attempts at covering in the frame-work of the roof with glass the panes overlap both endways and sideways, hence allow much heat to escape at the numerous laps, and the wind also rushes in on windy days, keeping down temperature and entailing the use of more fuel. The only modern houses I ever saw glassed in the way I have suggested, were exhibited by a French builder at the Paris Exhibition of 1878, and he got over the difficulty of the seams where the edges of the glass met by pasting over them narrow strips of tinfoil, which appeared very enduring and effectual, but did not look very neat. The roof had, however, a smooth appearance, was perfectly water-tight, and every portion of the woodwork was covered over so that no painting of rafters or anything else outside was needed. Some builders have already got rid of outside putty, simply bedding the panes on a thin layer of putty laid on the rabbet beneath; but they still retain the wooden ridge between the panes as well as the rafters. They only need now to go a step further and get rid of the last, making the panes meet over them and the riddle will be solved. The man who secures a patent for some design of this sort will probably succeed. It is what gardeners want. They have objections to wholly puttyless glazing because of the hard firing such roofs entail, losing in one way what is gained in another, especially in early forcing; cutting the panes wide and smoothly at their edges, and laying them close, edge to edge, on a bed of putty over all, one would think was not an impossible matter. If the panes could be fixed in position by a spring or copper nail, nothing more would be required, for in pressing down the glass upon the putty the latter would work up into any small spaces between and fill them up effectually. This is just what happens in glazing without outside putty. The panes are not cut particularly smooth at the edges, the putty works between them, and the wooden ridge of the astragal is skinned off by the knife afterwards and is quite safe against drip. It takes little to hold a pane of glass in its place, and in a roof glazed in the way suggested there would really be no points for any force such as wind to lay hold of. When I came here I found an old Peach house glazed in this way that had stood for fifty or sixty years; but it was of homely construction and merely an experiment, the panes being old fashioned and only about 3 inches long and 5 inches wide, fixed by copper tacks. The roof looked rather ragged, but it served its purpose, and during the whole time just named never needed to be painted outside. With panes 2 or 3 feet long, however, and from 1 foot to 2 feet broad, such a roof would be a very different affair. J. S. W.

Eranthemum Andersoni.—I am glad that so skilful a cultivator as Mr. Hudson, of Gunnersbury House, has taken this plant in hand, and that attention has been called to its merits; it is one of the most showy and useful stove plants in cultivation, for it may be grown in almost the smallest of pots to a size large enough to bear a spike or two of flowers, and it

may be had in bloom at any time by resting, cutting back, or propagating fresh stock at different periods. For years I have been trying to effect a cross between this *Eranthemum* and *E. pulchellum*, but have never succeeded, although I have raised many seedlings from both. If they would only breed together, the progeny ought to be good.—S. D.

PAVETTAS.

Two species of these handsome cinchonaceous plants well deserve a place amongst stove plants, viz., *P. borbonica* and *P. caffra*. Of these the first is one of the most beautiful of evergreen variegated stove subjects. It is a hard-wooded species, erect in habit, and incapable of being made to branch out until it has acquired considerable strength and height. Indeed it looks best when confined to a single stem. The leaves are a foot or more in length, shining, bright green, distinctly marked with blackish green, and the mid-rib red. It may be propagated from eyes with a leaf attached or from young side shoots such as spring from the main stem when the plant gets strong enough, or from shoots produced by a specimen that has been headed back. The cuttings should be put singly in small pots in a brisk bottom heat if available, kept close, moist and shaded. They generally require a good length of time to form roots. When these are present in sufficient numbers move the young plants to larger pots, using good sandy peat, and keep them in a brisk heat. Supposing the cuttings to have been taken off in the spring, it will be August by the time they get fully established in their pots. Treat generally during the remainder of the summer as required by other evergreen warm stove subjects, syringing daily overhead, with a moist atmosphere and shade when the sun is powerful. A temperature of 65° will be enough for the winter. In spring give them 6 or 7-inch pots, increasing the heat as the days get longer: all further needed will be a continuance of the treatment given last summer, and a similar course when winter again comes round, with pot room as the roots want it. The plants should be grown on so long as they retain their lower leaves, after the loss of which they lose much of their beauty, and ought to be shortened in when the stools will produce cuttings.

P. CAFFRA makes growth in the way of *Gardenia intermedia*, and produces flowers in bunches like a small white *Ixora*; it is a free bloomer, its flowers look very pretty on the plant, and are well adapted for cutting. It strikes freely from cuttings of the young shoots put in about the end of April, at which time they may usually be had in suitable condition; place them singly in little pots, filled with sand; they will root in a month if kept warm, close, moist and shaded. After the small pots are filled with roots move into others, 3 or 4 inches in diameter, using sandy peat; pinch out the points of the shoots and grow on in a moderate stove heat with a little shade, and some air in the middle of the day, syringing in the afternoon. In August give them pots 2 or 3 in. larger, and encourage them to fill the soil before winter, during which time a temperature of 60° will be enough. More pot room will be needed in spring, pinching out the points of the leading shoots; treat as to warmth and other matters as in the preceding summer. The plant is a good grower, and the young stock will require larger pots before the growing season is over. If all has gone well most of the principal shoots will produce flowers during the early part of autumn, after which the points of the growths may be cut back slightly, and the plants wintered as before. Give more root room in spring, and treat generally as advised for the preceding season's growth. By cutting in a little annually and partially removing the soil when needful, they will last for years. This Pavetta is a native of the Cape of Good Hope, but does best with more warmth than most plants from the same region require.

INSECTS.—The daily use of the syringe advised during the growing season will keep the smaller insects in check. Should scale, or bug, attack the plants, both of which insects will thrive on them,

syringe with insecticide when at rest, sponging the leaves if growth is in progress. T. BAINES.

TERMINALIA ELEGANS.

In this we have an evergreen plant from Madagascar, distinct and handsome. Its trifoliate, lance-shaped leaves are not unlike those of some of the *Aralias*, and are extremely beautiful; the ground colour is deep green, the mid-rib red, and a red reticulation runs through the whole of the leaves; as they get old this red veining becomes almost as clearly defined and vivid as that of the beautiful *Anæctochilus setaceus*. It is a plant of medium or small growth, attaining about the same size as *Aralia Veitchi*, and easily grown where a high temperature can be maintained. It can be propagated by grafting it on any of the *Aralias* with pithy stems, like *A. Veitchi*; it will also grow from root-cuttings, made from half-inch pieces of the stronger roots, inserted with their ends just above the surface in pots drained and filled with sand in a temperature of 75° or 80°. When raised in this way the

CUTTINGS should be put in about the end of March so that the plant from which they are taken can at once be started afresh in a brisk heat; the cuttings as soon as they commence to grow must be stood in a moderately light position. When they have made a few leaves they should be moved singly into 3 inch pots, using good peaty soil with sand added: they will bear through the summer as much heat as any plant in cultivation, say from 75° in the night to 80° or 90° by day in bright weather. Shade from the sun when it is powerful, giving air in accordance with the weather, and syringing overhead in the afternoons, with a moderately humid atmosphere all through the season of growth. By July the plants will bear moving to 4-inch pots; after this continue to treat as before until the approach of colder weather; then leave off shading, keeping the atmosphere drier. A temperature of 60° or 65° should be kept up by night in the winter, with less water at the roots, but the soil must never be let to get dry, or the foliage of this and all similar plants will suffer. In spring increase the warmth and resume the treatment generally recommended for the preceding summer, giving pots 2 or 3 inches larger as the soil gets filled with roots. Treat through the ensuing winter as in the last, again give larger pots in spring, and manage then through the summer as before. During this, the third, summer the plants will grow so as to be seen to advantage, retaining their beauty so long as the lower leaves continue healthy, after which they can be headed down to within 6 inches of the collar, and when the young shoots have grown to a length of 6 inches reduce them to one, shaking out the soil and moving into pots a size smaller. If the upper portion of the heads only are taken off, the tops may be struck, and the shoots which will break out from the stem can be taken off with a heel and struck in the same way that other plants succeed which require a strong heat to grow in, treating the young stock thus obtained in a similar manner to that advised for the plants raised from root cuttings.

INSECTS.—The smooth, glossy surface of the leaves does not afford harbour for insects to the extent existent with many stove plants, so that all which may affect them can be removed by syringing, except scale, which is easily got rid of by sponging. T. BAINES.

Psychotria cyanococca.—This evergreen stove shrub is by no means attractive in appearance, either as regards foliage or flowers, but when in fruit the case is different. The berries which it bears are each about the size of a small pea and borne in dense clusters, as many as twenty-five to thirty being in a single bunch. It flowers towards the end of the summer, and the fruits, which are now of a lovely blue colour, will, under ordinary stove treatment, continue in beauty for some time to come. It is a plant of very easy culture; cuttings of it strike readily, besides which plants of it may be raised in abundance from seed, but these latter are in their earlier stages not so floriferous as those from cuttings. This *Psychotria*

is a native of Nicaragua, and is at present in fruit in the T range at Kew.—T.

SONERILA MARGARITACEA.

THIS when in bloom is a particularly handsome plant, the bright pink flowers with prominent yellow anthers contrasting admirably with the lovely spotted leaves. It is a spreading, low-growing semi-herbaceous Melastomad, which attains a height of 8 inches or 9 inches. It flowers early in the spring and lasts in bloom two or three weeks, during which time it is one of the prettiest of stove plants. Even when out of flower, a well-grown *Sonerila* is always attractive, its dense mass of small leaves profusely studded with milk-white spots looking like pearls set in bright green.

day. Nothing further is required but to give additional pot-room, as this becomes necessary, and reduce the heat as the autumn comes on, and also discontinue shading and syringing. In the winter a night temperature of 60° to 65° will be sufficient. Young plants are preferable to old ones, as the latter sometimes are liable to damp off after flowering; this is more likely to occur if, when the flowers drop, the falling petals are not shaken away, as if let to decay on the shoots they will cause them to rot. But, independent of this, young plants propagated early each spring are preferable to old ones. There are three varieties of this plant—*S. margaritacea*, *S. margaritacea superba*, and *S. margaritacea alba*, similar in habit, but differing in appearance.

INSECTS.—Scale, mealy bug, and other insects will sometimes attack *Sonerilas*. Those that can



Arum Lily (Calla aethiopica) plante d'eau.

It is a native of India, and in order to grow it well it requires a brisk heat and a somewhat moist atmosphere. It thrives best in fibrous peat broken small and mixed with about one-fourth of chopped Sphagnum, to which a liberal proportion of sand should be added, with a good sprinkling of crocks.

PROPAGATION.—It strikes readily in the spring from pieces of the shoots inserted in small pots half full of crocks, the remainder being filled up with material such as that already described. The cuttings should be kept moist and covered with a bell-glass in a temperature of 70°; they will root in two or three weeks. When the young plants have got fairly established move them into larger pots or deep pans, as to get a good specimen in the least time, its branching procumbent shoots should have room to spread over the soil, into which they will root, and in this way cover a much larger surface than they would do if only supported from the stem first rooted. The soil through the growing season should be kept moderately moist, but not too wet. Syringe once a day, but only in bright weather, so that the moisture may dry off them soon, or sometimes the shoots will damp if the water hangs on them too long. To counteract this the plants should be stood tolerably near the glass, but must be shaded slightly from the sun when the weather is hot; they should have air daily through the growing season, but must not be where the air admitted will dry the atmosphere too much. During the latter part of spring and through the summer the plants will bear a temperature of 70° in the night and 85° by

be destroyed by fumigation are easily got rid of by that means, but the two former are difficult to deal with when they get established on the brittle stems and leaves, which are impatient of being subjected to any but very gentle handling; and, like other plants with delicate foliage, they will not bear the use of insecticide, sponge and water being the best means by which to clean them.

T. BAINES.

Propagating Chrysanthemums.—I always finish propagating our stock of Chrysanthemums by the end of November. I prefer for the purpose the little stubby shoots that grow from the bottom of the old plants. As soon as they are from 2 inches to 3 inches long they are taken off with a few roots attached to each, potted singly in 3-inch pots, put into a cold pit, and kept close for a week. After that time air is given them on all favourable occasions. From two things they are kept, viz., fire-heat and frost.—R. NISBET.

5093.—*Chirita sinensis variegata*.—"J. G. H." should give his plant the most shady position in his stove. I always failed to grow it until I tried it in shade, and now it grows and flowers freely. The lilac blossoms are as large as those of *Gesnera zebrina*, borne one or two together on a short stem. The green-leaved type is really a good stove flowering plant as grown in a warm shady position in small pots thoroughly well drained, it being rather impatient of damp.—F. W. B.

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 471.)

LINDSÆA.—This is a genus most extensively represented in herbariums, but living plants in collections are comparatively scarce. This is not, however, from want of good qualities, but owing to the difficulties which beset their importation. Time after time some of the most beautiful representatives of the genus have arrived, but although to all appearance in good trim on their arrival, from some inexplicable cause they have just as frequently died, leaving nothing behind but dry specimens for the herbarium. Some think that when they arrived here they were killed with kindness. Lately, however, owing to different treatment having been given them, some of the most interesting kinds looked upon as precious gems by all Fern lovers have become established. These, when taken from the packing cases, were placed in pots nearly filled with crocks, in which they are held by two or three pieces of loamy turf. In this way cultivators are imitating their natural mode of growth, for this class of Ferns is generally found with their creeping rhizomes running in and about a poor stony soil, frequently drenched with rain, and therefore often carried away and leaving very little soil to stagnate about their roots. All of them, too, revel in a humid atmosphere, and under cultivation do well if treated as Filmy Ferns, but they need a higher temperature. Many of the species bear considerable resemblance to certain *Adiantums*; some even grow 2 feet in height, but in all instances their stems, which are light coloured, lack the black polished appearance peculiar to those of most of the Maiden-hair Ferns. Although they require a great abundance of water at the roots, perfect drainage cannot be too strongly insisted upon, for they suffer very much from the effects of stagnant water, as much in fact as from the want of atmospheric humidity. When properly established they should be potted in a mixture of two parts turfy loam and one of fibrous peat, with only a dash of sand, and a little only of this mixture should be used in each pot, the greater part of which should be filled with drainage materials. They should then be either set, or, better still, plunged in a bed of Sphagnum Moss and kept close and occasionally sprinkled overhead. Nearly all of them will thrive well under that treatment, although a few members of the genus, such as *L. trichomanoides*, which is a native of New Zealand, may need a little less heat. The majority of them come from warmer climes, either from the East or West Indies, where they grow naturally, either in woods or on their margins, and under the shade of large forest trees, where the atmosphere is humid and also always warm.

L. CAUDATA.—A very interesting species from Ceylon, seldom seen in cultivation. In general outline it somewhat resembles the much more common *Adiantum pedatum* from North America, as the stalks as well as the rachis are of a deep brown hue and beautifully glossy, and as its fronds, which are rather sparingly produced from an underground fleshy rhizome, are also bipinnate, but there ends the similarity, for in the case of this plant the pinnæ, besides being very numerous, are also narrow, lanceolate, and terminate in a long, slightly attenuate and caudate apex; the pinnules, which are half ovate in shape, are decurved, the terminal ones terminating in a tail-like process. Like all other *Lindsæas*, the sori are most conspicuous, owing to their being set on the very margin of each pinnule. Stove.

L. CORDATA (*Schizoloma cordata*).—This Malayan species, of very peculiar appearance and dwarf habit, is totally distinct from all other members of the genus, inasmuch as its fertile and barren fronds are completely dissimilar on all points; the former, which rise altogether above the barren ones, measures from 4 inches to 6 inches in length, and are linear, entire, and very often forked; whereas the barren ones, cordate-oblong in shape and quite entire, seldom measure more than about 3 inches in height by 1½ inches in breadth. Both are of coriaceous texture and borne on slender, erect wiry stalks, longer

in the fertile than in the sterile fronds, and which are produced from a short creeping rhizome. Stove.

L. CULTRATA.—A very elegant species from the East Indies, and one which is now found in most collections, it being of a somewhat harder constitution than most other kinds. It is a thoroughly evergreen species which, if a tolerably fair quantity of humidity is kept in the stove fernery, will soon make itself at home there, especially if it can be planted on a rockwork by the water edge. It is of itself very interesting and ornamental, but its attractive powers are still enhanced by the delicious perfume emitted from its lovely pinnate fronds, and which somewhat resembles that of Almond or that produced by the Peach tree leaf when crushed between the fingers, or again, as we have heard it, compared to the odour of the sweet-scented vernal Grass (*Anthoxanthum odoratum*). Its perfume, whatever it is compared to, is retained for many years when the fronds are kept in dry state. These are produced freely from an underground creeping rhizome, and seldom attain more than 6 inches in height, with pinnae sometimes opposite and sometimes alternate; these are of a light green colour and have their margins deeply lobed, and the whole plant is of a rather erect, dense habit. Stove.

L. DAVALLOIDES (*Schizoloma lobata*).—This very handsome species possesses a very wide range, seeing that it is frequently sent home from Java, Singapore, Malacca, &c., where it appears to grow abundantly. It is found at home in a few choice collections only, and there never fails to cause the admiration of all beholders. Its beautiful fronds, subdeltoid in shape, are produced freely from a creeping caudex and borne on long glabrous and wiry stalks. They are bipinnate, with acuminate-lanceolate pinnae, erectopate and membranaceous, slightly reticulated pinnules, with obtuse extremity and superior base truncate, provided with a costa at the inferior margin, whereas the superior margin is rather deeply, although irregularly lobed. The whole plant is of a lively tender green colour, very pleasing. Stove.

L. DIVERGENS.—A very curious species from Malacca, with creeping caudex, producing somewhat sparingly fronds lanceolate, pinnate, borne on stout, hard, ebony-black and very glossy stalks. The pinnae, of a glaucous colour beneath, are numerous and of a very peculiar lanceolate, obtuse or semi-hastate form at their base; they are placed nearly horizontally along the rachis, and have equal sides with central costa. Being of a pleasing colour, it is very attractive. Stove.

L. ENSIFOLIA (*Schizoloma ensifolia*).—A very interesting species from Malabar, having as a general appearance a little of the well-known *Dictyogramma japonica*, the fronds being equally herbaceous, bipinnate and nearly erect in both plants, but besides the difference in characters being essential in the fructification, it greatly differs from the above named plant also by its fronds being borne on glabrous stalks as long and even sometimes longer than the frond itself, which is produced from a very short and creeping caudex. The pinnae, of a sub-membranaceous texture, are linear ensiform in shape, and are fertile round the whole of their margin, with the single exception of their serrated extremity, which is always barren. Stove.

L. FALCATA.—This evergreen species from Guiana is distinguishable at first sight by the brilliant green tint peculiar to its handsome pinnate fronds, which seldom exceed 8 or 9 inches in height; their pinnae, oblong and obtuse, are also strangely and very much hooked; that is a second character peculiar also to that kind only. Like all the others of its tribe, it requires a humid atmosphere to grow to perfection. Stove.

L. FLABELLULATA (*L. polymorpha*).—Undoubtedly one of the strongest growing kinds from Ceylon and one whose general appearance partakes very much of and strongly suggests the habit of a good growing *Davallia*. It is a plant very variable in characters, as its elegant linear-lanceolate fronds, which are always borne on elongated stalks produced from a creeping caudex, are sometimes only pinnate, whereas at other times they are deltoid and bipinnate with approximate, shortly petiolate pinnules, rather flabellate, nearly lunate or sub-rhomboid in

shape and with unequal sides and obliquely cuneate base. Sometimes the upper pinnules, whose superior margin is crenulate or soriferous, are quite confluent. The whole plant is of a light green colour. Stove.

L. GUIANENSIS.—A beautiful evergreen species from the West Indies, but which, unfortunately, is seldom seen among our collections, although well deserving of cultivation, for it has a most pleasing aspect and is of medium dimensions; its very handsome bi or tripinnate fronds, reaching from 12 to 15 inches in height, are borne on light green, round, wiry stalks and produced from a slender underground rhizome. The whole plant, of peculiar appearance on account of its obtuse and oblique pinnae and of its uninterrupted sori, is rendered very attractive by its lively bright green colour. Stove.

L. GUERINIANA (*Schizoloma Gueriniana*).—This is a species from the Malay Islands very distinct in general appearance from any other known *Lindsaea*. Its appearance is unique. Its long, very narrow fronds of a coriaceous texture measure from 8 to 10 inches in length and are borne on long, flexible stalks about 6 inches high and produced from a paleaceous, creeping rhizome. They are oblong-lanceolate in shape and simply pinnate, with pinnae about half an inch long, ovate or oblong, nearly entire and peculiarly auricled at the base on the upper edge, which makes it look very conspicuous among other Ferns. Stove.

L. HETEROPHYLLA (*Schizoloma heterophylla*).—A very handsome species from Southern India, and very good grower, with elegantly deltoid, bipinnate glabrous fronds, measuring sometimes 12 to 15 inches high; although only pinnate at the apex, their lower portion is very often tripinnate. The pinnae, which in the lower part are from 5 to 6 inches long, become gradually smaller and less compound as they get towards the apex, and the pinnules, closely set and numerous, vary very much in shape, being sometimes sub-rotund and at other times rhomboidal and even lanceolate. Stove.

L. LANUGINOSA.—This species from New Guinea is of robust growth, and in habit is as little like other *Lindsaeas* as possible, for its oblong-lanceolate pinnate fronds, which grow from 30 to 36 inches long, have much more similarity with those of *Lomaria* or *Brainea* than with those of any other kind included in the genus. Their very numerous approximate pinnae of a leathery texture, and oblong or nearly lanceolate in shape, are more or less obtuse or acute; these are deciduous, with equal sides, and a truncate, sessile, and slightly auriculate base. Their rachis, as well as the short stalks on which they are borne, are all more or less covered with a light-brown coloured pubescence. Stove.

L. LOBBIANA.—A very elegant Javanese species, also found in Moulmein and Burmah. Its long, narrow linear-lanceolate fronds, which are produced from a somewhat creeping caudex, are pinnate and much acuminate, with pinnae approximate, except the lower ones, which are rather remote; they all are slightly petiolate, obliquely flabellate or half ovate in shape and sub-membranaceous in texture; their superior base is truncate and their upper margin convex, lobate and soriferous. These fronds, of a light green and pleasing colour, are borne on rather short stalks, which are, as well as the rachis, of a rich brown hue. Stove.

PELLEA.

Establishing Bracken.—There is another way of doing this besides the one described by "G." (p. 450). I find that seedlings do much better than transplanted roots, and are in every way more satisfactory. If "M. H." will gather a handful of ripe fronds now, place them between sheets of dry paper, and keep them dry, the spores will soon fall out. They may then either be sown at once or kept till spring. Make up pots or pans of good loam, rammed firm; sow the spores not too thickly; cover with a piece of glass, place the pots in saucers of water in a cool shady position, and they will grow in three weeks or so. As soon as the young plants are large enough to handle, pot them off singly into small pots, and as soon as they have filled these, give them a shift into

4-inch pots; grow them on rapidly in a house or frame, and by the middle or end of July they will be large enough to plant out permanently. The progress which they make is quite astonishing if liberally treated. Plants in sods always take two years before they recover from removal, even if they do recover, which does not always happen; whereas these seedlings become quite established the first season, and the second season grow into good tufts, ramifying in all directions. I have some sown last March, not yet eight months old, and now fully 4 inches or 5 inches in diameter. A vast number of plants may be obtained from two or three pots. I may add that it is not absolutely necessary to employ pots or pans for common things of this kind. I often take a sod of loam, turn it upside down in a saucer of water, and sow the spores all over it, and do not cover at all; they come just as well.—T. SMITH.

GARDEN DESTROYERS.

OUR ORCHARDS AND PARAFFIN OIL.*

FROM the agricultural returns of 1880 and 1881 now before us, it would appear that not more than 184,863 acres of land, out of a total of 56,815,909 in Great Britain, are under cultivation as orchards. The amount and value of the fruit so grown there are no means of ascertaining, but it is quite certain that they bear no comparison with the amount and the money value of the orchard fruits that enter into our consumption. Under the head of orchard fruits are included Apples, Pears, Plums, and Cherries. The Custom House statistics fail to supply definite information on the subject of imported orchard produce. But we are given to understand that in future, from their increasing importance, an exception will be made in the case of Apples. They will be returned separately. Up to October 31, 1882, the quantity of Apples imported during the year amounted to 1,358,887 bushels, valued at £423,068. The figures just mentioned may be only an approximation; but we can hardly be far wrong in estimating the value of such imported produce at £2,000,000. This immense sum, which goes into the pockets of foreign growers, is not merely the result of one year's importation—a year of scarcity here necessitating a supply from abroad, but it seems to be the ordinary condition of things—the present yearly average of the value of imported fruits—such fruits as can be grown in our orchards; an item too of our imports in which the average is on the increase. The fact, then, is patent; we do not ourselves grow, and, moreover, we are not attempting to grow, a supply of fruit sufficient for our own consumption, but we are content to pay our money to foreigners for almost all we need. Let me first take in review the

PRESENT STATE OF OUR ORCHARDS. More land is occupied by orchard trees in the south and south-west of England than in any other part, and no one who takes the smallest interest in the matter can travel through those parts without remarking the cankered and unhealthy state of the trees. In Kent, as far as my own observation serves, more attention is paid to orchard culture than elsewhere; the trees are not wholly left to themselves; dead wood, at any rate, is occasionally cleared away, and a certain amount of pruning done; but the main point conducive to health and productiveness, which in my estimate is the state of the bark, appears to be, here as elsewhere, generally neglected. Within the last year or two I have passed through Dorsetshire, Devonshire, Cornwall, Somersetshire, Wiltshire, and Gloucestershire, all fruit-growing counties, and with the exception of a few newly planted orchards, I did not meet anywhere with fruit trees which are not covered with Mosses, Lichens, and in a state of canker and neglect. In most cases the dead wood of years past was unremoved, except where the wind and the storm had removed it. Is it possible under such

* Abridged from a paper by the Rev. Henry P. Dunster, in the "Nineteenth Century."

circumstances that orchards can be expected to pay? and if still, under such circumstances, they do yield a profit—a profit far beyond what ordinary farm crops are yielding, as I have every reason to believe is the case—what would be the result of greater care bestowed upon them? The question of paramount importance is, can anything be done to renovate our present orchards? Is it possible to create a healthy growth and to increase productiveness in those old cankered, Moss-covered trees that are to be seen everywhere? and again, can anything be done to prevent our young trees from falling into the same state? Is this condition of decay natural and unavoidable, or generally the result of neglect? We must first endeavour to ascertain the cause of it. When fruit trees are found in this miserable condition the reason generally assigned is, that the trees have passed their prime, and are decaying from age; or if this theory be contradicted by the known age of the trees, then that their roots have worked down to a cold dead soil that can afford them no proper nourishment. Neither of these reasons affords a satisfactory explanation, for the great majority of trees said to be past their prime are capable of renovation, and it is well known to every close observer of Nature, that the instinct of self-preservation, if we may be allowed the expression, is quite as strong in plants as in animals. The roots of plants search out and find the soil that suits them. Of course there are soils so thin-skinned that they afford no sufficient nourishment for fruit trees; but with trees planted in ordinary good orchard land, it is not the roots that are at fault, but the bark. No amount of nourishment supplied to the roots will serve to renovate our decayed fruit trees without some specific remedy applied to the bark. When the bark has been allowed to get into an unhealthy state, it fails to supply to the head of the tree what is necessary for growth and fruit bearing. Moss, Lichens, and other parasites that feed upon the stems and branches consume for their own support the sap as it rises, and in this way deprive all other parts of vitality. This does not occur all at once; for some few years perhaps feeble shoots are sent out along the stems and at the extremities of the branches, but these seldom survive a second season, for no sap is forthcoming to support them. While the head of a tree is thus gradually dying, the roots may continue in a perfectly healthy state, and perform their proper functions. Let the trial be made with some few trees in the condition described, and I venture to affirm that with most of them the roots will be found healthy. Do we not readily admit this by the course so generally adopted—not in the case of orchard trees, perhaps, because with them, being grafted, the roots and the head are different; but with many other trees, and shrubs innumerable, how often is the decayed head cut off and the roots left to shoot again? Hence the common remark, such and such a tree or shrub had “its head cut off to save its life.”

THE REMEDY is the application of some substance to the bark powerful enough to cleanse it from all its enemies, while at the same time it leaves the tree not only uninjured by the process, but with increased vitality and power of productiveness. Does such a substance exist? It does in petroleum, or rather that preparation of the natural oil so called which is known in commerce under the name of paraffin. I have tried it upon Apples, Pears, and Plums—all the ordinary orchard trees except Cherries; some of the trees dressed were so foul with Moss and Lichens, and bore such manifest marks of decay, that they seemed fit for nothing but to be cut down for firewood. Such marvellous results have come under my own eyes from the application of paraffin to the bark, that I cannot withhold from others the benefit of my experience. About five years ago an old Apple tree, as usual, was infested with American blight. The ladybird, which is the natural enemy of this particular blight, had not appeared for a long time, and the blight was on the increase. The tree appeared gradually dying,

and from its situation I was reluctant to cut it down. About a pint of paraffin was put into a wide-necked bottle, and with a house-painter's brush the tree received a full dressing wherever the least blight was observed. From the ease with which the oil flowed from the brush and the extent of the blight I had not finished the dressing before the entire surface of the bark of the trunk and the main branches of the tree had been more or less brought under the influence of the paraffin. All traces of American blight were obliterated by the process, and in a very few days the Moss and large patches of Lichens, which were thickly spread in all directions, turned black and died. This dressing was given, as far as I remember, about the end of the summer of 1879. It passed from memory until early the following spring, when it occurred to me to examine the tree and ascertain whether or not any injury had been done. I found the outer bark somewhat discoloured, and perhaps a little more crisp or brittle than usual, but the inner tissues seemed in a perfectly healthy state. The sap had not yet begun to rise; I took advantage of the opportunity to have as much dead wood as possible removed, the trunk of the tree scraped clean of all its rusty bark, and the branches rubbed clear of all Moss and Lichen. For scraping the bark upon the trunk of the tree, the back of a common spokeshave was used as the best implement at hand, carefully guarding against injury to the inner tissues. The more tender branches were rubbed clean with a thick leathern garden glove. When this was accomplished, there was nothing to arrest the progress of the sap; it all went for the nourishment of the tree, for there were no parasites to feed upon it, and the amount of new wood made, and the richness of the foliage that first season, showed clearly the benefit of the process. It may be well to add that this tree has continued healthy and in good bearing ever since; this last season it had a nice crop of very fine fruit. It was an old tree when it came into my possession about thirty-five years ago, and, from its present vigorous state, it in all probability will benefit my successors. Encouraged by this first trial, I dressed during the following autumn several other trees, and with equal success. Among these were a Doctor Harvey Apple and a large Codlin, both apparently in a hopeless state. They were, I imagine, of about the same age as the former, and to take a gardener's estimate of them, their time was come; they were dying of old age. Nothing could be more erroneous. The renovation of these two has been quite as rapid and as effectual as the former under the same process of treatment. If from any cause the roots be defective, of course no dressing of the bark will serve to renovate a tree; but so long as the roots are able to do their part, so long by carrying out this process will the tree be kept in condition. The paraffin used is the ordinary paraffin of commerce, sold at about one shilling a gallon. It is used pure and undiluted. The outer bark of the tree is rapidly, but thoroughly painted over with it. Autumn, when the sap is down, is, in my opinion, the best season for applying the remedy, and the early spring, just before the sap begins to rise, would seem the fittest time for scraping clean the rusty bark from the stems and brushing off from the branches the dead Moss and Lichen. If any small patches of these have escaped the dressing, they can now be touched with the paraffin brush. Let the orchard owners of our south and south-western counties try the remedy. A single season will test its value. The autumn dressing of an orchard will show its effects the following spring, and I can assure fruit growers of the most beneficial results. The formation of

A NEW ORCHARD, the first outlay (which I shall presently show is really a very trifling sum per acre) should in fairness be borne in a relative proportion by both landlord and tenant. The orchard trees, being a permanent investment, should be provided at the expense of the former. The preparation of the land and planting should be at the expense of the latter. Where trees are

planted in straight lines, on the quincunx arrangement, that is every four trees forming not a square but a diamond, or in straight lines forming squares, in either case it takes about four dozen trees at 10 yards apart to stock an acre of land. This, however, is rather close planting; forty trees an acre are quite enough. From inquiries which I have made, it appears that any of our large growers will deliver, at almost any railway station, good standard orchard trees, where any quantity is taken, Apples and Pears at 1s. each, and Plums and Cherries at 1s. 3d. each. The landlord's cost per acre could not, therefore, exceed 45s. or 50s., which sum would include stakes for the support of the trees, allowing three stakes to each tree. The cost to the tenant, in addition to the ordinary annual expense of cultivating the soil, would be entirely covered by the trifling sum of 3d. each tree, for planting and fixing the stakes for support of the trees. The field selected should be a deep loam, and in good heart, underdrained, if the subsoil should require it, and in a somewhat sheltered situation, at any rate protected towards the north and north-east. It should be taken after a crop of white Turnips has been fed off by sheep during autumn and early winter, and the trees planted early in spring. If it be intended to lay down the field in permanent Grass, which is most desirable for an orchard, a crop of Barley may be grown with the young Grass seeds. This will pay rent, &c., and yield a profit the first year, and, until the trees come into bearing, the Grass crop will make the return. After this

THE DOUBLE PROFIT will begin, for orchard trees are not a substitute for, but a valuable addition to surface crops. The plan adopted in Brittany and elsewhere on the Continent seems to answer very well, and can be carried out at a very trifling cost. The trees do not stand so thick upon the land as in ordinary orchard planting; they are set in straight lines, with about double or triple the distance between the lines, and this open space is cultivated as ordinary arable land, with root crops and corn crops alternate years. In this case generally a strip of Grass, 3 yards or 4 yards broad, is left for the rows of the trees to stand upon and to mark the limits of the plough. There are several other methods of growing fruit available to our farmers, if only they could be persuaded to adopt them. Why should not the many vacant spaces upon farms, also hedgerows, be planted with fruit trees? Tenant-farmers have grumbled, and at times certainly not without reason, at the large Oaks and Elms, wholly the landlord's property, growing upon hedgerows, and overshadowing and impoverishing the soil, so that nothing would grow near them. In the interest of landlord and tenant, this evil has been removed of late years to such an extent, that the hedgerows of almost all large arable farms are now pretty well bare of timber. But surely no such objection could be made to fruit trees. They could not, if so planted, overshadow a crop or draw the land, and the tenant would reap the whole profit arising from them. In parts of Kent and other places I have seen Damsons and Bullace growing in the hedgerows, and assisting by their produce to pay the rent of the land. This state of things, though scarce with us, is common enough abroad. In many parts even the high-ways are made available for the growth of fruit. I call to mind rows of fine Cherry trees just outside the city of Cleve, in Prussia, on the way to Emmerich, large purple Plums hanging thick upon trees planted on the waste by the roadsides in Franconian Switzerland, and Apples in abundance growing along the way from Rudesheim to Johannisberg and by the Neckar round about Heidelberg. It is useless to object that our climate is not suitable to the growth of fruit trees. It may not be so suitable as the climate of many places on the Continent, but, notwithstanding, we do grow fruit, and, in spite of the neglected state generally of our orchard trees, we grow it with a profit, and we might grow infinitely more. From the experiments which I have given in detail, I have no hesitation in asserting that the 184,863 acres of land which are now under orchard

culture could be made to yield an infinitely larger return than at present if the trees were carefully treated by the process I advocate. Not every soil or situation is adapted to the growth of fruit trees, but there are thousands of acres well adapted where no fruit trees are permitted to grow.

GAS TAR V. MEALY BUG.

SEEING a little controversy in THE GARDEN lately on gas tar as a remedy for mealy bug, I venture to give my experience of its use on Vines infested with that pest. In my case it proved successful; therefore I can fully endorse all that Mr. Clayton has said in its favour. About nine years ago, on taking charge of a garden, I found four vineries infested with bug, two very badly, the fruit then hanging being literally full of the pest and quite unfit for table. As soon as I could clear all the fruit off I had the houses well cleaned, working turpentine into all the crevices of the woodwork and trellis; the Vines were washed and scrubbed and then painted with the usual clay mixture, but my enemy showed itself in force again next season. I then tried the following recipe for its destruction, viz., petroleum and spirits of wine; this was used on the Vines in one house and killed them nearly to the ground level; they, however, broke strongly from below and soon made headway. Now, I thought I had at least got rid of the pest, but not so; it showed itself again in numbers, which I contrived to keep in check and from spoiling the bunches by constant watching and the use of Fir-tree oil, but could never eradicate it entirely. When first I heard of the gas tar cure I was afraid to use it, bearing in mind my former misfortune; but after seeing a friend use it successfully, I determined on taking my present charge, and finding one of the vineries well stocked with my old enemy to give it a fair trial. I merely removed the loose bark, and did not wash the rods in any way; I then applied the tar at the rate of one part to six of clay, working it well into all crevices with a stiff brush, over the eyes as well as the canes. The result is no injury to the Vines, but an almost entire annihilation of the enemy, only one here and there having been seen this summer. It is, however, a desperate battle when none escape, and I feel confident by following the dressing up this winter I shall see the last of the pest. I might add that except where mealy bug is present I never dress Vines with any mixture whatever; I prefer to give the rods a good washing with soap and water, cleanliness in my opinion being more conducive to good health and robust growth than stopping the pores up with clay, soot, and other unsightly mixtures.—C. J. WHITE, *Sedburgh House, Ilkley, Yorks.*

— I have read with interest Mr. Clayton's communication on "Coal Tar and Vines" (p. 364), and also "J. S. W.'s" remarks on the subject in a recent issue. I gave the tar and clay dressing a trial on some Vines in an early house that were badly infested with bug. They were merely washed, the loose bark removed, and then painted with the mixture, using one part gas tar to three parts clay and water, keeping the mixture well stirred. The wires and woodwork were painted with paraffin, but none was used on the Vines. The mixture was well worked in with an ordinary paint-brush over every part of the rods, including the eyes, without any injury to the Vines, which started well and have borne a good crop of fruit. Finding the Vines broke strongly and appeared none the worse for the application, we treated the other two vineries the same, except that we did not wash the Vines or in any way clean them before applying the mixture, and I am glad to be able to state that there has been but very little bug seen in either of the houses this season. Indeed, I never before saw the Vines so clear of the pests as they are at the present time. I intend to give them a similar dressing this winter, which I believe will entirely eradicate the bug. I should state that in previous years the Vines had been washed and dressed in the usual way and paraffin had been freely used when cleaning the houses.—S. T. H.

GARDEN FLORA.

PLATE 416.

THE GREAT-FLOWERED ONCID.

(ONCIDIUM MACRANTHUM.*)

If I were asked to name the noblest and boldest flowered of all the Oncidiums of the long-panicled or Cyrtociloid group, I think my choice, such as it is, would assuredly fall upon the species now illustrated. In saying this much I do not forget *O. verrucosum* var. *Rogersi* and *O. crispum* var. *Marshallianum*, both brightly beautiful in their own golden-petalled way; neither would I willingly cease to remember that tiger-barred beauty, *O. splendidum*, nor even the veritable fresh and fragrant *O. tigrinum* itself, all and several of which should, by inherent right, find a cosy place assigned to them in the most select of collections. Now, if you will take the trouble to think a little about the best of Oncids, you will remember how very rarely the sepals are ever allowed a chance to display their beauty. The upper or the dorsal sepal, as our good friend Professor Reichenbach the younger would say, does now and then assert itself with what beauty may have been spared to it; but, as a rule, all *Oncidium* beauty seems to have become, for some occult reason or other, focussed in the three petals or concentrated in that curiously enlarged third petal which botanists call "the labellum," but which gardeners understand as the lip. The lower or lateral sepals, as a rule, have but a "poor time of it" in the case of nearly all Orchids. In *Cypripedium*, for example, they become intimately fused together. In the western *Masdevallias* these same sepals, however, have plucked up sufficient courage to assert themselves. They are most successful democrats, so to speak—these same sepals of *Masdevallia* making all the fine show and glitter, while the petals and the lip are for the most part left to do good work—better work it may be, even the noblest of service—but, being devoid of beauty's magic wand, they have perforce to do it in a modest and unobtrusive way. For these western mountain plants, the *Masdevallias*, there is no petal beauty—no magnificence of lip is vouchsafed to them; all is outside glitter or plebeian beauty, and one must perforce wonder why in one Orchid sepal beauty alone is all in all, while in others the petals have it all their own way. Now, if we look at this magnificent *Oncidium macranthum*, we find its beauty of sepal and petal is pretty equally balanced, for in this species the lateral sepals have resolutely objected to become fused together, wholly or in part, and thus, instead of being thrust behind the lip in an unobtrusive way, they extend themselves bravely on either side in a bold and independent manner. True, their colour is a trifle more sombre than that of their attendant petals, but they are nevertheless independent and attractive in their own way, and far more so than is the case with *Oncidium* sepals generally. The third petal or lip is quite peculiar. Major Barton says it reminds him of a fox's head, which is, indeed, pretty near the truth; and it is this lip, of a rich, deep, and shining claret-purple colour, which adds force to and which contrasts so well with the yellows and olive-browns of the other divisions of the flower.

A glance at the coloured illustration will give a fair idea of the size and colouration of the large massive blossoms of this stately habited Peruvian

species. Well grown, it is a most handsome plant with great plump pseudo-bulbs 6 inches in height, each crowned by a pair of stout leathery leaves 12 inches to 18 inches long. The flower-scape or panicle is most remarkable, not unfrequently attaining a length of 8 feet to 10 feet, and bearing say from twenty to eighty of its heavy waxy blossoms. I think it was at Ferniehurst that *O. macranthum* bore seventy-seven flowers on a 10-foot long and many-branched spike, and the plant fairly luxuriated in a cool house among other mountain Orchids, such as *Odontoglossum crispum*, *O. Pescatorei*, *O. nebulosum*, *O. Uro-Skinneri*, and such little gems as *Oncidium Phalaenopsis*, *O. nubigenum*, and *O. cucullatum*. I may be wrong perhaps, but I am under the impression that *O. macranthum* was introduced to our gardens from the Peruvian Andes—or was it New Granada?—by Messrs. James Backhouse & Sons, of The Nurseries, York. This would be about the year 1868, at which time Lord Londesborough's marvellous collections of Orchids in flower used to come to South Kensington from Grimston Park in a specially heated railway van. I remember there was quite a sensation when the first flowering plant of this species appeared from Grimston at South Kensington; the plant was but a small one, and bore only five flowers and buds, but it was very much admired, and, I think, honoured with a certificate also. Then its portrait appeared in the *Botanical Magazine*, t. 5743, and also in the *Floral Magazine*, t. 386, while its lucky introducers had no difficulty in disposing of their stock. At the present time the plant is tolerably plentiful in most collections, although not always to be seen in the most luxuriant condition, owing, as I imagine, to its being grown in too much heat. Coming from the cloud-swept mountain sides of New Granada and Peru, it succeeds best in a cool, moist atmosphere, and must be deluged with water when growing, and not allowed to become dry even when at rest. Its long rambling roots love to creep into living *Sphagnum* Moss, and a layer of the latter placed on the stage or bench around the base of the pot is useful in keeping up that moisture-laden atmosphere which this plant of all others seems to require for its most perfect development. Fibrous peat and living *Sphagnum* on ample drainage is the best compost. It is most important that the soil be well drained, as this species is particularly impatient of stagnant moisture.

OTHER SPECIES of similar habit are *O. serratatum* (*O. diadema*, Hort. Linden), a Peruvian species introduced to Paris over thirty years ago. *O. Xanthadon* is another of Messrs. Backhouse's introductions from the Western Andes. *O. macropus*, while singularly like *O. macranthum* in general habit of growth, is, as most cultivators consider, devoid of all floral beauty. *O. zebrinum* (sometimes called *Odontoglossum zebrinum*) has a long flexuose spike of 50 to 100 white flowers barred with purple, and is a good companion for *O. macranthum*, as it succeeds well under similar cultural conditions. So also does *O. æmulum*, with its daintily crisped or wavy sepals and petals of a warm cinnamon colour. It is New Grenadan, and, as Reichenbach says, probably the one rival of *Oncidium macranthum* itself in the dimensions of its flowers when it comes to its full development. In conclusion, we may venture to say that, showy as some other Oncids of this long paniculate or, as it used to be called, "Cyrtociloid"

* Drawn by Mr. F. W. Eubridge from a plant in Major Barton's collection at Straffan, Kildare, in May last.



group, may be, none can possibly be more nobly beautiful than the species now illustrated.

F. W. B.

SEASONABLE WORK.

FLORAL DECORATIONS.

THE weather being extremely mild of late, *Jasminum nudiflorum* has opened freely. Sprays of this handsome winter-flowering climber associate well with the dark bronzy foliage of *Berberis Aquifolium*. A few stray blooms of China Roses which continue to open are very useful at this end of the season. Chrysanthemums of all colours and sizes can now be had in abundance, and therefore they should be largely employed in floral arrangements for the next few weeks. After they are cut they absorb a quantity of water, a circumstance to which attention should be paid. The vases should be emptied and refilled at least twice a week. When this is done the stems should have a trifle cut off them, and then re-arranged. Some of the very finest flowers look well placed singly in specimen glasses, and the Pompones make good coat flowers with the addition of a leaf or two of scented or Oak-leaf Geranium. Occasional stray blooms from Tea-scented Roses in pots, Niphetos, or Madame Falcot in particular, make beautiful button-hole flowers, more attractive, if possible, at this season of the year than at any other. Of Bouvardias, two of the best and most durable for this work are Vreelandi (white) and Hogarth or elegans (scarlet). About three flowers of *Calanthe vestita rosea* carefully wired will make a handsome button-hole; so will one small spray of *Euphorbia jacquiniiflora*, with its own foliage, a small spike of white Roman Hyacinth being added thereto. Blossoms of *Gardenia intermedia* likewise make choice coat flowers, using its own foliage now instead of Fern fronds. For the drawing room an effective arrangement may be made just now with the following subjects. Let us suppose the stand to be filled has one tall cornucopia, with three smaller ones as branches near the base. For the top-most glass use spikes of *Salvia splendens* and white Roman Hyacinth, with a fringe of Maiden-hair Fern and two or three rather long growths of *Myrsiphyllum asparagoides* trailing below. In the lower glasses place bunches of Violets or choice bits of Orchids, adding a few Fern fronds. Among plants that may be advantageously used just now in the house the following will be found serviceable, viz.: *Pandanus Veitchi*, small well-coloured plants of *Crotons* and *Dracænas* for the dinner table, and *Ficus elastica*, *Curculigo recurvata*, and *Dracæna rubra* for the drawing room or entrance hall. All these plants will stand well where gas is burned, taking ordinary precautions to change them every few days.

FLOWER GARDEN.

THE frosts have brought down the remainder of the leaves, a few Oaks excepted; therefore we shall now have a general clear up. The leaves will be saved; the best, i.e., the driest Oak and Beech, will be stacked for forcing purposes, and the remainder for rotting down into leaf-soil. Contrary to the general practice, we also clear out all the leaves from *Rhododendrons* and other shrubby clumps, for the simple reason that were they left we should be pestered with sweeping up whenever there was the least wind, and so we prefer to mulch the clumps as soon as cleared out with the mould from leaves stacked two or more years ago, and the plants that have been recently moved receive a treble portion by way of protection to their injured roots, and no doubt, also, the extra warmth thus assured aids new root formation. Advantage is taken of dry frosty mornings to wheel this material to the desired spots, and also to stack up fresh leaves, and to wheel manure and soil to plots that are being prepared for planting, as we have always some of this on hand; and though we would prefer to discontinue moving shrubs after December has com-

menced till February, necessity often compels us to keep on all through the winter whenever the weather permits, and hitherto, by taking extra care not to allow the plants to be out of the ground longer than is absolutely necessary and staking and thickly mulching them as soon as planted, we have found winter planting to be just as successful as autumn or spring. With one exception only, viz., Hollies, all kinds of trees and shrubs may be successfully transplanted throughout the winter. Hollies we have also done, but cannot recommend the practice, at least not as compared with plants moved during April and May.

PRUNING AND CLIPPING.—As with planting, so with pruning shrubs and cutting hedges, we are compelled to be heterodox, and do them whenever an opportunity occurs, without reference to the season, and at the present time are busy clipping Yew screens, Holly and Privet hedges, and cutting straggling shoots off *Rhododendrons* that are growing under the shade of large trees that in such positions develop this kind of growth, and to keep them in anything like compact form they need such attention every year. Common and Portugal Laurels are being pruned into form, and upright-growing shrubs, such as Junipers and Irish Yews, are being drawn together with tar cord to prevent wind and snowstorms from breaking off any of the outside branches. Some few Conifers, especially the strongest-growing young plants, need to have some of the uppermost branches stopped and the points pinched out, that the plants may grow into a good shape. The leaders should be preserved from injury from birds perching on them by tying straight sticks to the stems, the top of which should be a foot or so above the top of the trees. The above constitutes the bulk of our outdoor work at the present time.

INDOORS.—There is much to do in the way of picking off the dead leaves of *Pelargoniums*, dusting *Verbenas* with sulphur to destroy mildew, and fumigating others that are attacked with green fly. *Violas*, *Gnaphaliums*, *Calceolarias*, and other kinds that are planted out in cold pits are being surfaced with Cocoa fibre for the double purpose of keeping out frost and rendering it unnecessary to water them for some weeks to come. Seeds of the following kinds of succulents, if sown now, will make good plants for next season: *Echeveria metallica*, *E. glauca metallica*, *E. secunda glauca*, *Sempervivum tabuleflorum*, *S. canariense*, and *S. Donkelaari*. The propagation of other kinds by leaves or offsets may go on all through the winter.

INDOOR PLANTS.

FERNS.—The adaptability for cutting which Ferns possess in a great measure depends upon the way in which they have been grown. *Adiantums*, such as *A. cuneatum*, *A. gracillimum*, *A. trapeziforme*, *A. formosum*, and *A. farleyense*, with the common and crested drooping forms of *Pteris serrulata*, are mostly in demand for cutting, but if these are grown under conditions of too much warmth and atmospheric moisture, with an insufficiency of light and air, they invariably flag when cut, a state it is needless to say that renders them useless. In growing these Ferns with a view to using them in a cut state, very little shade should be given, and none during the autumn and winter months, with no more moisture in the atmosphere than is consequent upon the evaporation of such water as percolates through the soil after watering, and from that which is unavoidably spilled about in the operation, plenty of air admitted daily and the plants kept well up to the glass. The favourite *A. cuneatum* in the London market is now much better liked when it possesses the pale greenish yellow shade, such as the half-matured fronds have, than when of a darker colour. This may usually be secured by subjecting the plants to quite cool treatment when the fronds are about half grown, which invariably has the effect of arresting their much further development, and in a great measure fixes the light tint. Previous to use, all Ferns should be cut and immersed overhead in water for several hours, the water thus absorbed doing much to prevent their

flagging. *Adiantum formosum* is the best of the species for lasting long without drooping, and is very useful for mixing in the larger arrangements of flowers, such as vases, &c. The same may be said of the best large drooping-crested forms of *Pteris serrulata*, which in large stands have a fine effect. Plants of *Adiantum* that have been hard cut during the summer and have been induced to make growth late in the season should now have an abundance of air and be kept at an ordinary greenhouse temperature for some weeks before the fronds are cut for use. It seems strange that the elegant *Gleichenias*, such as *G. Spelunca*, *G. rupestris*, and *G. semi-vestita*, are not more generally used for cutting, as there is nothing that can be mixed in this way with flowers that has a more beautiful effect, in addition to which they last for a long time when grown cool.

ÆCHMEAS AND BILLBERGIAS.—The summer-flowering *Billbergias* and the nearly allied *Æchmeas* of the fulgens and miniata section, that usually commence growth as soon as they have done blooming, should be kept on growing through the winter, placing them at the warmest end of the stove, but at the same time keeping them well up to the glass. In their native countries these plants are mostly of an epiphytal character, growing on the stems and branches of trees where they necessarily get more light than if low down on the ground. To grow them so as to secure the full amount of flowers, the plants need plenty of light at all times. For general use they are best cultivated in small pots, with not more than two or three crowns in each; the bright coral-red branching flower-stems of *A. fulgens* and its allies, lasting as they do for several months, rank them amongst the best small plants for general cultivation where there is enough warmth to grow them well.

CYCLAMENS.—To insure as long a season for these as possible the plants should be divided and kept in two different temperatures; those that are flowering or fast approaching this condition produce the finest blooms when accommodated with the temperature of a warm greenhouse, say 45° to 50° by night, and a little warmer in the day, but with this they should be kept well exposed to the light with air every day. Give particular attention to keeping down aphides, which, if allowed to remain undisturbed even for a short time, do irreparable mischief to the leaves and advancing flowers. Those that are intended to succeed the earliest blooming lot should be kept quite cool, so as to retard the expansion of the flowers as long as possible.

EPACRISES.—These, if grown in sufficient quantities and well managed, will be extremely useful, lasting individually for many weeks, and being equally adapted for cutting as for ordinary decoration on the plants. They will bear more warmth than Heaths, but unless where they are backward in blooming and flowers are required at once, it is better to keep them quite cool. Their time of flowering is best regulated by the way they are managed in respect to growth. Those that were late in completing and maturing their wood will come into bloom later as a matter of course. To still further retard those that are wanted to last until spring they should be kept as cool as consistent with the exclusion of frost; this they will bear without any injury, as a low temperature with them has not, as in the case of some plants, the effect of inducing the appearance of mildew. But *Epacris*es are very impatient of the least approach to over-watering, and never should have it applied until the soil has got so dry as to be dangerous if it is longer withheld.

EPIPHYLLUM TRUNCATUM.—Plants of this, although individually so effective when in bloom, are unfortunately not of long duration in the individual flowers; consequently it is not well to have many in at once. With this view only a few should be put into heat at a time at intervals of two or three weeks, and on no account should they be hurried on too fast, otherwise their fugitive tendency will be increased; and with all soft textured flowers like these it is particularly essential that there is not too much moisture to

the atmosphere of the house or pit where they are brought on into bloom. Large-flowered Epiphyllums and the Cactus family generally should at this season not be located in a cold, damp house, and care ought to be taken that the soil is not too moist; the condition best described as between slightly moist and quite dry suits them best when cool and at rest, otherwise the comparatively few roots which they make are liable to perish. These large-flowered species bloom naturally later than the truncatum section; nevertheless, they will bear forcing if required early, and with this intention, if there is any likelihood of a scarcity of flowers during the early months of the year, they may be put in heat and brought on slowly, being careful not to give much water at the roots until the heads of the plants have got into a plump condition, which they soon will through the moisture absorbed from the atmosphere of a forcing house.

MYRTLES.—These are most useful in the winter season, and if the plants have been well managed, so as to make their growth early and get the wood well matured by being stood out in the sun through the summer, they force well. Independent of their appearance when in bloom, they are very serviceable for cutting, their pretty flowers and neat foliage being very effective combined with other things of a more showy character. The miniature variety, Jenny Reitenbach, is one of the best for bouquets.

MONOCHÆTUMS.—The comparatively short-lived nature of the flowers of these pretty plants is compensated for by the profusion in which they are produced. In a conservatory kept continuously above a greenhouse temperature they are particularly adapted for standing on side tables, brackets, or shelves, as when well managed in small pots—to which when confined they are most useful—they literally become a mass of flowers. Plants brought on in an intermediate warmth will do good service in a conservatory kept at a temperature such as above indicated, and for this purpose they should be forwarded in succession.

ORCHIDS.

EAST INDIA HOUSE.—The different species of Phalenopsis are the most important occupants of the warmest house, and will require to be well looked after. We have already alluded to the importance of carefully attending to their requirements as regards water, and also watching them at night in case any marauders should attempt to eat the young spikes. We omitted to mention *P. Ludemanniana* in the last calendar; this is a very desirable species, and should be grown even in small collections. It is very prolific, forming frequently young plants on the flowering stems. These speedily push out roots, even when they are of small size; the stems ought to be bent down, and the young plants be pegged to the surface of the baskets or pans. In a few years a plant of this species very soon becomes of large size. A rather desirable Orchid, *Oncidium phymatichilum*, succeeds well with us in this house; it is now making its growth, and must not be allowed to become too dry, although much water is not required. This *Oncidium*, like some others, does not do well until the roots grow freely over the pots or baskets, and instead of watering the compost much, the water must be applied to these overhanging roots with a syringe or through a fine rose. *O. Lanceanum* requires very similar treatment. We have grown a good sized specimen of the latter for seventeen years or more, and it grows well and flowers freely every year. *O. phymatichilum* does not flower every year, but it remains in good health and makes good growths annually. It is evident we have not hit the right treatment for it, as it is remarkably free in its native country. We are trying it suspended near the roof when completing its growth. *Odontoglossum Roezli* seems to succeed best with us in the cool end of this house. They are now making remarkably good growths, a sure sign of a plentiful bloom next season. This species seems to be much like *O. crispum* in its thirst for water; it takes it in plenty all the year

round. The plants seem to succeed best when the Sphagnum is quite green on the surface, and when the plants are of large size they may be broken up, and each part be potted singly in small pots. They take one year to start well into growth, but after that they make quite as strong growths as usual. *Aerides crassifolium* likes to be suspended in shallow pans or baskets from the roof of this house; see that thrips do not get on to it. They are very fond of getting into the centre of the plants, where they speedily change the colour of the leaves, and debilitate the plants. Do not let the insects remain on the leaves an instant after they are observed.

CATTLEYA HOUSE.—The *Miltonias* are a class of plants that should be grown in every collection, and although they are natives of Brazil, they succeed best in the Cattleya house in the warmest end. They may, if necessary, be repotted at this season, as they are starting into growth. At this time large specimens may be broken up, and in potting them the stems connecting the pseudobulbs should be pegged down to the surface of the compost. There are some species that have not this characteristic. These should be potted in peat and Sphagnum, with a liberal proportion of charcoal and crocks amongst the drainage, much the same as *Odontoglossums* are potted. *Miltonia candida* and the still rare variety *grandiflora* are even yet in flower in a rather cool house; they would flower in September or October in a warmer house. Look out now for slugs attacking the spikes of *Odontoglossum hastilabium*; these will be pushing out from the recently formed bulbs. This species is liable to damp off during the winter; it will therefore not require much water at the roots, although the compost should not become what may be termed dry; but it would not be safe to water it as freely as *O. crispum*. *Oncidium crispum* and *O. Forbesi* will also be in flower; they remain longest in good condition when kept rather dry at the roots. If any of the plants have young roots pushing from the base of the bulbs, these must also be carefully watched, as they are peculiarly attractive to slugs. It is not well to delay repotting the *Pleiones*; as soon as they go out of bloom they should be repotted, as they start into growth at once, and fresh roots are also formed. If there is any delay in potting them these young roots may be broken off, which may be injurious. All our plants were out of bloom November 13, and were parted out and repotted, with the exception of *P. maculata*, which is yet in bloom, and they cannot be potted until the flowers are gathered or die off. The proper way to gather the flowers is to pull them out carefully by the hand; the stems will readily part quite at the base. The bulbs are evenly distributed over the surface of the pots or pans, and after they are repotted place them near the glass. Cattleya Warneri is now starting to grow from the base of the old bulbs. The plants have hitherto been kept rather dry, and there is no need to give very much water to them as yet; indeed, all Cattleyas should be kept rather dry, taking care to water them before any injurious effects are apparent. One may err on the side of over-dryness, although not so likely as in that of giving too much moisture.

COOL HOUSE.—Referring once more to temperature, for many species 50° is the best minimum, although, as has been previously stated, it may drop frequently to 10° lower than this for many species. The higher temperature does best for such as *Oncidium ornithorhynchum*; if the pots are placed near the glass in baskets so that its drooping spikes of pretty rose-coloured flowers sweetly perfumed are seen to the best advantage, this Orchid seldom fails to please, as it flowers so freely. There is also a white form, which is rare, and therefore valuable. They are both in flower now. *Oncidium cheiroporum* will flower well and remain a considerable time in beauty if it has the higher temperature, and its rich yellow flowers, densely placed on pendulous spikes, form a striking contrast to the rose and white flowers of the other species. The delicate white flowers of *Masdevallia tovarensis* are also charming as with their modest

beauty. This species, rare for so many years, may be grown now in any collection, as from being the dearest it is now the cheapest species we have. It should be placed at the warmest end of the house, and although the plants must not be kept dry, they should do with little water, as we fancy all Orchids remain in flower longest when water is not too freely distributed either over the roots or in the house. The *Odontoglossums* in growth require plentiful supplies of water even in winter, and there are some few species that must be watched in case of the roots being eaten at night. *Oncidium macranthum* is one liable to be injured in this way. The flower-spikes of this are also showing now, and are peculiarly liable to be eaten. Indeed, the house altogether will require much attention, for there are scores of different species of *Odontoglossums* in flower or showing spikes now, and it is very trying to one's patience to go in and see a vigorous spike half eaten through of some choice species or variety. Some of the *Masdevallias* are also showing their flowers now, the buds being in various stages of development. Any small plants that are required to form good specimens as soon as possible should not be allowed to flower at all. The *Masdevallias* are so floriferous, that in many cases plants are checked and crippled in their development by being allowed to flower too freely in their early years. Air should be admitted with caution when the winds are cold and drying, as they are at present.

FRUIT.

VINES.—Where very early thin-skinned Grapes take precedence of late ones and pot Vines are not forced, the first house of permanent Vines, which was closed about the middle of last month, must be fairly at work by the first week in this month, when, in order to economise fire-heat and to insure an even break, particularly where the Vines are young, the preparation and introduction of fermenting material, consisting of hard-wooded leaves and short stable manure, must be reduced to a system. If an open shed is at command, this will be found the best place for the reserve, as heavy falls of rain and snow, already too prevalent, can then be received with impunity. As the buds show signs of swelling gradually raise the temperature by day, but until after the shortest day let the heat range about 50° at night. Keep every part of the house nicely moistened with the syringe, and syringe the rods frequently when fire-heat is on. At other times set moisture and ammonia at liberty by turning the leaves, and take in fresh supplies as may be thought necessary.

PINES.—By the end of the month a light efficiently heated structure should be ready for the reception of the first batch of Queens intended for early fruiting; if the demand is not heavy a small compartment will answer best, as the most promising plants can be drawn from the general stock intended for starting a month or two later. When, but not before, the fermenting material used for bottom-heat has declined to 90°, plunge lightly, keeping them well up to the glass, give tepid water in moderation until the balls are properly moistened, gradually increase atmospheric moisture and raise the temperature from 70° at night to 80° by day when the weather is favourable.

HOUSES in which fruit is swelling and ripening may have a lower temperature after the beginning of next month, as days will be dark and short, but no diminution need be made in the bottom-heat unless it ranges above 85°. If blinds are used for covering now is the time to apply them, as the thinnest material prevents waste and saves the plants from the damaging influence of excessive fire-heat. Overhead syringing may be almost if not entirely discontinued, but surface damping must not be neglected, as dry fire-heat soon produces aridity unfavourable to the full development of the fruit. Root watering will be less frequent, but quality may in some measure make up for quantity, and when water is applied give sufficient to permeate the whole of the ball.

SUCCESSION PIT.—If former directions have been followed, the different sizes will be securely plunged in a steady bottom-heat ranging from 70° to 75° with sufficient moisture about them to support an almost imperceptible progress. Let the night temperature range about 60° or a few degrees lower in severe weather and run up to 5° to 10° on fine days.

CUCUMBERS.—Up to the present time the mild weather has been in favour of winter fruiters, and plants in all stages have been kept clean, vigorous, and fruitful without the aid of sharp firing; but the time may be at hand when these conditions will be changed and more artificial heat will be needed. In close, efficiently heated structures it is easy enough to set the external elements at defiance, but highly heated pipes are always looked upon with suspicion, as they foster thrips and red spider, and the experienced cultivator endeavours to counteract their parching influence by covering the roof at night and charging the atmosphere with soft, invigorating vapour. In wooded districts where Oak, Beech, or Sweet Chestnut leaves are plentiful, pot culture has many advantages, as these can be used for bottom heat, turned and renovated at pleasure. Moreover, plants in well-drained pots or boxes placed on pedestals soon form a mass of roots capable of taking large quantities of stimulating food, as they cannot be overwatered. From this time forward direct syringing, unless the mornings are bright and mild, may be discontinued, but the evaporating pans must be kept full, and a little fresh horse manure placed on the surface of the bed at short intervals will prove highly beneficial. Top-dress with light turfy loam and lumps of old lime rubble as the roots appear on the surface. Train thinly without stopping until the trellis is covered. Keep the house free from decaying matter and guard against overcropping.

PEACHES AND NECTARINES.—If the early house from which a supply of ripe fruit is to be gathered in May is not planted with the earliest kinds, for which we are indebted to the late Mr. Rivers, it should be closed by the end of this month; but no fire-heat will be needed until the buds get well advanced. If the lights have been taken off, the inside borders will have been thoroughly moistened by the autumnal rains and in a fit state for the reception of a ridge of fermenting material, consisting of two-thirds of Oak or Beech leaves, and one-third short stable manure, but in the event of the roof being a fixture, see that the roots are properly supplied with tepid water before forcing is commenced. Give a little air every day to sweeten the atmosphere and to strengthen the buds, and syringe with warm water about 9 a.m. and 2 p.m. when the weather is favourable. Let the temperature range from 45° at night to 55° by day, or a few degrees higher under gleams of sunshine, but do not exceed the above figures when cold weather renders constant fire-heat necessary. Proceed with the usual routine in succession houses. Keep them cool and constantly ventilated, unless the weather is very severe. Never allow the internal borders to become dry, as the roots of Peaches under glass are always at work, and it is to the withholding of water after the leaves fall that numerous instances of bud-dropping may be traced. If any of the trees in this compartment have been overworked and show signs of weakness, remove the surface soil quite down to the main roots, and replace with fresh virgin loam of a calcareous nature, or lift and replant in new compost. Look well to reserve walls, without which a set of forcing houses cannot be kept going. Lift, root-prune, and replant in sound turfy loam, to keep the trees in a fit state for removal, and fill up vacancies as they occur.

PEACHES AND NECTARINES IN POTS.—With a good selection of the best early and mid-season kinds thoroughly established in pots, and a light, well ventilated structure for growing them in, the hard forcing of a permanently planted Peach house may be avoided by starting a few of the most promising about the end of this month. To insure success, trees which were potted last season and have been top-dressed early this autumn,

should be selected, pruned if necessary, cleansed, and placed in position at once. If the height of the house will admit of each tree being elevated on a pedestal of bricks, or an inverted Seakale pot, a good body of fermenting Oak leaves, to which may be added a little short horse manure thrown loosely amongst the stands, but not high enough to come into contact with the roots, will greatly facilitate forcing. Syringe the trees two or three times a day, keep them regularly supplied with tepid water, aim at a minimum temperature of 45° to 50°, and run up to 55° or 60° on mild, bright days. In mild weather the above figures may be secured without fire heat, but when dark and severe a fall of 5° will be preferable to sharp firing.

GRAPE ROOM.—All the thin-skinned kinds of Grapes will now keep quite as well, if not better, in the Grape room than they will upon the Vines, and where a house is held comparatively useless by the relics of a crop the bunches should be removed at once, when the Vines may be pruned and thrown open to the weather. If the room is not dry, well ventilated, and fitted with pipes from an external boiler any alterations or improvements which past experience may have suggested should be carried out at once, as it is very important that every arrangement should be made complete, even to the filling of the bottles, and firing for a few days with open ventilators, before it is wanted for use. When Grapes are removed to the Grape room, a mean temperature of 50° is high enough; and as this can be secured without fire-heat, the latter will only be needed to expel damp and produce a steady circulation of fresh air.

FRUIT ROOM.—By this time the general stock of Apples will have passed through the sweating process, and unless they are too thickly placed the less they are disturbed the better. They must, however, be carefully looked over for doubtful or decaying fruit, as one unsound Apple soon taints another, and the ripest and finest fruit generally goes first. From this time forward the windows and shutters may be closed, but the ventilators must be left constantly open, the conditions most favourable to the keeping of fruit being a cool, dry atmosphere in a room from which frost can be excluded without the aid of fire-heat. Pears may be kept in the Apple room, but to bring out their full flavour they should be removed to a warmer structure before they are wanted for use.

MARKET FRUIT GARDENS.

PLANTING fruit trees and bushes is still being pushed on with vigour, the weather being all that can be desired for such work. We find even here, where game is but little preserved, that great care is needed to keep freshly-planted trees from being barked. For this all sorts of remedies are used, such as casing the stems in Birch, or winding rags or list round them, and then smearing these with tar, paraffin oil, or other noxious matters; but as these have to be renewed, it is probably cheapest in the end to have small-meshed rabbit wire netting, and either fasten it round the entire piece enclosed, or separately round each tree. This is a good time for collecting parings of road-sides, old mortar or lime rubbish, and similar materials useful in gardens. They should be carted into heaps to be in readiness for future operations in the way of planting. Underwood may now be cut for stakes and fencing, using the smaller wood for baskets, &c. Where there is a stream of water, some low-lying spot should be selected for an Osier bed, as, in addition to their value for basket-making, small pliable Osiers are useful for tying in the case of espalier and other trained trees. Old trees are converted into charcoal; even the roots and twigs may be converted by fire into ashes and spread on the land, which will be thus rendered good for Potatoes, a crop which thoroughly cleanses the soil for Strawberries. The latter are becoming very popular as market fruits, for even when too far from market to send them for use in a fresh state they are always saleable for preserving. Established beds should now receive a coat of manure, for, un-

like many fruits, the Strawberry can hardly be too liberally treated in this respect.

DAMSONS are being largely planted, and many growers of the Farleigh or Cluster Damson are now carefully saving the suckers, for being mostly grown on their own roots they can be secured true in this way, though they do not so rapidly make fine standards as those budded in nurseries; still, when planted out for a year or two in good soil, they straighten and form good trees, provided the side branches are left on for a time to strengthen the stems. These suckers, after being planted in lines 2 feet apart and secured to stakes for two or three seasons, are fit for planting out permanently. The quantities of Damsons grown in this locality are enormous; they realise 6s. per sieve and upwards, and as they are used for a variety of purposes Damson culture is a safe investment. Freshly-planted trees or bushes of all kinds put in last month are now being top-dressed with manure. The almost invariable custom hereabouts is to put all the manure they receive over the roots; one or two barrowfuls is put round each tree, and soil from beyond the limit to which the roots extend is spread over it. This mulching retains moisture, and we may mention that in the early part of the present year, when dry weather prevailed before the trees had time to get established, we did not observe a single loss among trees thus treated, while in the case of those left unmulched very many losses occurred. If put on now it serves to protect the roots from frost. Under such a thick coating they make some progress towards getting fresh hold of the soil, and during the following year the mulching gradually works down to the proper level. Growers of fruits generally have some land under vegetable culture, Potatoes being a favourite crop for cleaning the soil, and they come off in good time for autumn planting of fruits. Many are now getting their land ploughed up roughly so as to be fully exposed to the winter's frost. No manure is now applied; it is reserved for spring cultivation. Onions, too, are a useful crop; for these the soil should be deeply cultivated now, as they require getting in early.

MARKETING FRUITS, such as Apples and Nuts, is still going on briskly, the price for both having much improved. We find that many growers who have left them lying in the long Grass after the stormy weather in October last, as not worth the expense of sending to market, are now having them packed up, and are obtaining fair prices for them. It is surprising, too, how soundly they have kept, while those stored in the least damaged condition have rotted long since. Good culinary Apples are now realising from 4s. to 5s. per sieve, and dessert sorts from 5s. to 7s., figures which speak well for the demand still existing for fruit. The large, hard, culinary Pears fit for baking are, as a rule, somewhat neglected, but in soils where they succeed they are a remunerative crop. When once established as standards they require scarcely any attention, and are always in great demand at this season; the following are the best sorts, viz., Verulam, Bellissime d'Hiver, Catillac, Uvedale's St. Germain, Vicar of Winkfield, and Léon Leclerc de Laval. Any large, hard Pear that does not ripen fit for dessert may be turned to profitable use in this way.

PROPAGATING.

CHRYSANTHEMUMS are by many propagated in spring, yet there are great numbers who think that autumn-struck cuttings produce the best flowers, and autumn striking certainly possesses one advantage, and that is the cuttings are easily protected in a frame, whereas large planted saved until the spring would take up a good deal of room during winter. Where autumn propagation is practised, the cuttings should be put in now, and for this purpose choose those stout shoots that spring up around the base of large plants. In the case of some varieties, an immense number of young growths are formed, and where that happens the weak ones should be removed, leaving only a sufficient number from which to propagate; if this

is not done, all of them will become drawn and weak. In some the shoots are but sparingly produced, but the additional protection accorded to the plants when in bloom causes them to break up from the bottom, when cuttings can be taken. The soil for Chrysanthemum cuttings should be of moderate lightness, and should consist of about two-thirds loam and one-third leaf-mould, with a fair proportion of sand, but in this respect the Chrysanthemum is not very particular, provided good open material is used. The cutting pots should be about 2½ inches or 3 inches in diameter, with 1 inch of crocks in the bottom, and then filled to the rim moderately firm with the soil just mentioned. The cuttings should be about 3 inches in length. Remove the bottom leaf, or two if necessary, for the purposes of insertion, but, as many of the shoots will be cut off below the soil in order to obtain them of sufficient length, they will not require the removal of any leaves. When prepared, insert them singly in the centre of each pot, and take care that they are made secure. Each cutting should be correctly labelled, as by so doing mistakes are avoided. They may then be placed in a cold frame, or if put where there is a slight amount of heat they will root quicker without the danger of damping off, but very little heat must be given, or they will grow up weakly, and as soon as rooted they should be removed. If in a frame without heat, take care that they are not far from the glass. A good watering when put in will suffice for some time, and when this is done leave off the lights, if practicable, for a short time to dry up superabundant moisture. The after treatment consists in removing decaying leaves, in giving water when required, and in taking off the lights for an hour or so on a fine day if there are any signs of damping. The summer-flowering varieties, now much more grown than formerly, may also be put in at the present time, but as their shoots are weak compared with those of the others, it is unnecessary to put them in single pots; about a dozen in a 5-inch pot will be found to be best, and when rooted they may be potted off and grown on as the other kinds. As, however, they belong mainly to the small-flowered class, unless needed for something special, 6-inch pots will be large enough for them.

KITCHEN GARDEN.

THE glorious sunshine, balmy breezes, and pure air which we are now experiencing in the midlands make kitchen gardening one of the most enjoyable of occupations. We are now busily engaged in putting manure on all vacant borders and quarters, preparatory to their being dug up roughly for the winter. Hoeing between winter Onions, Lettuces, and Cabbages, and planting the latest border with Lettuces form the principal part of this week's operations. We may remark that this season here is a most abundant one; everything appears to have done well. Veitch's Giant and Brown and Tait's Broccoli have both done good service; but perhaps the most useful of all mid-winter Broccoli is Snow's. We have a large quarter just showing its snow-white heads. The weather is now suitable for brightening up the walks with a thin layer of fresh gravel. Winter Cucumbers should now be in bearing. Keep the shoots thin on the trellis, and give a slight touch to the female flowers at mid-day with a camel's-hair brush to assist the setting. Let the plants bear lightly, keeping them steady at about 70° at night, and giving air on all favourable occasions. Tomatoes have become indispensable; our winter house of them, now beginning to colour, will be a useful addition. Keep the heat from 60° to 65° at night, and give plenty of air on all favourable occasions. Chicory and other winter salads should be brought forward according to the demand.

The larva of the Codlin moth.—This little pest does a deal of mischief to the Apple crop. If Apples, which fall prematurely, were examined, many would bear traces of its work. All fallen Apples should be gathered up daily and destroyed if not required for use. If they be under the tree the maggot eats its way out and lives to give trouble another year.—H.

TREES AND SHRUBS.

NEW HARDY EVERGREEN SHRUB.

(*PHILLYREA VILMORINIANA*.)

THIS is certainly one of the most distinct and desirable of hardy evergreen shrubs. Those not acquainted with its behaviour under sufficiently trying conditions might not unreasonably look with some suspicion on its ability to withstand severe weather, particularly as all the forms of the European so-called species suffer considerably wherever we are visited by a winter of exceptional severity. At Kew, during the winters of 1879-80 and 1880-81, a large number of evergreens—many of which are generally looked upon as having good claims to be classed as hardy—were a good deal injured, whilst the subject of this article under the same conditions escaped scot free. In a *résumé* of the effects of frost at Kew published in the *Gardeners' Chronicle*, in the August of 1881, I wrote to the following effect: "Most of the Phillyreas are considerably touched; seemingly those which have come off worst are *P. media* and some of its varieties, which in some places are

my hedges close trimmed, I have not been much troubled by them. Another class of offenders, especially at this time of the year, is the Rose stock gatherers, who, for a miserable 5s. per hundred, do a vast amount of damage to the fences; but one way, by cutting through the stocks, mitigate, if not altogether stop, this mischief. It appears to me that the patrons of the absurd fashion which consists in converting the queen of flowers into a sort of mop and stick, are more to blame than the poor creatures who gather the stocks, and that the police could, if they wished, materially assist in putting a stop to the nuisance.—YEOMAN, in *Farm and Home*.

***Leycesteria formosa*.**—Allow me to direct attention to this beautiful, but much neglected plant, which, although known in this country for over half a century, is still a comparative stranger in many gardens. Being a native of the Himalayas, at an elevation of some 6000 feet, it is well adapted for our climate and soil. In the home nursery here is a plot of these plants which at present attract a good deal of attention, the peculiar contrast between the dark green foliage and



Twig and full-sized leaf of *Phillyrea Vilmoriniana*.

quite killed. A striking exception in this genus is *P. Vilmoriniana*, a newly introduced Eastern species with large, dark green leathery leaves; the foliage of most of the other species was killed, but that of this seemed to have received no injury whatever." A two-years-longer experience has only confirmed the favourable impression at first produced by this handsome shrub.

The accompanying figure, the only representation of this plant hitherto published, represents, life size, one of the very dark green, perfectly glabrous, leathery leaves. Sometimes, however, the foliage attains larger proportions than those here exhibited. The species was discovered some years ago by Balansa in the mountain valleys of Lazistan, at an elevation of nearly 4000 feet above sea level. According to its discoverer, it attains a height of 9 feet or 10 feet, bearing its inconspicuous flowers in May, and ripening its small black drupes, about a third of an inch in length, in September. Probably no flowers have as yet been produced in this country. The Phillyreas graft readily enough on the Privet, and in all likelihood the present one would form no exception to the rule.

GEORGE NICHOLSON.

Royal Gardens, Kew.

Fence destroyers.—Of these the worst are fox-hunters, but I have also suffered from Blackberry gatherers, but since I have kept

reddish purple bracts and berries being very conspicuous—indeed more so than we recollect noticing in any other of our hardy flowering shrubs. It is readily propagated from cuttings, and will thrive in almost any soil and in the most exposed situations.—A. D. WEBSTER, *Penrhyn Castle, North Wales*.

Sweet Brier in fruit.—Close to King William's Temple at Kew is a row of the common Sweet Brier, 3 feet or 4 feet in height, and correspondingly bushy. From this the leaves have all fallen, but the plants are densely studded with brightly coloured hips, which, in the midst of more sober hued surroundings, stand out conspicuously, reminding us that too little attention is paid as a rule towards the autumnal beauties of our shrubberies.—H. P.

Thuja Lobbi.—This conifer is, I see, highly recommended for planting as a hedge or screen, and it is stated that it will ultimately form a hedge impenetrable even to chickens. Now, it would be well to know which tree is meant, whether *T. Lobbi* or *T. gigantea*, as though a good deal has been written lately regarding these valuable trees, there still seems to be great diversity of opinion even amongst nurserymen as to which is the true *T. gigantea*. What we have generally purchased from nurserymen as *T. Lobbi* or *T. Menziesi* is altogether a better tree and of faster growth than *T. gigantea* from the same source, and the same thing I have frequently noticed at other places throughout the country. *T. gigantea* (is generally recognised) is by far the best tree

* *Phillyrea Vilmoriniana*, Boissier ("Flora Orientalis," vol. iv., p. 37); Boiss. et. Bal. in Bal exs. 1866; synonyms, *P. laurifolia*, Hort.; *P. decora*, Hort.).

for screens, the growth being more dense and compact than that of T. Lobbi, which is of such rapid growth as to leave the branches at long distances apart and expose to view the greater portion of the stem. My opinion, however, is that in most collections the names are confounded, and that the fastest growing tree is certainly deserving of the name gigantea. Perhaps some of your readers can enlighten us as regards this matter.—A. D. WEBSTER, *Penrhyn Castle, North Wales.*

FRUIT GARDEN.

PEACH CULTURE UNDER GLASS.

WITHOUT wholly committing myself to the assertion that Peach and Nectarine trees are neither grown in such a precisely trained style as they used to be, nor pruning so scientifically practised by the present race of gardeners as it once was, I am still of opinion that, in spite of superior advantages possessed in the shape of good houses, fewer really well-grown trees are to be seen now-a-days than in bygone times. It may be we are either becoming more practical and do not trouble ourselves much so long as we have our trellis space well furnished, or, what is more likely, our duties have increased so considerably, that we have not the time or inclination to attend very closely to such matters. For my part I must confess that I am fond of handsomely trained trees, but I am sorry to state that I have but few such under my charge. One thing is certain—if we are less precise, it is now pretty generally known that we have adopted a more expeditious method of furnishing our houses or walls, and thereby gain at least two seasons. Again, if our trees in the hands of the beginners of the new system are not so perfectly formed as they used to be, it may safely be inferred that they are in a more perfect state of health or vigour than the majority of those grown on the old restrictive system. Not a little depends upon the proper use of the pruning knife, and I believe it to be equally wrong, under different circumstances, to prune too freely or too sparingly. In the former case we may easily induce the formation of gross unfruitful growth, more especially on comparatively young trees, and this is not the only evil, as I shall endeavour to show, while, by being too sparing with the knife, and indeed the pruning saw among the older trees, these will not unlikely soon become badly furnished with bearing wood.

YOUNG TREES ON THE EXTENSION SYSTEM.

Without diagrams it is a difficult matter to be explicit when describing the early formation of a tree, and at the outset, therefore, I strongly advise my readers to refer to Mr. Simpson's remarks on this subject in the back numbers of this paper, or in his valuable treatise on "Improved Pruning and Training." I must also confess to having practised a less scientific, and it may be a less certain, method of forming a tree from a maiden than he recommends, but yet we have succeeded, to our own satisfaction at any rate, in forming good trees from our disbudded maidens in two seasons—the first in the open and the next under glass, each, on an average, capable of bearing four dozen good fruit. I have previously alluded to our method of starting the maidens (p. 325), but this contrasts rather unfavourably with that advocated by "J. S. W." on page 366. Either method is infinitely preferable to the old practice of stopping and cutting back, and I shall not attempt to dispute the point of superiority till I have tried both. I find that a strong maiden, disbudded of all buds which start on the stem above a height of about 18 inches, and also all the buds on the laterals, invariably pushes out a number of healthy shoots, from which may be selected four on each side, all the foreright and others not required being kept closely rubbed out. As these selected growths extend one or more sub-laterals or secondary growths, according to the space to be filled, can be laid in, other growths being pinched out. Under glass both the primary and secondary growths will ripen thoroughly and form abundance of fruit-buds, the former principally beyond where the sub-

laterals were formed, and the latter to their full extent. All being strong, no pruning is necessary, and the next season, by judicious disbudding and stopping, the tree should be furnished to near its full extent with main branches, and much of the intermediate spaces also thinly furnished with laterals, this, too, in addition to perfecting a fairly good crop. It is now that root pruning may be advisable both to induce the formation of fibres nearer the stems, and also to check undue gross top growth. Supposing the limits of the wall or trellis space are not reached, there will be no necessity to shorten the strong main branches, but all the growths not larger in girth than a slate pencil are best shortened to about 9 inches in length. During the following season if we select and lay in shoots where required, disbudding or stopping the remainder, a tree well furnished with excellent bearing wood would be the result. From this time, supposing we were fortunate in securing a sufficient number of well-balanced, leading growths, thinning out and perhaps foreshortening will be necessary. If trained or three-year-old trees were to be treated, I should still recommend the extension system. Being newly received from a nursery, and therefore not particularly well rooted, all the branches should be shortened, the weakest to about 1 foot in length, and the extra strong to about 18 inches. The first few breaks of the latter would be rubbed off, the idea being to give the weaker shoots the best start, or otherwise their stronger neighbours will completely overgrow them. By disbudding, each lateral can be induced to push out two growths—one from near the base, the other from the extremity. The latter will take the lead and soon commence to branch, and one or more of these secondaries should be laid in, the rest being kept closely stopped. At pruning time it may be necessary to shorten a few comparatively weakly shoots, but no other pruning is necessary. The following season, in addition to ripening a few fruit, there ought to be no difficulty in well furnishing the greater portion of the trellis. In the autumn of 1881 we received two trained trees of Royal George Peach from a nursery, and planted one in a second early house, the other in a later compartment. Each have thinly furnished a wall space 12 feet high and 10 feet wide, in addition to perfecting two dozen fruit. More fruit would have been grown if they had set evenly, but the growth was too strong to be fruitful. This autumn they were root pruned, and we now have numbers of branches fully 4 feet long, bristling with plump fruit buds.

PRUNING ESTABLISHED TREES.

Many growers do the principal part of the pruning required by the Peach and Nectarine trees directly after the crops are ripened, this naturally tending to strengthen and encourage the proper ripening of the reserved growths. Foreshortening, or the act of cutting back some of the main branches to near a healthy younger branch, is frequently necessary to insure a generally even growth. Unless this is practised, it frequently happens that the highest portions of the tree only continue to be properly furnished with bearing wood; whereas by cutting hard back a few of those main branches but indifferently furnished with bearing wood, we induce the formation of strong young growth much nearer the stem. Once this is obtained, care subsequently should be taken in the shape of somewhat hard pruning to keep up a supply of shoots always available for furnishing naked places. The younger branches require to be freely thinned out, more especially those that fruited this season, a shoot, if the trees have been properly managed, having been laid in for the purpose of replacing them. These shoots ought now to be furnished with fruit buds, and in most cases will require to be shortened, in order to induce the formation of the requisite number of shoots for laying in in addition to perfecting one or more fruit. Extra strong bearing shoots may well be laid in their full length, as to cut these may lead to the formation of still stronger shoots. Medium-sized growths are the best, these being usually well set with triple buds, consisting of a wood bud in the centre with

a fruit bud on each side. Any growth not larger in girth than an ordinary lead pencil we prefer to shorten to from 18 inches to 24 inches in length. If rather smaller they are shortened to about 12 inches, while, if comparatively weakly, and in this case with few or no wood-buds, they must be either cut back to a wood-bud which may be near the base or laid in their full length. In the latter contingency it will be necessary later on to stop the leading shoot with the motive of strengthening a growth which may, perhaps, start from the base. All bearing wood, when shortened, should be cut beyond a wood-bud, as no fruit will mature without the assistance of leaves either beyond or connected with the joint to which it is attached. Wood-buds are generally more conical in shape and less plump than the fruit buds. Those who cannot readily distinguish them are advised to delay pruning till the fruit buds are more advanced, when, if they cannot then decide, rather than spoil a fruiting branch with few or no intermediate wood buds, they should be laid in their full length and be disbudded later on. Disbudding is a very important operation, and a few remarks on the subject may, I think, for the advantage of the inexperienced for whom I am writing, be deferred till near the time when it will be necessary to practise it.

ADVANTAGES OF TRAINING THINLY.

I strongly advocate training Peach and Nectarine trees thinly, having frequently observed that where the growth is much crowded it naturally becomes weaker, and the tree gradually becomes unprofitable. If judiciously thinned out, the growth retained is much strengthened, while we may feel certain of securing quite as many fruit as the tree ought to carry, and these, too, will be of finer quality. Under these conditions, provided the trees are otherwise properly treated, they will retain their vigour for almost any length of time. The stronger growers, or those with extra large foliage and fruit, such as Walburton Admirable and Barrington, should have the bearing wood disposed at least 5 inches apart, while those less vigorous, such as Royal George, Grosse Mignonne, and all the Nectarines in our case, have the shoots laid in about 4 inches apart. We have no fixed time for pruning and tying in our trees. The early house is now in order for forcing, and the trees in the successional houses will be pruned, cleaned, and tied at our leisure, taking care to complete the work before the buds burst. W. I. M.

BEST DESSERT APPLES.

I HAVE recently assisted to award the prizes for fruit at two large autumn shows, a circumstance which has given me an opportunity of testing the quality of various varieties. In each instance a class was provided for a single dish of ripe Apples, and we were supposed to taste each dish. At one place there were forty exhibits, at the other about thirty, and though it might appear somewhat of a lottery to judge so many by taste, I nevertheless think we were right in giving the preference in both instances to good samples of Cox's Orange Pippin. The next best were Blenheim Orange and Ribston Pippins, while such sorts as Ross Nonpareil, Braddick's Nonpareil, Seek-no-farther, Worcester Pearmain, and Cornish Gilliflower were among the best shown. Of the three first mentioned sorts Cox's is decidedly the most generally profitable, especially when grown either as a dwarf or pyramid. It is not a very vigorous grower, seldom fails to yield a crop of medium sized roundish ovate fruit, fairly well coloured, and when ripe, say any time from October to January, seldom failing to please the most fastidious. We have very few Apples which possess so many excellent qualities, and room should be found for one or more trees in the smallest of fruit growing gardens. Blenheim Orange is another invaluable variety, being surpassed by none for culinary purposes, and for dessert it is equally well adapted. In our case the largest fruits are sent to the kitchen, while the highly coloured medium sized ones are reserved for dessert. Unfortunately, being a very vigorous grower, young pruned trees are not fruitful; it is when

large standards are formed that heavy crops are the result. It is really the most valuable market Apple we have, and one which will command a good price when other sorts will not pay for carriage and salesmen's commission. The shape of the fruit as well as the colour varies considerably, the result probably of employing different stocks rather than the effect of soil. Its season is a long one, frequently extending from November to the end of January. With market growers it is essentially a Christmas Apple. Ribston Pippin is perhaps the best known of the selected trio, but it is a very dis-

to be extensively grown. Our trees of this variety appear to be in a healthy state, but we do not secure many really sound fruit. With us the fruit is in season during November and the early part of December, and is appreciated both for dessert and kitchen.

SOMERSETSHIRE GROWER.

HOW APPLES AND PEARS BEAR THEIR FRUIT.

As the season of fruit tree pruning is now upon us, the accompanying illustrations, showing the



Fig. 1

Branches of unpruned Apple and Pear trees.



B

Fig. 2



A

tographs of *bonâ-fide* examples. The terminal shoot (A) represents this year's growth with leaf-buds, and the two-year-old shoot (B) shows the leaf-buds converted into fruit-buds, which should bear fruit the third year. The sap finding a ready outlet in the terminal shoot (A) produced from the point of B at C, no side shoots are produced on the two-year-old growth, but the leaf-buds are only converted into fruit-buds, which will multiply in number every year until they become large clusters. The restrictive pruner would pinch these shoots after they grew a few inches, which would cause the permanent buds to break into shoots, which he would pinch again as often as they pushed, and all with the object of causing the production of fruit-buds, which, it will be seen, the tree naturally produces of its own accord, and far better, when let alone.

Fig. 3 shows similar unpruned shoots in flower, and fig. 1 shows one in fruit, the original of which was cut from an unpruned tree in a cottager's garden, from which many more like it could be procured. Such examples show the pruner what he has to do in order to produce fruitful trees. Provided he does not object to his trees growing in their natural form, which is the handsomest of any, he does not need to touch the branches, except to shorten straggling shoots at the winter pruning, just to preserve the balance among them, and occasionally, perhaps, to thin out branches where too crowded. Fig. 1 is a four-year-old branch, about 3 ft. long, and bore forty-two Apples. I consider it a very pretty example in its way. It has done no more than extend at the point each year, leaving a perfect wreath of natural and fertile spurs behind it.

The number of fruiting buds an Apple or Pear tree shoot will produce the second year depends on the variety. By a wise provision of Nature they are, as a rule, most thinly placed on those kinds which bear the largest fruit, and *vice versa*. When we reflect that each single fruit-bud produces a cluster of flowers—a far greater quantity than can mature fruit—we see what bountiful provision Nature has made to insure a crop, climate and other conditions being favourable, and that no kind of pinching or pruning is needed to help her. Free growth and root-pruning will accomplish everything. We have other photos of both Pear and Apple branches in fruit equally as good as the one shown and taken this season, but the above is sufficient for our present purpose.

Wortley.

J. SIMPSON.

PRUNING, TRAINING, AND CLEANING.

Now when the leaves are down, pruning, training and cleaning trees and bushes is work which ought to be carried out while the weather is mild and it can be done with comfort. The first that require attention are Pears and Apples; after these Plums, Cherries, and Apricots should be taken in hand, and then Peaches, Nectarines, and Figs. In the case of young Pears, the spurs are generally short, but in that of old trees they frequently stand a good distance from the walls, the protection of which they in a great measure lose; it should, therefore, be the endeavour of the pruner to get them shortened back in order that the blossoms, when they open, may have the full benefit of the warm dry bricks behind them as a safeguard against frost. As it is easy now to distinguish wood buds from blossom buds, there need be no hesitation as to where to cut, and if the trees are well set with the latter it matters not if a large portion be sacrificed, for if the spring is anything like favourable, there will be plenty of flowers left to afford a crop, and the thinning out and shortening back of the spurs will do much good by making the blossoms come out all the stronger. This being so, the best way is to get a very fine-toothed narrow saw, and with it cut away any spurs too large for the knife; remove some, where they can be spared entirely, and shorten others to a bud or shoot, so as to make quite sure that they will all break again. This, Pears, if healthy, will generally do. As a saw, however fine, makes a somewhat rough cut, the

appointing Apple, nevertheless. No variety forms better growth in its earlier stages, but on most soils, in fact all with which I have had any experience, the tree commences to canker by the time it has attained a good bearing size. This cankering is not easily cured, but occasional lifting is the best preventive. There are, I know, large numbers of trees of this variety in a badly cankered state, which should either be regrafted and root-pruned or cut clean away, as they never produce a crop of sound keeping fruit. All the other sorts just mentioned are also worth cultivating, and in the south-western counties of England Newtown Pippin is and deserves

habit and fertile disposition of the Apple and Pear tree, unassisted by the pruning knife or any of those manipulative processes deemed so essential by a certain school of cultivators, may be of service to your readers. The figures show the Apple in bud, in flower, and in fruit; illustrate the true habit of the tree better than any description in words could do; and show how the natural fruiting spurs are produced abundantly without pinching or pruning. Fig. 2 (A B) represents one and the same shoot cut in two at the node (C). They were kindly drawn for me from Nature by Mr. F. W. Burbidge, and the others are from pho-

pruner must make it smooth with a sharp knife. In the case of Pears on walls, the branches are best kept in their places by means of galvanised iron staples and strong tar twine, which lasts for years and renders all much safer than can be done with nails and shreds. The staples, such as are in favour here, are made of strong stout wire. They are cheap, and once in are always there, and they will last as long as the walls themselves. With regard to

PYRAMIDS AND ESPALIERS, the treatment requisite for them is much the same as for trees on walls. On no account should the spurs of these be allowed to get long; on the contrary, they must be kept close at home and rather thin, as it is worse than useless to have more than there is ample room and light for, it being impossible to get good fruit unless it is fully exposed. A good distance for espalier branches to be apart is 15 inches, and pyramids should have quite as much or more, and be regular all over the tree. To have healthy specimens they must be kept clean, and if scale or Moss attack them an easy remedy is at hand in lime, which, if slaked and mixed with water so as to reduce it to the consistency of whitewash, may be syringed on easily and quickly, when it will soon dry and adhere, and smother and destroy every form of parasite in a very short time, leaving the bark when the lime comes off, clear looking as if polished by hand.

TRAINED APPLES, unless on Paradise or other dwarfing stocks, are more apt to become thick in the spurs than Pears, and it is not an unusual thing to see espaliers quite hedge-like, in which state they seldom, if ever, bear, as they are too smothered with leaves and young shoots to be able to form any buds. To get them out of such an unsatisfactory state, radical measures must be adopted by bringing the pruning saw into operation and making a severe thinning of the spurs, when by timely attention during the summer to stopping the fresh growths they may soon be got into a fruitful condition again. Standard Apples seldom require much done to them, but every year they should be gone over to see that there are no branches crossing each other or that the trees are not becoming crowded and thick in the middle, and if they are they should be well opened out by having all such removed, and the wounds made in doing it trimmed, so as to leave the cuts smooth.

MORELLO AND DESSERT CHERRIES require very different treatment from each other, as the former bear almost entirely from the fresh young wood, and the latter from spurs, and therefore the Morellos should be simply thinned by having all misplaced or weakly growths cut away and the strong and well situated left and laid in regularly and thinly for fruiting. With the dessert kinds the thing to be aimed at, as with Pears, is to keep the spurs close home, which can only be done by shortening all annually that have plenty of buds and are long enough to bear the reduction, but it should be borne in mind that the more they are stopped in reason the better will they break back and keep furnished at the base. The same remarks apply to

APRICOTS AND PLUMS, and with these great liberties may be taken, but I always like to see a bud or short young shoot to cut back to, or the spurs are apt to die in the spring. If there are flower-buds, there is no fear of this, and they form a good base to prune to, and the operator need not hesitate to shorten them. Although the spur system answers for Apricots, I like to have some young wood to lay in, as being so much closer to the wall than spurs, the blossoms it bears on it are more certain to set.

PEACHES AND NECTARINES may be made to fruit on spurs, but they do far better confined entirely to the fresh shoots which they form annually; these should be thinned by cutting all clean out that are not wanted, and laying the others in at about 3 inches to 6 inches apart, so as to fill all vacant spaces, that there may be no gaps on the wall. This is one of the chief arts of training, and the next to get perfectly symmetrical, well-balanced trees, which can only be done by

starting them well at the first. To cut them in when received from the nursery is a great mistake, as the loss of the top throws the plants back a year at least, and does no good in any way, and why the practice should be continued is incomprehensible, as the object in planting a tree should be to get it into a fruit-bearing size and state as quickly as possible. If the shoots are left their entire



Fig 3. Unpruned shoots in flower.

length, or have only just the soft unripe ends pruned off it is astonishing what progress a plant will make and how quickly it will cover a large space on a wall. Many hesitate to prune

FRUIT BUSHES till late in the season on account of the attacks birds often make on the buds, but they may easily be kept off by syringing the bushes with limewash, in the way advised for the Pears when mossy or affected with scale. In preparing the wash it is a good plan to boil some Quassia chips in the water, or dissolve some bitter Aloes, which make the mixture more noxious and disagreeable to the feathered predators, and

render the bushes more safe. Black Currants the birds seldom or never touch, and all the pruning these bushes require is to shorten any very long shoots that are straggly, and thin out others, so as to throw the bushes open and let in plenty of light and air to the fruit. The way to manage the red and white kinds is to spur them in by cutting away all side shoots up the main branches, leaving only the leader, which should be shortened to within 6 inches or so of the base. If this be done, and continued yearly, the bushes will become crowded with buds and yield an abundance of fruit, which, from being exposed, will ripen well and be of superior quality. Raspberries will need going over to thin the canes, and prune out the old ones preparatory to staking or tying to wires. The latter plan of support is the more preferable, unless iron rods be used, which are the cheapest and best supports in the end, as though perhaps more costly at first, they last for an indefinite period if painted now and then to save them from rust. S. D.

Good and bad Grapes.—A writer in a contemporary last week, referring to the opinions expressed in THE GARDEN, and elsewhere, on the Gros Colmar Grape, sends "a small bunch" of it to the editor, about the middle of November, and asks him to tell his readers what a grand Grape "it might prove to be in flavour if allowed to hang on the vines" till the end of January or thereabouts. (Why not have kept a sample himself till that time and sent it?) This is not the worst, however, for we are told further that his employers "are very fastidious, or rather choice, as to the varieties of Grapes placed on their table," and have "made" him discard all but "four of the best," and one of these is the Gros Colmar the worst flavoured Grape in cultivation by universal testimony. THE GARDEN has often protested against the substitution of inferior fruits for good sorts, simply because they were large and nothing else; but what is one to think of the Gros Colmar being placed before such varieties as the Frontignans, Madresfield Court, Barbarossa, and other kinds for people who are "very particular and fastidious" about quality? All these excellent varieties, as well as the Lady Downes and Alicante, are "discarded" by the authority in question on fastidious grounds, for his Gros Colmars are not a whit better than ordinary samples in colour or flavour, for we have seen and tasted his Grapes on the vines in December. The same writer, if I am not mistaken, has himself, in another publication, set the proper estimate on Gros Colmar by placing it at the bottom of an enumeration of desirable Grapes to grow, and in a list of sixty-five vines for all sorts of vineries has recommended only one of Gros Colmar to be used in each case.—S. W.

Obscured glass for vineries.—Your readers may remember a discussion which took place some years ago between the late Mr. Ayres and others on the subject of ground or obscured glass for vineries, some being of one opinion and some of another. Some four years ago I undertook the renovation of some old vines for a gentleman near here who had just come into possession, he undertaking to roof the vines in fresh with rolled rough plate glass and provide everything if I would direct operations. The vines were submitted to the usual renovatory measures, and responded well to our efforts in the production of good fruit and healthy growth, the two most striking things about both being the good quality of the fruit and especially of its colour, and the health of the foliage, which is less affected by red spider than it was under the clear glass, and less so, in fact, than any vines I know of, although the house is heated by a flue. The green state of the foliage till and after the fruit is ripe I attributed solely to the subdued rays of the sun upon the leaves through the rough plate glass, which also obviates the necessity of giving so much air, thus trying the foliage less than it otherwise would be. The good fruit so well matured was put down to the permanently healthy condition of the leaves. The light on sunny days is always bright enough, but the rays are diffused. I record the fact at all events, for it shows, at least, that the prejudice against rough glass is a false one.

It is well known that this kind of glass is used for Camellia houses in order to protect the foliage from the strong light, and no doubt it exerts a similar influence on vines. Under clear glass on bright days, supplemented by hot water pipes, the sun is often very trying.—S. W.

English raised Grapes.—"J. S. W.," after stating that Golden Champion, Duke of Buccleuch, and Buckland Sweetwater have failed in establishing themselves as suitable white companions to the Black Hamburgh, confidently recommends Royal Muscadine for this purpose. It is certainly a fairly good white grape, but the berries are too small for our English taste. Some can grow Buckland Sweetwater good enough to be placed in juxtaposition with good Black Hamburghs. When I was at Loxford Hall we had both Royal Muscadine and Buckland Sweetwater in the early house, along with Black Hamburgh, but Buckland Sweetwater was thought to be so much superior to the Muscadine that that was destroyed. Foster's White Seedling is gradually but surely winning its way to the highest position as a white Grape, leaving out of the question the Muscat. It has not such a fine appearance as Buckland Sweetwater, but it does well in positions, we think, where Buckland fails, and taking it altogether, I consider it the best white companion to Black Hamburgh. Unfortunately, so many fail with the Duke of Buccleuch and Golden Champion that it is not safe to recommend them, but those who can grow them well are to be envied.—J. DOUGLAS.

KITCHEN GARDEN.

IMPROVING KITCHEN GARDEN SOIL.

BEFORE vegetables can be produced in the greatest quantity and of the best quality it is necessary that the soil should be good. In making a new kitchen garden few spots can be found in which the soil all through is thoroughly good to the depth of 2 feet or more. I have had to deal with gardens in which some parts might be this depth, but in others the soil was of the shallowest and poorest description. Such soils are only suitable for the growth of certain crops, but in a good vegetable garden this should not be so, as every square foot of it should be made to produce whatever kind of crop may be desired. In gardens in which the soil is poor and uneven in depth and the whole inclining to be shallow more time is spent in accomplishing the work necessary to be done than need be; therefore, the fault should be remedied, and now is the time to set about it. Perhaps not more than one or two quarters could be done this winter, but let these be attended to properly and thoroughly, and in time the whole will be converted into the highest state of fertility. Where the sub-soil is gravel, or where there is a good natural drainage, drains will be unnecessary, but where cold and wet, and the surface consequently far from being sweet and mellow, drainage will require attention. In low-lying ground it is an expensive job to drain with good outlets, but on an incline draining can always be readily and cheaply done. There must be at least one main drain into which all the smaller ones should be led, and these should be at least 2½ feet below the surface, with 3-inch earthenware pipes at the bottom and a quantity of rough stones round them. These should be put in every 10 yards or 12 yards apart, and this should be done first in beginning to improve any piece of garden ground.

GARDENS suffer from want of trenching when the surface soil has been dug over time after time without making any attempt to go down farther than the depth of one spade. The sub-soil in that case gets hard, the roots scarcely ever penetrate it, in summer this shallow soil soon dries up, and crops fail. Deep cultivation is a grand thing and should be constantly practised, but harm may in some cases be done by bringing up a large quantity of poor sub-soil to the surface and putting the good surface soil down in the bottom, where the roots will be long in finding it or being benefited thereby. Such treatment as this might in time improve the soil, but it is not a good plan to adopt in order

to secure a fine crop of vegetables immediately after trenching, a point which should be kept in view. Trenching need not be an annual practice. If the worst of ground is turned up this year it will not require trenching again for a number of years, but many soils which have not been trenched for five or six years would be greatly benefited by being subjected to that operation now. Trenching is done in the same way both in the case of new and old soils, and when properly done it will be found to be of the greatest advantage to the crops. It simply consists of taking a large opening out at one end of the piece of ground to be operated on, and putting the soil thus removed at the other end; the opening should be at least 2 feet deep and 2 feet wide. The soil next to this is then turned over into the vacant trench, and so the work goes on to the end. Where the ground is very full of stones these should be collected and placed in the bottom of each trench. As the bottom of each trench is shovelled up a quantity of any old half-decayed vegetable matter, rough manure, charred refuse, and, in short, any material which will improve the soil should be placed in a thick layer at the bottom and then be forked in.

THE NEXT TRENCH taken out will come on the top of this, and after the top spit has been turned over another layer of manure may be put on just under the surface. In the case of poor sub-soils they should be so worked that only a small portion is brought to the surface, and if the manure be placed near them at the bottom they will be in fine order to bring up to the surface two or three years hence. This improves soil greatly, and in time I would undertake to make the most sterile soils fertile by means of this process. Where good manure is to be had it would, of course, be best to trench a quantity down to the bottom, but it is seldom that the best manure can be had in sufficient quantity for this, and old refuse answers the purpose very well; in fact, this is a good way of getting rid of such material. Soil trenched in the manner just indicated during December, January, and February would be in excellent order for cropping in March and onwards. Just before sowing or planting a quantity of good fresh manure might be forked into the surface with much advantage. This would be a good plan in the case of poor soil, but where the surface was rich in organic matter, especially leaf-soil or anything likely to generate fungi, a dressing of lime would be beneficial. We generally apply the lime at the rate of 4 tons to the acre, but this depends a good deal on the state of the soil, as some soils require more than others. Apart from newly trenched soil, we frequently miss manuring some of our quarters for one year and give them a dressing of lime. It is carted from the kiln in lumps and emptied down in heaps on the quarters. A quantity of the surrounding soil is then thrown over it, and there it remains until it has fallen into dust, when it is distributed all over the surface and forked or dug in. It is a bad plan to allow empty ground to remain smooth and firm on the surface during winter. When in this state the mellowing influence of frost and the weather generally is lost. In digging or trenching the surface should always be left in as rough a state as possible. J. MUIR.

JERUSALEM ARTICHOKE.

CANON ELLACOMBE writes to the *St. James' Gazette* concerning the name of these as follows: "In a pleasant article on 'Artichokes' in the *St. James' Gazette* the other day the writer spoke of Jerusalem Artichokes, and stated that the name had nothing to do with Jerusalem, but that the plant being a Sunflower, the name was a corruption of the Italian 'Girasole.' This is a clever modern guess, which has been accepted upon no good authority. The following reasons will perhaps show that the plant is really named from Jerusalem: 1. The earlier writers (as Bacon and Gerard) so name it, Bacon even speaking of it as 'Artichokes of Jerusalem.' 2. The plant did not come into Europe via Italy, and therefore is not likely to have had an Italian name. 3. The plant is a Helianthus,

but it seldom flowers, and when it flowers is so unlike the popular idea of a Sunflower, that it is not likely to have been so named. 4. The flowers do not follow the sun; I have seen them pointing to all points of the compass. 5. It is not and never has been called a 'Girasole' in Italy. The Italian name for an Artichoke is 'Carciofo,' and for the Jerusalem Artichoke, 'Tartufi bianchi.' 6. In the sixteenth and seventeenth centuries the name Jerusalem was given to many plants, such as the Jerusalem Cowslip, the Jerusalem Sage, the Oak of Jerusalem, the Jerusalem Thorn, &c. This did not mean that the plant came from Palestine, but that it was an exotic, and that the real native country was unknown. There was probably an underlying idea that the plant was eastern, and a wish to give a name denoting excellence."

—Mr. R. Lloyd, writing of Jerusalem Artichokes, says: "They are chiefly used here for soup." I wonder whether this excellent vegetable is as much prized in ordinary kitchens as it ought to be. Besides making excellent soup, it may be cooked in several different ways—first boiled, then fried as a purée, or prepared in the Italian way, with grated cheese. All of these preparations are fit for a refined table, and it is to be regretted they are not more appreciated.—L. D.

A fertile Tomato.—One day about a month ago I gathered a full-formed fruit of the Drum-lanrig Tomato weighing 12 oz. I laid it upon a shelf in a cool room in order to preserve it for seed. To-day when I went to cut it up in order to extract and wash the seeds, I was rather surprised to find that almost every seed had germinated and the fruit one mass of healthy young plants, the majority of them being about 1 inch in height. Others which had not managed to break through the skin were twisted into all sorts of forms inside. I cannot recollect anything of this kind occurring before.—J. MUIR, *Margam, Taibach.*

Potato culture in Ireland.—The last issue (1882) of the "Agricultural Statistics of Ireland" contain some interesting information respecting Potato culture in that country. It shows the total statute acres under Potatoes, and the extent planted of each description of that crop. Last year the total area under Potatoes was 837,918 acres and the following list shows to what extent the different sorts were planted.

	Acres.		Acres.
Champions . . .	592,396	Cruffles	2,808
Skerry Blues . .	63,702	Green Tops . . .	1,939
White Rocks . .	56,088	Magnum Bonums .	1,630
Flounders . . .	47,726	American Roses .	1,519
Scotch Downs . .	27,218	American Whites .	1,250
Kemps	7,822	Red Rocks	1,024
Leather Coats . .	6,053	All others	21,611
Brown Rocks . .	5,132		

Seed Potatoes need great care at this time of the year; if kept in large quantities they grow and lose a considerable portion of their substance, and when the proper growing season arrives nothing is left but shrivelled tubers; thinly spread the latter out in a cool, airy place, so that when growth commences the shoots which they make will be short and sturdy. There is great difference in varieties as regards precocity of growth; kidneys do best if they can be prevented from growing until early in spring, their first shoots being those to retain. Some of the best crops of early kidneys I have ever seen have been grown by amateurs who always spread out their seed Potatoes in single layers on boards from which frost was excluded, and who were especially careful to retain the first shoots by careful storing and early planting.—J. G. Hants.

Autumn Giant Cauliflower.—In his notes on this popular variety "J. G." (p. 436) asserts "there is no danger of confounding it with any other kind, as it is perfectly distinct both as regards flower-heads and foliage," and again, "that it is strictly an autumn Cauliflower." I am of opinion he is wrong in both assertions. Dickson's Eclipse Cauliflower is an exact counterpart of the Autumn Giant, the only marked difference being that when sown together the former will be fit for use two or three weeks in advance of the other. With regard

to the remark that the Autumn Giant is strictly an autumn sort, that is to say, not fit for use till September, I may state that at the Southampton show held the first week in August I saw numbers of huge heads of Autumn Giant, and still more at two Somersetshire shows a fortnight later. We also had abundance throughout the month of August. So may also "J. G." if he will make an autumn sowing in common with the earlier sorts, protecting the plants either with cold frames or hand-lights. Even by sowing the seed in heat early in March last we secured plenty of good heads about the middle of August, and by making successional sowings, which your correspondent condemns as being useless, we are still cutting serviceable heads from plants growing on a south border and which were obtained from a late sowing.—W. I.

I disagree with "J. G." when he says that this is strictly an autumn variety, for we have nothing that can come near it for summer use if properly treated. If the seed is sown in August or September at the same time, and managed in the same way as the Early London, which is sown to succeed the winter Broccoli, the Autumn Giant will succeed the Early London, and if sufficient plants are preserved through the winter, a supply may be had all the summer, and the early raising of Cauliflower plants in the spring dispensed with. This is the practice followed by many west country gardeners besides myself, and the prize Cauliflowers at all our local summer shows are the produce of seed sown in the autumn. As a rule, hereabouts the seed is not sown until the first week in September. A portion of our stock is wintered in a cold pit and the others under a south wall, where they are protected in frosty weather. From these are made, as late as the beginning of May, plantations, from which we get fine heads up to nearly the end of August. The great fault belonging to the Autumn Giant is that many of the plants go blind.—J. C. C.

Tree roots in kitchen gardens.—In planting trees for sheltering kitchen gardens avoid the Elm, the Ash, and similar trees, the roots of which defy all barriers, and employ dense-growing conifers. The latter do not root so widely as deciduous trees. As regards rapidity of growth and effectiveness in the way of shelter, nothing is better than Scotch Fir or Austrian Pine. The latter is probably one of the best of conifers for planting in exposed positions; it grows freely where many kinds fail, and should certainly be used in quantity where shelter belts are required for screening orchards, or any kind of tender trees or shrubs. Its dark, sombre look gives a warm, sheltered look to woods in which it is planted, and being of a very sturdy habit of growth, it withstands gales that would uproot varieties of a less vigorous character. The best plants for forming permanent shelter are those from 2 feet to 3 feet high; if smaller they do not possess sufficient stamina to stand alone and they do not take such a firm grip of the soil as those that are larger. If deciduous trees are desired, select the silvery Birch or Chestnut.—J. GROOM, *Gosport*.

TRUFFLES.

WHEN ripe, Truffles are nearly black, with a thick, rough, and warty rind, their shape being generally oval, and their size varying from that of a walnut to a hen's egg. Although comparatively rare, they are found in sufficient quantities in most temperate countries; but their appearance is singularly capricious. As a rule Truffles are found some inches below the surface on calcareous soils, and near woods or plantations of Beech, Fir, or Oak—sometimes, indeed, almost incorporated with the fibrous roots of large trees. Decomposition of vegetable matter under suitable conditions of moisture and warmth is supposed to be the essential cause of their formation, and so some attempts have been made to generate Truffles artificially, though not, it is to be feared, with very satisfactory results. These efforts, however, have been continually repeated in France; in some parts of which, spots considered favourable are enclosed

and sown with acorns, the Truffles being said to make their appearance when the young Oaks are a few years old, and to afford harvests for several successive seasons.

Thus uncertain in its habitat, and affording no outward signs of its presence, our acquaintance with the Truffle would have been still more restricted but for its possession of a remarkable quality. Not only is its flavour unique, but the odour of the Truffle when ripe is so peculiarly pungent and penetrating, that certain animals speedily developed the instinct of "rooting" for it. The badger and wild boar, while banqueting upon Beech-mast, were probably the earliest epicures who made acquaintance with the daintier commodity often lying embedded below their more ordinary fare. Pigs are still occasionally employed in Italy and Germany to effect the same discovery on behalf of the peasants, who, guided by their movements, mark down with precision the spots which are likely to repay the trouble of excavating. Dogs, however, being at once more intelligent and amenable to discipline, came gradually to be preferred. It was found easy to train them by feeding them with food impregnated with the scent of the Truffle, and a special breed was soon called into existence. These were originally an offshoot from the French poodle, and one of the first hunters who symmetrically bred and trained them was a Frenchman who resided in the Grand Duchy of Baden about the middle of the last century. English Truffle-hunters, however, preferred a small mongrel terrier, and for many years their occupation was both considerable and profitable. The chalky downs of Wiltshire, Hampshire, and Sussex were the favourite localities; and the latter county, indeed, once possessed an expert who acquired a wide reputation for proficiency in his calling. It is recorded that towards the end of the last century a certain William Leach came from the West Indies with some dogs accustomed to hunt for Truffles, and, having landed at Plymouth, proceeded along the coast to the furthest point of Kent, determined to fix on the spot where he found them most abundant. Leach spent four years over this experiment, and finally settled at Patching, a village near Arundel, where he carried on the business of Truffle-hunting till his death. It is not unlikely that this was the veritable Truffle-hunter a visit from whom is recorded by Gilbert White in his "Natural History of Selborne," the object of the former being to show some of his spoils gathered in that district. British grown Truffles, however, are not considered, as a rule, equal to the best of those kinds that are imported, and as a native industry the practice of hunting for them has of late years considerably declined.

What the Pine-apple is amongst fruits, and the oyster among bivalves, that the Truffle is pronounced by connoisseurs to be in the curious order of esculents to which it belongs. There are many varieties, each having its particular colour and distinguishing features; but to the exquisite pale Truffle of Provence, which gives its special flavour to the *pâté de fois gras* and the *poulard truffé* of Périgord, may, perhaps, be assigned the supremacy. Many other kinds, however, are held in great favour, some of the rarer being remarkable for a distinct Strawberry flavour, while others—especially the black Truffle—are musky or aromatic. The red variety, often found in the neighbourhood of vineyards, is less delicate and piquant; but the Piedmontese Truffle, smooth outside and pinky white within, is much esteemed for its pronounced garlic flavour. All of these when cut show the same kind of netted, cellular, and veiny consistency, their difference in colour and taste being chiefly attributable to the soil and situation in which they are produced. It is probably in connection with the turkey that the Truffle it most generally known and appreciated; and to this bird, indeed, it has been said to gravitate as by a law of natural affinity. The perfect method of cementing the alliance is, however, one of cost and nicety. The bird should be plucked immediately after it is killed, entirely stuffed with fresh Truffles forth-

with, and then hung until culinary experience declares it ripe for roasting. This is, of course, a very costly way of proceeding, and what may be regarded as a necessary concession to economy is to be found in the use of a certain proportion of Chestnuts with the Truffles, some epicures declaring that the result thus obtained is superior to that of the Truffle-stuffing pure and simple. Treated in either manner, the turkey constitutes a kingly dish, although it is one seen oftener in France than elsewhere. For although Truffles are much more commonly eaten in England than formerly, they have with us hardly got down to what may be called the ordinary domestic level. They are still among the "extras," and are regarded by the majority of every-day folk as rather abnormal than otherwise.

Like that of many other delicacies, the flavour of the Truffle is regarded by the fastidious epicure as sufficient for itself. Baked in the embers and in its "jacket," like the Potato, the Truffle is supposed by some to attain its culminating point. Others prefer it raw and served with oil. Not a few *chefs* advise that Truffles should be simply stewed and used as a vegetable, for which purpose they may be served with any *entrée*. They are referred to in the works of Martial and Juvenal, and that father of the kitchen, Apicius, makes many recommendations on their behalf, none of which, however, would in the estimation of modern judges attain to the standard of Soyer's "*Plover sauté* with fresh English Truffles." It is not a little surprising that, with all their partiality for good living and pronounced flavours, the Romans never attained any proficiency in the art of hunting for Truffles; but were accustomed to dig up entire districts in speculative search for them. From their frequent propinquity to the particular tree, it almost naturally occurs to one to wonder whether Tytyrus was "prospecting" for Truffles when reclining under that "spreading Beech" whose branches so largely overshadowed the days of our boyhood.—*St. James's Gazette*.

HOTHOUSE BUILDING.

I BELIEVE that THE GARDEN may do good service by disseminating correct information upon this subject. The horticultural builder does not always know what is best as regards garden structures—he seldom has any experience with respect to their tear and wear, and therefore cannot be wholly trusted. This I shall endeavour to show. I am troubled almost daily by the sight of rotteness, due solely to the flatness of that important part, the bottom-plate beneath the sidelights, which of necessity receives all the constantly condensing moisture of every moist house. Common sense, one would suppose, would show that this should be bevelled off inside, or rather given a good slope, but I have seen such parts flat in new houses lately, and I think the mistake is not uncommon. It is upon such points as this that cultivators should be able to check the builder's drawings. It should be an axiom in hothouse building, that in houses not to be always dry, there should be no flat surface in connection with the outer structure. The next mistake which occurs to me is the formation of gutters on the front woodwork. I know of gutters so made, lined with metal, sometimes zinc and occasionally copper, but there is no great difference amongst them as regards durability; in both cases the metal gives way sooner or later, often before it is possible to notice the mischief, and the result is rapid rotteness of the wood beneath. It is still worse when the water is conducted though to the inside by jointed pipes. The joints give way and there is great additional injury. I am told that this form of gutter has been used for appearance sake, but even where it answers that end it is untrustworthy. Such pipes are often not large enough to carry off

heavy rains, and the water pours down outside and even inside the houses. I have lately seen a house built, by perhaps the best firm of builders we have, the gutters for which were cut in the wood and not lined. I am told by good authority that they are better without lining and that they are then perfectly safe; these gutters, too, are said to answer admirably, but I think it likely that if painting is neglected the water would get into cracks and cause mischief. Painting ought not to be neglected, but there are few houses, perhaps, of any age which have not suffered from the want of it. The gutters in this case are, I believe, cut in a broad piece of timber placed well over the front glass, and they last as long as the house. I, however, see no advantage in them; iron gutters would look equally well and answer perfectly, as I know they do, and would be the safest, I believe, in the end. The construction of rafters is worth attention; I have seen them built of three boards, and whether due to this fault or not I cannot say; but those subjected to a moist atmosphere rotted away in a few years.

Another instance of bad work consists in the method of joining pipes by means of iron filings. This system may be perfectly safe when done with proper care, but the following is an instance of work done by a leading firm. The pipes were wholly fixed by this means, and the consequence has been that for several years joints—such a mishap could not happen where hemp, rope, and red-lead are used—have burst again and again. But this is not all. These pipes were in some cases built in, so that the brickwork required to be cut away for the purpose of finding the leak. Every part of hot-water pipes should always be accessible. It often happens that the course which pipes take is not easily traced, and therefore their whereabouts should invariably be indicated by a plan. There are many points in hothouse building, no doubt, upon which even the best authorities may differ, and I trust that these remarks may serve to open up the question and elicit some useful information. I have not mentioned the subject of proportion of parts, but that is one in which builders often fail. It is not an uncommon thing to find narrow shelves fit for small plants only placed where there is room enough for large specimens. R. T. L.

ORCHIDS.

MASDEVALLIAS AND ODONTOGLOSSUMS.

MASDEVALLIAS.—I refer to these very choice cool house Orchids now, as this is perhaps the best time of the year in which to repot them. If we turn a plant out of its pot carefully in November we find the roots pushing out from the base of the more recently formed growths, and the older roots also in an active state. If potting is delayed, therefore, until the roots have made considerable growth, the plants cannot fail to receive a check. This rapid formation of roots is premonition that the flowers are formed and may soon be expected to rise up out of their sheaths. Masdevallias flower very freely. Although our collection is a small one, containing very few species or varieties, we might, nevertheless, have flowers all the year round. Nearly the whole of them succeed well in a cool house all the year round. Some few of them require the temperature of a Cattleya house in winter, and some that might winter fairly well in a cool house do better kept warmer. To this class belongs *M. towarensis*; of this we had some flowering plants in a cool house, but the blossoms did not open freely, the petals being twisted, while as soon as removed to a warmer house the difference as regards the expansion of the flowers was

at once apparent; they are now of larger size, snowy white, and of good form. I tried the experiment of repotting some of these white forms when in full bloom, and the plants did not experience the least check from it. They are making extra strong growth, and are now quite a mass of bloom. The flowers are produced three together on a stoutish stem about 8 inches or 9 inches in length. If cut flowers are required, the footstalks only should be removed, allowing the old stems to remain, as more flowers will be produced from them next season. *M. ignea* is coming rapidly into bloom. The ordinary forms of this are not of very great beauty, but there are some varieties which produce large-sized brilliant-coloured flowers. They begin to appear after Christmas in quantity, and mingle their rich colours with the snowy purity of *M. towarensis*. One of our choice favourites is *M. Wagneri*, which might be considered by some to be merely a botanical curiosity. I, however, greatly admire its small tufty habit and its quaintly formed pellucid blossoms. It lasted in beauty a long time in the cool house, but the blooms faded just before those of *M. towarensis* opened. This little plant is also wintered in the Cattleya house hung up in pans near the glass. Following closely after *M. ignea* comes another *Masdevallia* not much known as yet, but really a fine thing, viz., *M. Chelsoni*. It is interesting also as being the first hybrid *Masdevallia* raised in Europe. The flowers of some of the varieties of it are of great beauty, reminding one of those of the best dark forms of *M. Veitchi*, while the foliage is very distinct from that of that species. It winters well in a cool house. The foliage of this variety resembles considerably that of *M. amabilis*. *M. Veitchi* not only does well in a cool house in winter, but that is the best place for it, coming as it does from a great height in the Peruvian Andes. It does not succeed in a warm house; it flowers in spring, but rather later than *Chelsoni*. *M. Veitchi* when grown well will also flower in autumn as well as in spring, but the flowers that open in March and April are the most valuable; and as the autumn blooming is too much for the plants, we remove the flower buds as soon as they appear. All the *Masdevallias* require about one style of potting, except some of the small growing species which are planted in pans, and some of the Chimeroid section in teak baskets. We use pots of the ordinary kind, and fill them rather more than half full of drainage. The potting material is good turfy loam torn up by the hands, the finer particles to be shaken out of it; some clean Sphagnum is added to it, also a liberal proportion of clean potsherds and broken charcoal. Our whole collection has just been potted. A very few of them were not repotted, and from these we cleared off a considerable proportion of the surface compost and made up with new material. A little observation on the part of the cultivator will soon determine the proper position for each class. During winter they will require to be placed as near as possible to the light, as parts of the leaves decay in winter, owing probably to the want of light and fresh air. Many species winter well on a shelf near the glass in the cool end of the Cattleya house. Those that are arranged on the stages should each have an inverted flower-pot to stand upon, as this allows the air to circulate freely underneath the plants. The most important of the occupants of the cool house are the numerous species and varieties of

ODONTOGLOSSUMS. There is no difficulty whatever in growing these. Their cultural requirements are of the very simplest kind, and they are also so inexpensive that anybody who can afford the luxury of a greenhouse may cultivate them. The house may also be built on the north side of a wall or house in a position where ordinary greenhouse plants would not thrive well. The best of the whole genus for ordinary culture is *O. crispum*, or as it is better known under its synonyms of *O. Alexandræ* or *O. Bluntii*. The varieties are now as numerous as the different varieties of florists' flowers, and every one of them are well worth growing. *O. Pescatorei* is next in importance; indeed by some it is preferred, just as some fanciers prefer the Pink to the Carnation, although

the greater number prefer the latter. The flowers of *O. Pescatorei* are more numerous on the spikes, and of smaller size, and until the variety *Veitchi* appeared in Messrs. Veitch's nursery, there had been nothing to cause a sensation. The flowers of this particular variety are white, heavily blotched with reddish purple. Another good form flowered with Mr. Sander at St. Albans is something of the colour of *Veitchi*, but it is spotted instead of having large blotches. Other well-marked species of this genus are *O. biconiense*, which has an erect form of spike nearly a yard high. *O. cirrhosum* is one of M. Roez's best introductions. Its white, prettily spotted and quaintly formed flowers, which are also scented, should be in the smallest collections. *O. coronarium* is a grand and very distinct species, so difficult to grow and flower that ordinary growers had better steer clear of it. *O. grande* is an easily grown and noble species, and one of the best known of them. *O. luteo-purpureum* is the type of a very numerous family that have yellow and brown flowers, such as *O. Halli*, &c. *O. Rossi* and *O. membranaceum* are in their way very charming, and the most distinct and pretty of the small-growing, small-flowered species. The *O. odoratum* and *gloriosum* types are also easily grown; and though not so handsome as some, are very pretty and sweet. If the house is large the vigorous Guatemalan species, *O. Uro-Skinnei*, should find a place. It is easily grown, and flowering, as it does, in the autumn, is desirable on that account. The pretty little *O. roseum* is much valued by some; it is so distinct with its arched spikes of rosy red flowers, which are produced in the winter or early spring months. It reminds one of the *Mesospindiums*. All the above may be grown in the coolest house; for the present those requiring a Cattleya house temperature are omitted. Those who have a very large collection of these plants may be repotting them in every month of the year. *O. crispum* and *O. Pescatorei* flower all the year round; consequently, none of them are making their growths at the same time. For instance, a plant that has flowered will start into growth as soon as the spike is cut, or if it is a vigorous plant it may do so before. That is the best time to repot, and if a man has time to potter with them all the year round, each plant may be done at the right time. With all our other work to attend to, we cannot do it, and as I fancy there is no better time for repotting them than the present, ours have all been done that needed it, and those that did not have been surface dressed. They are potted exactly like the *Masdevallias*. The minimum temperature is kept about 50°, although in cold nights it often falls to 45°, and besides there is a difference of more than 5° between the cool and warm end of the house. There is no need during winter to keep the atmosphere saturated with atmospheric moisture. Some persons fall into a habit of damping and syringing their houses in the same way all the year round regardless of weather or of times and seasons. The result of this is that not only are the plants themselves injured, but the delicate blossoms become disfigured with damp spots, and, as a result, speedily decay. In winter, too, we pay particular attention to the ventilation. In mild weather a little air may be left on the "hit-and-miss" ventilators in the front wall all night, but even in severe weather an effort must be made to obtain a supply of fresh air into the house on some part of every day. J. DOUGLAS.

Potting Cattleyas.—One of your correspondents says imported Cattleyas should not be potted as soon as they arrive, but only be put in crocks or broken potsherds. We always pot at once. At p. 443 I see that Mr. Douglas recommends potting Cattleyas and *Lælias* now, but I should recommend amateurs not to do so. Good growers like Mr. Douglas may do these things, but when the watering-pot is put into the hands of a man who knows not how to use it properly, the roots of newly potted plants would rot probably, and the plant itself soon follow. Mr. Douglas says he suffers from thrips. I cannot understand how that occurs. We have here upwards of a thousand Cat-

tleys not three plants of which have a thrips' mark on them. The number of thrips caught in our Cattleya houses during last year might be counted on one hand. Our plants have never been sponged, neither have they ever been dipped in any solution whatever. We ascribe our freedom from these pests to low temperatures and plenty of air at all times. The houses are thus kept sweet and fresh.—G. G. CATT, *Silverdale Lodge, Sydenham*.

5097.—*Oncidium Phalænopsis* was, I believe, one of M. Linden's introductions, and is the same as Bateman's *O. Denisonianum*. It was always rare, an odd plant or two cropping up among imported batches. Its flowers are pure white, blotched or spotted with maroon-purple, as "K." describes. It used to grow and bloom beautifully years ago at Ferniehurst, and is considered to be the most beautiful variety of the *O. cucullatum* group. If "K." will refer to Vol. XXII. of THE GARDEN, p. 166, he will find *O. Phalænopsis* described with a coloured plate of *O. cucullatum giganteum*.—F. W. B.

5091.—*Dendrobæ not flowering*.—The reason why the flower-spikes of *D. formosum* go off without opening their flowers is probably want of air, owing to the plants being too far removed from the glass. If the plants in question are in good health, there is no reason why the flowers should not open. This species likes to be in the warmest house. We have about two dozen plants of it which have always produced flowers quite freely in a night temperature of 60°; but the plants were suspended from the rafters in such a way that the opening flowers were within 6 inches or a foot of the glass.—J. DOUGLAS.

Dendrobium Wardianum.—If Orchids are to be kept in health for a series of years, they ought to have a season of growth and a season of rest. *D. Wardianum* may be flowered twice in the space of one year, so may any of the deciduous *Dendrobæ*; but there would not be much gained by that. *D. Wardianum* usually starts to make a second growth as soon as the last formed one begins to ripen its buds. At that time we take the plants into a cooler and drier house, when the flower buds form rapidly while growths from the base are checked. It would be interesting to know from "J. S. W." whether the plants from which all but the flowering stems were cut have a greater tendency to flower than the others.—J. DOUGLAS.

Burlingtonia decora var. *picta*.—A plant of this distinct and pretty variety is now in flower in the Orchid house at Kew. *B. decora* is spotted with deep rose, whereas the variety *picta* is distinguished by its large blotches of deep purple. The flowers on the Kew plant are shorter in the claw than those of the true *decora* noted last week. There is a figure in Lindley's "Sertum Orchidaceum" of *B. rigida* which represents a form probably unknown to gardens; its flowers are shaded and veined with rose, not blotched, as in *B. decora*. In the *Botanical Magazine* Lindley's plant is referred to *B. decora*, although the distinct colour of the former is noted there. I have had several plants under the name of *B. rigida*, all of which, however, have proved to be *B. decora*. The plant at Kew was, I believe, procured from Mr. Sander under the name of *B. rigida*.—K.

Lælia purpurata alba.—A flower of an uncommon form of this Orchid has been sent to us by Mr. Cannon, of Wimbledon. It is remarkable for the rich pencillings of white on the maroon-crimson ground of the labellum. The sepals and petals are pure white and broad—in short, the finest form of this rare white variety that we have seen.

5095.—*Eucharis candida*.—A warm greenhouse would scarcely be warm enough for this plant. With us it flowers in December, but I do not think it is so free a flowerer as *E. amazonica*. We have six good potfuls of it, and, so far, one only has thrown up a flower-spike. We grow it in a stove temperature, say from 55° to 60°, during winter. Like the others, it is kept rather cool and dry when at rest, and when making its growths we maintain a high temperature and moist atmosphere, and give the roots plenty of water. As the others are very strong and healthy, I hope we shall have more of them in flower later.—J. D. I.

CHRYSANTHEMUMS AT THE AQUARIUM.

PERHAPS it was because when I went to this Exhibition last season, I had not seen a *Chrysanthemum* show for some years, that I was so much impressed by it, and that the air of novelty having thus gone off, I judged disparagingly of that of the present season in comparison with its predecessor; but the flowers did not seem to me to be quite so good, although it would be difficult perhaps to say how they could have been better; the size and form of the mixed varieties were wonderful, but then I thought to myself at what expenditure of time and trouble has this been achieved. As I was looking on a very fine box which had only obtained a second place (although had any one seen it before his neighbour "came and searched him out," it would have been at once said, "Well, that box cannot be beaten") I heard one say to his fellow, "Ah! So-and-so didn't give quite enough time to dressing his flowers!" I wonder would it be possible to get people to show undressed blooms; it would be very instructive to see how much of the success is due to the grower and how much to the "milliner" who dresses them. One gets very nice flowers at home grown in a natural way, and why cannot they be shown thus? These incurved varieties are certainly very fine, but there has been of late years very little advance on them, and the flowers of twenty years ago are in the front rank now. I saw the judges going about to find the best bloom in the show, and as one of them carried a grand bloom of Queen of England, as round as a cricket ball, I noticed that whenever one was brought into competition with it, it was sure to be another Queen of England. I think that this is a very misleading thing, because it is very difficult to put into the same scales a good Japanese and a good incurved flower; tastes vary so, some preferring one and some the other. Just as it is with Roses; it has been found so difficult to decide the relative merits of Teas and Hybrid Perpetuals, that at the National Shows medals are given for the best in each class, and as the Borough of Hackney Society is going to bloom out into a National Society, I would hope, although I am not and never shall be an exhibitor, that some such division may be made in regard to the *Chrysanthemum*.

As a florist, I ought of course, according to all the rules of propriety, to prefer the incurved, but I must confess, although I think them very beautiful, to a preference for the Japanese; their fantastic forms and quaint colouring have a great attraction for me, and amongst the newer varieties there are some which are most taking, while the unnamed varieties exhibited at South Kensington show that advance is still being made in them. Let me instance a few of those which have struck me. Lady Selborne is one of a type that I do not care very much about, except for its oddity, a sport from James Salter, and of pearl white; it is as like a bundle of paper-shavings loosely thrown together as it possibly could be. George Gordon is a very high-coloured flower, but as a rule I should think too early for exhibition. Comte de Germiny.—Bright nankin yellow, striped crimson, broad twisted petals, a very distinct flower. Delicatum, pale lilac shaded with white, large and very strong variety. Thunberg, a beautiful soft primrose-yellow, brown petals, very beautiful. Source d'Or, another yellow flower; there seems to be two of the same name in commerce, one which is pure yellow, and this which is shaded and marked with orange. Agréments de la Nature, large twisted petals, golden yellow, shaded with reddish brown. Duchesse de Gerolstein, large double flowers, rose and white, slightly reflexed, very good. Madame Clemence Audiguier, mauve and lilac, very fine. Triomphe de la Rue de Chatelet, curious corkscrew form of flower, salmon tinted with rose, golden centre. Etoile du Midi, red with orange shading, petals drooping, very fine and good. These were some of the newer flowers which particularly struck me. I have not enumerated any of the newer varieties which were brought forward as seedlings; the only incurved flower that raised special commendation was Bendigo, a fixed sport from Mrs. Heale; it is sulphur yellow, and a well-shaped and beautiful flower, but it is something

remarkable that no addition of any account has been made to this class for some years, except as sports from kinds already well known. The run seems now to be on the Japanese, and indications are not wanting that we shall soon be as well inundated with new kinds of these as with scarlet Geraniums. This is an evil to be guarded against, and it is to be hoped that the Royal Horticultural Society and other bodies will be chary in awarding certificates. There seems to be almost limitless scope for hybridising in this section, Mr. Salter, Mr. Stevens and others are engaged in it, and I feel confident that, remarkable as many of the varieties are, we shall have still finer ones, and that flowers which were once called "Ragged Jacks" will be found to be the parents of a beautiful and varied offspring. DELTA.

QUESTIONS.

5100.—*Dianthus Atkinsoni*.—Can any reader of THE GARDEN give me information respecting the origin of this Mule Pink? The name I think is incorrect. Should it not be *D. Aschersoni*, named after the person who raised it?—BETA.

5101.—*Select Peaches and Nectarines*.—I will thank some reader of THE GARDEN if he will kindly furnish me with the names of the six best and most free-bearing Peaches; also the two freest bearing Nectarines, all for a cool house. Would it be best to have trained trees or maidens? I should like to have some fruit the second season after planting.—T. R. S.

5102.—*Mixture for Peach walls*.—Is the mixture consisting of lime, linseed oil, and venetian red the best for stopping up nail holes? We want to do a lot of this before nailing, and our walls are very bad. I thought of trying soft soap, adding a little paraffin to each gallon of water, and sufficient clay or cow manure to give consistency, but as applying the first named gives rather less trouble, I should like to use it if equally efficacious. Will someone kindly advise me on these points?—C.

5103.—*Cymbidium Mastersi*.—Will some of your corresponders kindly advise me in the following case: For two seasons the flower-spikes of this Orchid have grown about 4 inches and then turned yellow and died. Following the advice given at p. 345, Vol. XVIII., I have this year removed the plant from the East India house into a Cattleya house and have kept it rather dry as advised, but the spikes have all gone off. Mr. Peter Veitch says it should have more heat. It is now in a house with from 60° to 65° at night.—W. B.

5104.—*Angræcum sesquipedale*.—I have a plant of this, the roots of which have grown out of the pot and have fastened upon the wall. Now fresh roots are growing out almost straight and are overlapping the front of the stage, where of necessity they must soon be broken by passers-by. Would the check be serious if such part of the roots as cannot be got off the wall are left and the plant put in a larger pot? But even then the new roots could not be got in. The different roots on the wall would be from 15 feet to 20 feet in all. The plant flowers well, but has not been able to be moved for two years. What had best be done?—W. B.

5105.—*Tiffany houses*.—May I ask if any of your readers have had any practical experience of protecting dwarf Pear and other fruit trees when in blossom by means of temporary tiffany houses? They are recommended in many books, but I have never heard of their being actually tried. If successful they would be a great boon, for their cost is trifling compared with glass. At any rate I intend to make the trial next spring. I shall erect a permanent framework, 18 feet by 9 feet, to cover eighteen dwarf Pears, and on this framework I shall fix shutters of double tiffany. By shutters I mean skeleton wooden frames to which is nailed double tiffany, i.e. one sheet on either side of the wood so as to leave a space of say half an inch between the two sheets, which will better ward off frost than one single sheet. These shutters will screw on to the permanent framework and will be taken off during fine weather. The tiffany will cost about 70s., and the woodwork I reckon about 30s., and the house should last for many years. Can any fruit growers give me a few practical hints on this subject?—F. C. BARKER, *Hatherdale, Woodford Green*.

5106.—*Manuring fruit trees in winter*.—Will it do any good or harm to give fruit trees liquid manure in winter, say Peaches and Nectarines indoors, and Pears and Apples outside? The trees are mostly young and vigorous, having been planted seven or eight years; some of them I have not pruned to check their growth. Also, will it do any good to pour liquid manure on spare ground during winter? I may state that my garden has been formed out of drift sand; it is about 100 feet above the sea level and 200 yards or 300 yards from the open sea. I have given it plenty of manure the last year or two, and there has been a good deal of soil put on from time to time. I also save all the refuse from the garden or anything I think is of any good. I get fair crops of both fruit and vegetables in seasons such as the last two or three, as wet seasons suit me best. But my employer seems to think I ought to give what liquid manure I can during the winter months as well as during summer. My own opinion is that it is labour lost and liquid manure wasted; heavy rains will wash it down into the sub-soil, which is pure sand many feet deep. What say some of your readers?—C. M.

NOTES FROM HECKFIELD.

Grapes cracking.—“J. S. W.” (p. 428) wrongly construes my remarks. I had no intention whatever of conveying the idea of his “steering a safe course” between Mr. Crump and myself. I used the words “half heartedly” because in his first communication he writes: “to me cracking has always appeared to be due to *shrinking*,” and though “always appeared” may be interpreted to mean *certainly*, I did not so interpret it. But a still stronger reason to justify the use of the words “half heartedly” is that contained in the last paragraph at p. 159, where, after allusion to my remarks as to atmospheric moisture being more injurious than root moisture, he writes, “I ALMOST agree with him.” Here is decided uncertainty. As to the article “J. S. W.” wrote on the subject “in another paper,” I have never seen or heard of it till now, else the source of my indebtedness for the notion would have been duly acknowledged, more particularly so, knowing that “J. S. W.” is always wide awake and rarely fails to pounce on a plagiarist. I differ from “J. S. W.” in the view he expresses at page 428, namely, that from what he has seen he inclines to the belief that it is the “firmest fleshed and best coloured examples of the Madresfield Court Grape that crack worst,” my observations tend to the very opposite opinion, of which I could name several instances, but my own experience shall suffice, which is, that never yet have I been able to get either large bunches, or berries, or good colour, and yet they always crack badly. On the other hand, I know two or three gardens where they finish perfectly, and cracking is all but unknown; hence my opinion is that high culture is the way to avoid cracking, but, unfortunately, some of us lack the knack of finding out what high culture is, as applied to the Madresfield Court Grape.

Best late Grapes.—The supposition expressed by “J. S.” at the end of his note at page 428 is quite correct. I do not consider the Muscat of Alexandria a late Grape. We have had it in fair condition to about the middle of February, but never what I considered in a presentable state after that date, but Lady Downes we can keep in good condition till midsummer, a quality no other variety possesses. I do not question the superiority of Muscat of Alexandria, for I prefer that kind myself to Lady Downes, but it is not to be had so easily as the latter in March, April and May, and no Grape I consider late that will not keep till that season of the year. Why did not “J. S. W.” tell us what would be his late house of black Grapes?—see page 428.

Premature ripening of Pears.—What is the cause of this? Knight's Monarch, Ne Plus Meuris, and Easter Beurré, three of our latest Pears and usually not fit for use till the new year, and sometimes not till March, are already eatable, and what is still more strange, they are decidedly of finer quality than is generally the case. Our experience, I should think, can hardly be singular as others must have noted the same conditions, and the object of this note is to try to get at the reason why of such premature ripening. I am disposed to think that the fine and warm autumn, which in this part we were favoured with, should have the lion's share of the credit for such early maturity; but in this surmise we are confronted with the fact that in previous fine autumns we never remember these late kinds of Pears to ripen so early,—then why now? Has the sun had greater influence on the trees by reason of the long period that has intervened since last we were so highly favoured? To me the matter is a puzzler, and I shall be glad to have light on the subject, for though every year certain kinds ripen more or less out of their regular season, I have never before known three of our latest kinds combine to do so. Lest it should be thought that early ripening has been superinduced by early gathering, I may say that we never gather late kinds till there are indications of dropping from the trees naturally.

Good Pears.—Like Potatoes, the varieties are far too numerous, but with this difference, that Potatoes are not nearly so much influenced by varying soils as are Pears, consequently there is

more reason for greater variety of the latter than for the former. For once I shall preach what I do not practice, by saying, that a dozen kinds of Pears are ample variety for any garden, but then, we must first learn what are the kinds that do best both in respect of growth, bearing, keeping, and quality, and this we cannot find out without testing for ourselves all reputed good kinds and weeding out unsuitable ones. I append a list of the twelve kinds that possess all the qualities named above as grown on the light sandy loam of this district, that will take, and to which we give, all the manure we can get hold of. The names are given in the order of ripening—Williams' Bon Chretien, Beurré Superfin, Gansel's Bergamot, Marie Louise, Doyenné de Comice, Thompson's Winter Nelis, Glou Morceau, Josephine de Malines, Easter Beurré, Ne Plus Meuris, and Bergamotte Espéren.

Cordon Pears.—The last note suggests this one:—Four years since we destroyed a large fan-trained tree of Winter Nelis Pear which had done good duty for many years, but being fast on the decline, it was destroyed and cordon trees planted in its stead, there now being a dozen instead of one variety as formerly, and this I consider to be the great merit of the cordon system, that is, a long succession of fruit owing to the number of kinds grown, whereas the one variety, even if there were bushels of fruit, would only last for a short time. Our trees are planted 30 inches apart, and have two stems each, thus allowing 15 inches between each stem, and are trained obliquely at about an angle of 45°. They bore well the first year, and each year they mend. Mulchings of good manure are kept over their roots winter and summer, and well they repay such free feeding. Another excellent way of growing cordon Pears is in arch or other form over walks. We have a number of trees so trained, and they bear abundantly every year, and what is better still, they take up but little ground.

W. WILDSMITH.

Woods and Forests will appear next Wednesday. With a view to make it more accessible to all connected with the work with which it deals, its price will be 2d. per week, not 3d. as announced.

Drying Everlasting Flowers.—Anyone can dry these, but the great point is to dry them so as to preserve their colours and brightness, and to accomplish this some care is needed. At Singleton the other day I saw many bunches of them hanging up in a vinery in which the atmosphere was very dry, and the massive blooms of the *Helichrysms* and others had quite a midsummer hue. The flowers are cut before they are fully developed, or at least anything like past their best, and in this way their high colour is retained. CAMBRIAN.

Setting a boiler.—I am going to set a small saddle boiler and would feel obliged if you will kindly say if it should be placed on the fire-bars, or if there should be a brick or two in thickness placed between the boiler and bars; also, should the fire-place be extended a little past the end of the boiler? how far should the back that stops the flame to return into the side flues be off the end of the fire-place?—E. G.

*. As a rule the boiler should be set level with the fire-bars, but with small boilers, having little depth inside for fire, it is usual to raise the boiler 3 inches or 6 inches with fire-bricks above the bars. The brick-setting must extend 4 inches, or even 6 inches, past the end of the boiler, to get flames into return side flues 4½ inches wide; the flue is then taken back usually as an arch over the top centre of the boiler to the chimney, or the chimney can be in front direct from the joining of the side flues, as no heat is imparted to the boiler from the top flue. The end or back of the fire-box must be of fireclay or firebricks, as the greatest heat is there, and common bricks would soon be burnt through or broken up in stoking. Small doors or “soot boxes” will be wanted in the brick front in order to get at the side flues to clean out the soot every day or two, and a damper should be built in the chimney to check the draught.—B. W. W.

OBITUARY.

WE have to record with much regret the death of Mr. J. FLEMING, which, though he has been long ailing, occurred somewhat suddenly at Cliveden, on Monday last. Mr. Fleming was a remarkably good gardener, and has long had charge of one of the prettiest places in the home counties. He may be said to have originated the present system of spring gardening—a system which, Belvoir perhaps excepted, was nowhere better carried out than at Cliveden. There early in the year might be seen all that was choice and good in the way of spring flowers, to the extension of the cultivation of which the little book which he wrote on the subject greatly contributed. Beautiful, too, naturally as Cliveden is, it has, in many important details, been improved by Mr. Fleming, whose skill in matters pertaining to landscape gardening fully entitled him to be entrusted with such work. Many fine vistas have been cut in the woods under his direction in order to bring into view some distant object of interest; new drives have also been made, and the surroundings of existing ones improved under his care. Nor did the glass department, or even the kitchen garden bear less evidence of his skill as a gardener. In short, both to gardening and gardeners, to so many of whom he was well known, his death will be a sad loss.

WE have also to announce the death of Mr. JAMES GRAY, the well-known hothouse builder of Chelsea, which occurred on the 24th ult., at the age of 73. Mr. Gray, originally a gardener, was a native of East Lothian, and, being a good draughtsman, entered the works of the late Mr. John Weeks, of Chelsea, where he was engaged for some years. Eventually he began business on his own account, along with the late Mr. Ormson, and they for many years carried on business together, but afterwards separated, and each of them became the head of a large establishment. Mr. Gray's works will, we understand, be continued by his son, Mr. Alfred Gray.

Garden appointments.—Instead of Ashley (p. 450) read Ashby.

Chrysanthemum (J. A. C.).—The bloom which you send as a sport from Golden Queen of England is the original Queen of England. It is a case of the sport reverting to the original sort. Sports can only be propagated by means of cuttings or division.

Royal Horticultural Society.—We may remind our readers that at the meeting of this society, to be held on December 11, Messrs. Carter's prizes, amounting to £11 7s. 6d., for the best twelve dishes of vegetables, as particularised in the society's schedule, will be competed for.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received. In all cases where the numbers of the specimens sent are not mentioned, it must be inferred that the fruits to which they were attached are either local sorts, and therefore unknown at Chiswick, or that they are not in a fit condition for naming.

Names of fruits.—H.—1, Calville St. Saviour; 2, Golden Noble; 3, Queen Caroline; 4, Goff Apple.—G. C. Sand.—1, Dutch Mignonne.—T. P.—Wareham Russet.—Blozham.—St. Alban's Apple.—Canon Hole.—New or Winter Hawthornden.—G. Niven.—Pear is Beurré Clairgeau; Apple not known.—J. A.—1, Colmar Arenberg (Pear); 2, Josephine de Malines (Pear); 3, Porter's Pippin Apple.—G. W. H.—3, Forge; 4, Cornish Aromatic.—W. P. M.—2, Winter Codlin.—P. H.—Dumelow's Seedling.—C. G. G.—Not recognised.—Festuca.—1, Beauty of Kent; 2, not known.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—T. T.—*Pittosporum Tobira*; 1 and 2, varieties of *Epiphyllum truncatum*; *Panicum variegatum*; *Aschyranthus grandiflorus*; *Mikania scandens*.—Sanguinea.—*Escallonia revoluta* (an uncommon plant).—J. T. M. (Edinburgh).—1, *Staphylea pinnata*; 2, *Ptelea trifoliata*.—R. F. Hall.—*Thalictrum flavum*.—Bannerman.—*Bulbophyllum Careyanaum*.—G. Hollis.—1, *Echites picta*; 2, *Amaryllis reticulata*; 3, *Adiantum cuneatum*; 4, *A. tenerum*.—L. L.—1, *Biota orientalis*; 2, a species of *Abies* (send better specimen); 3, *Sciadopitys verticillata*; 4, *Taxus baccata elegantissima* (variegated Yew).—R. Wilson.—*Angracum pertusum*.—C. T.—We cannot undertake to name varieties of *Chrysanthemum*; they should be sent to some specialist.—A. D.—The Ferns were too much withered for naming.

No. 629. SATURDAY, Dec. 8, 1883. Vol XXIV.

This is an Art

Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—Shakespeare.

CHRYSANTHEMUM REFORM.

THOSE of your readers who love beautiful flowers better than rules and regulations will be grateful to Mr. Engleheart for his letter (p. 475). I venture to assert, even more strongly than he points out, that the growing of Chrysanthemums as at present practised for exhibition distinctly tends to destroy every point of beauty that the plant naturally possesses, or has acquired by reasonable and well-directed cultivation. What could be a more ridiculous or ungraceful object, if taken out of a show group and stood by itself, than one of these unhappy plants, trained to a single stem and single flower! I should like to see an engraving in *THE GARDEN* of such a plant in all its lanky hideousness, and by its side a figure of such another, naturally and gracefully grown, and covered with flowers, as Mr. Engleheart describes. Imagine an Oak tree trained to a single leading shoot 60 feet high in order to produce one gigantic acorn at the top; it would hardly be a more preposterous object!

It is to be regretted that the judges at these shows whose awards necessarily guide and educate the growers, should thus prove themselves incapable of any true conception of plant beauty. Their teaching appears to be this: "We do not want to encourage beauty or grace in plant and flower growing; we only want single flowers rigidly shaped according to certain rules, which, when produced, shall serve no purpose whatever." What can this lead to but a debasement of taste among growers? It is training them to shut their eyes to the true purposes of plant culture for the sake of following a set of rules as arbitrary and senseless as those in the fashions of dress.

Now, I stoutly maintain that flowers and garden plants are for beauty first of all, and that all practices in their culture that incline to destroy any natural beauty should be considered not only unorthodox, but the worst of heresies. I do not in the least depreciate the good work of many generations of florists in developing the capabilities for beauty in various families of flowers; we owe them all gratitude for our Roses, Carnations, and many other treasures, and no doubt their still further development may be possible, but it is when this careful and painstaking working out of possibilities is directed into unwholesome channels that it is so much to be deplored, and the Chrysanthemum exhibitions mainly show us careful labour wasted, or worse than wasted, badly spent, on spoiling plants capable of the highest forms of beauty. We look to *THE GARDEN* for the prosecution of a wholesome crusade against the atrocities that have been practised on our precious last flower of the year, and for a continued encouragement in the way of its better treatment, to those who at least show some kind of appreciation for it in their zealous, though misdirected, forms of culture.—G.

—I quite agree with Mr. Engleheart (p. 475) that there is room for reform in Chrysanthemum culture, but not in the direction of exchanging large flowers for smaller ones. If we require flowers of good quality, there is no way by which they can

be obtained but by disbudding. Some do, I admit, see beauty in plants naturally grown with all the buds left, but they are few compared with those who love fully developed blooms. I would recommend your correspondent to grow half his plants next year as he now grows them, and another half disbudded, and if he will then place them side by side when in bloom, he will soon see which attract the most attention. I have not yet seen a Chrysanthemum bloom too large for a lady to wear, or so large that a vase would be in any danger of toppling over, although I have had some this year as large, I believe, as those of most people, and which have been much admired.

For room decoration there is nothing at this season equal to Chrysanthemums set up at little distances apart with Barberry foliage between them. Thus arranged, they have a grand effect. Where we want reform in Chrysanthemum culture is, I think, in the manner in which the plants are trained. I was at a Chrysanthemum exhibition a few days ago where all were tied in an unnatural fashion, some being bent down to the rims of the pots and from $3\frac{1}{2}$ feet to 4 feet across; others formed pyramids 5 feet high, some being well furnished with flowers and others with few. Worse taste I could not imagine than that exhibited by the shapes they were in. To me there appeared to be no beauty in them; they were mere cripples. Chrysanthemums should be grown in a natural way, viz., upright and tied out, so that there is room for light and air to reach all parts of the plant. This preserves the foliage down to the pot, and leaves 4 inches between each flower when expanded. The larger the flowers and plants the more they will be admired.—A. WATERMAN, *Preston Hall, Maidstone.*

DECEMBER PRIMROSES.

A GLORIOUS bunch of lovely coloured Primroses has been sent to us by Mr. Trinder, Billingbear Park, Wokingham, a part of Berkshire in which Primroses evidently grow well. Concerning these, Mr. Trinder writes as follows: "At the present time I have between seven and eight dozen strong plants in bloom averaging 1 foot in diameter. They were all raised from a packet of seed sown last spring. They commenced to bloom about the first week in September, and have kept in flower more or less ever since. The plants are in robust health, and, should all go well, I shall expect to have a fine show of bloom in spring. It must be understood that these are real Primroses, not Polyanthus. Last January I obtained a packet of Dean's strain of Primroses, not knowing what the flowers would be like. The seed was sown in March, thinly, on two well-drained pans of finely-sifted soil, very slightly covered, and the pans were placed in gentle warmth till the seed germinated. Only a few plants showed themselves at first, but gradually plant after plant made its appearance, till I should think every seed must have grown. When a good many plants had appeared, the pans were shifted to a cold frame shaded from bright sunshine, and never allowed to become dry. As the plants became large enough to handle they were pricked out 3 inches apart in other well-drained pans, the soil consisting simply of loam and leaf-mould, and again kept constantly moist and shaded from bright sunshine. At the end of June they began to get crowded in the pans, and preparation was made for planting them out in the open. Two good sized beds, partially shaded by trees, were prepared for their reception by digging in some well-rotted manure, and the plants were at once put out 15 inches apart each way, made firm, and thoroughly watered.

"I should, however, add that the pans had been shifted from the frame to a north wall a fortnight before the plants were intended to be planted in the open. All the attention the plants have had since has been a good soaking with water occasionally. As these Primroses are perfectly hardy and so easily grown, they ought to find a place in every garden." That we feel sure they would do could people see the charming bouquet of variously coloured flowers now before us. The

only thing to guard against is rabbits, which in hard weather are in some places troublesome.

ROSE GARDEN.

AMONG THE BRIERS.

THESE are less plentiful than they used to be. Two causes have contributed to this semi-scarcity. The first is the enormous demand which has seemed almost insatiable for many years past. The drain upon our woods and hedgerows for Briers for budding of late years has not only been incessant, but ever enlarging. It is no exaggeration to say that where a hundred proved an ample supply ten years ago, a thousand are all too few to-day. And this, notwithstanding the enormous quantities raised from seeds and cuttings. Neither of these two processes have, however, as yet produced any quantity of Briers for standards. Practically as yet we depend for Briers for tall Roses on the yieldings of woods and hedgerows.

Simultaneously with the ever-extending demand for more tall Briers, the area for their production has been more and more restricted. Improvements in agriculture have swept away hundreds and thousands of natural Brier grounds, and limited those left to the smallest dimensions. The wide hedgerows of the olden time have been bodily uprooted or removed, or improved into trim fences, fatal to the growth of Briers for budding. What agriculture has gained in appearance and produce by such sweeping improvements horticulture has to some extent lost. Doubtless not a few contend that the loss is all gain alike in field and garden. The former is freed from vermin and weeds, and the latter from the disfigurement of our fairest flowers on stilts. But be that as it may, and the point is by no means so easily settled as some of the more rabid anti-standardists assume, there can be no question that the uprooting of the old hedge Roses, with their wild profusion of top and prodigal breadth of base, has seriously limited the production of tall Briers for budding.

THE CONSTANT CUTTING of the hedges left has also told in the same direction. Possibly, too, this raid on the hedges has been carried too far even for the benefit of agriculture. Fashion is almost as powerful in the fields as in the shops, and for some years the uprooting or slashing down of hedges has been the rage in agriculture. To a certain extent the fashion is right. Still, in many cases the slaughter and removal of hedges and trees have been carried too far. In many cases they are the only shelter possible on farms. The shelter of such a character is often as stimulating or conserving as food alike to stock and crops. One cannot go a Brier-hunting in November without having many proofs of how live stock cling to and enjoy the shelter of hedgerows and trees in the winter months. They are perhaps equally or more valuable in providing shade in the summer. The crops are also much benefited by shelter in many exposed localities. In some of these, and especially on light sandy soils, the clearance has been carried so far as to check and hinder growth, and in some instances blow the soil and seeds bodily off the fields into the roads and ditches. Of course these are extreme cases, but there are hundreds more not so extreme that yet show the evils that follow the reckless clearing away of hedgerows and belts of wood.

THE OLD-FASHIONED HEDGEROWS, too, had likewise an unique, picturesque value wholly their own which nothing can supersede or replace in the landscape. But here and now I am not pleading for the growth of more Briers, but rather accounting for their scarcity. The oftener one goes a Brier-hunting, and the more closely one observes the widely varied conditions of growth under which equally good Briers are found, the more difficult it becomes to account for their all but uniform success in some gardens and their partial failure in others. In a state of nature one finds equally fine Briers for budding in sheer clay and actual sand, in banks so hard and dry that they look as if

they had been rain-proof for years, and in ditches half full of water. Of course conditions vary widely in gardens also, but hardly to such extremes as these. It must also be added that though the Briers in gardens would seem to be placed in far more favourable circumstances than those in woods or hedgerows, they seldom grow or live so long in the former as in the latter. Considerable experience in Brier finding, planting, subsequent treatment, and results leads to the conclusion that one great secret in the successful cultivation of tall Briers in gardens consists in firm planting. Of roots they have few or none left of any value after being torn from ditch bank, and hedgerow and closely dressed afterwards, and the sooner they can be planted, and the firmer the earth can be fairly trodden in or rammed around their root stocks or stumps, the sooner will the roots be formed and the more of them. D. T. FISH.

PLANTS IN FLOWER.

Seedling white Ipomœa.—Some specimens of a seedling *Ipomœa* in the way of the beautiful old *I. Horsfallia* have been sent to us by Messrs. Ireland and Thomson from their Edinburgh nursery. To all appearance it is an albino of *I. Horsfallia*, as it so nearly resembles it both in flower and foliage. It is said to be "a wonderfully free flowerer." The blossoms sent are pure white and of delicate transparency. If as free in growth and flower as its prototype, it will indeed be a welcome addition to stove climbing plants.

Salvia ritulans.—Of this beautiful winter flowering species, popularly called the Pine-apple scented *Salvia*, some fine specimens have been sent to us from Straffan, Kildare. This Sage is in the way of the well-known *S. coccinea*, the flowers being crimson, and produced in long slender spikes. It is a continuous flowerer, inasmuch as the main spikes are succeeded by others, which greatly prolong the beauty of the plant. The foliage has a scent somewhat like that of the Pine-apple, and it is, moreover, a very desirable winter flowering greenhouse Sage.

Sternbergia lutea.—Clumps of this good old autumn-flowering bulb have been very gay here for these six weeks past, and there are still a few flowers to open. One clump at the base of a rugged stairway in the rock garden has been especially good. It is fully 18 inches in diameter, and the pretty yellow blooms peeping up from among the healthy green foliage are very welcome at this time of the year. What frosts we have had up to the present has not injured either the foliage or the flowers in the least. Planted in good sandy loam, it soon establishes itself, and is sure to be much admired.—T. JENNINGS, *Southwood, Bickley*.

Chimonanthus grandiflorus.—The flowering of this sweet-scented shrub so early is an indication of the mildness of the season. The fine old specimen against one of the walls in the Royal Horticultural Gardens, at Chiswick, is profusely laden with its deliciously scented blossoms. Near it is a large bush of the Fire Thorn (*Crataegus Pyracantha*) covered with scarlet berries, the two shrubs being most conspicuous just now. To enjoy the *Chimonanthus* blossoms they should be picked and stuck in saucers of damp sand. In that way they last a long time in rooms. *C. grandiflorus* is but a variety of *C. fragrans*, which is equally sweet-scented, but smaller.

Utricularia bifida.—This is a curious little yellow-flowered Bladder-wort from China, with leaves like very fine Grass, not more than an inch long, and forming a dense tuft just beneath the surface of the water. The flowers are borne on stems some 3 inches in length, erect and hair-like, and each stem bears about half-a-dozen little yellow flowers not unlike, both in shape and size, those of our native Bladder-wort (*U. vulgaris*). *U. bifida* appears to be a free flowering plant; we have seen it in flower at Kew for several months. There are two little pans of it standing in the porch attached to the Orchid house, where

the collection of "carnivorous" plants is kept. The tiny bladders on the roots of this plant seem incapable of taking in any of even the tiniest of crustaceans, for the capture of which they are said to be specially adapted. It would require one of Sam Weller's wonderful "magnifying glasses" to enable one to observe the process of entrapping, killing, and macerating the water-mites on which the *Utricularias* are said to feed. Mr. Darwin and others have, however, demonstrated the fact of such a performance on the part of these tiny plants, and we can only wonder at the care and skill in observation that have led to such a discovery.—W. W.

Tacsonias from the open air.—The flowers of *Tacsonia* which I send to you to-day (December 5) were gathered from plants in the open air, which have been uninterruptedly in bloom for five months. I find that all the greenhouse *Tacsonias* bloom very much more freely, and that they are more highly coloured out of doors than under glass; of course they require training on a fully exposed southern aspect. *T. exoniensis* thus grown has been fine here this summer, festooning the outside of the front of the conservatory.—J. M., *Charmouth, Dorset*.

* * The flowers sent are those of *T. exoniensis*; they are excellent, fully developed, and highly coloured.—ED.

Single Chrysanthemums.—A beautiful bouquet of these has been sent to us by Messrs. Cannell, Swanley, who say that while a white mouldy fungus has damaged the ordinary double sorts, single *Chrysanthemums* remain untouched and are still in beauty, every plant being covered with flowers. The flowers sent are indeed beautiful and well varied in colour. There are delicate blush pinks and roses, pale and deep yellows, rich purples and magentas, while some are of a peculiar deep Indian red, and some again are of a bronzy hue. These single sorts are particularly well adapted for cutting for vases, in which they last long in perfection. Many would prefer them to the doubles, and if, as Messrs. Cannell remark, they are better able to resist mildew, they are evidently well worth attention.

Jasminum hirsutum.—This old stove Jasmine will probably be altogether supplanted by the new *J. gracillimum* in course of time on account of its being a reputed shy flowerer, which no doubt it is; but as regards the beauty of the flowers as well as their perfume, there is little difference between the two. At Chiswick we saw the older species better flowered than we have seen it for some time. The plants were young and vigorous, and the youngest shoots were terminated by a cluster of pure white flowers. These plants were growing in a close warm stove, trained under the roof, so that they could get an abundance of light. Though not so free flowering or so slender and elegant in growth as *J. gracillimum*, this Jasmine is not altogether to be despised.

Bromeliads.—The following plants of this Order are now in flower in the T range at Kew, viz.: *Vriesia brachystachya*, a smooth-leaved plant about a foot in height, with a flattened inflorescence, composed of bracts and flowers of the most brilliant parrot colours—bright yellow, red, and green. This is a useful plant for decorative purposes, for which it is grown extensively in some gardens, its graceful habit and richly coloured flowers, which last long in good condition, being particularly striking by gas-light. *Tillandsia bulbosa*.—This, with a bulbous stem and contorted, Rush-like foliage and drooping flower-spike, is useful for growing on a piece of Fern stem suspended from the roof. *T. Gardneri* is another species which may be grown in the same manner. The silvery foliage of this pretty plant is very ornamental. *Lamprococcus Weibachi* is a very fine species of *Lamprococcus*, distinguished by its large raceme of boat-shaped bracts 2 inches in length, and which, along with the flower-stem, are bright crimson. Each bract contains several flowers, the ovaries of which are crimson and violet, and the segments of the corolla dark

brown. *L. fulgens* is represented by several plants in flower. *Æchmea calyculata* is also represented by several plants, each bearing a stiff spike of yellow flowers and bracts agglomerated together at the top of the spike like a drumstick. *Billbergia vittata* var. *macrantha* is a tall-growing cylinder-like plant, dark green, marked with zones of grey scales. The drooping raceme is composed of large, salmon-coloured bracts and long, tubular blue flowers—one of the finest of the *Billbergias*, and handsome even when without its richly coloured flowers. *Pitcairnia zeafolia* and *P. undulata* are others of these plants now flowering at Kew. The removal of the *Bromeliads* to their present quarters from the Palm house, where they used to stand, has resulted in a great improvement both as regards their health and flowering propensities.—W. W.

Licuala grandis.—The large specimen plant of this fine Palm at Kew is now flowering for the second time in Europe. It may be remembered that this plant, when in the possession of Mr. J. Wills, was known as *Pritchardia grandis* until Mr. Wills succeeded in flowering it, when it proved to be a true *Licuala*. Until recently this Kew specimen was the only plant of this species in the country, but the introduction of young plants and seeds during the last three years has made this fine Palm not now uncommon in choice collections. When about 5 feet high and well grown, *Licuala grandis* forms a most beautiful specimen plant. We noticed that a good few Palms are now flowering in the Kew collection—the *Chamædoreas* being especially noteworthy from the graceful and richly coloured nature of their flower-spikes. *Phoenix acaulis*, a stemless species of handsome shape, and the old plant of *Chamerops humilis* are also bearing flower-spikes.—W. W.

Begonia insignis as a winter flowerer is unsurpassed by any other *Begonia* as regards elegance of growth and attractiveness of bloom. Nowhere could it possibly be seen grown to greater perfection than in the Royal Horticultural Gardens, at Chiswick, where one of the houses is almost entirely filled with it and the pretty *B. knowsleyensis*. It is a beautiful sight to see in one mass such numbers of well-grown specimens of this *Begonia*, each plant the embodiment of elegance and literally studded with clusters of deep rosy pink blossoms. The plants are grown chiefly in 6-inch and 4½-inch pots—capital sizes for decorative purposes. The blossoms of this *Begonia* are particularly lovely under artificial light; therefore it is one of the best plants to grow for room decoration. Well-developed specimens have a beautiful effect in vases, and they last a considerable time in perfection even in rooms. It may not be generally known that there is a spurious *B. insignis* in gardens, a much inferior plant to the genuine species.

Senecio macroglossa.—In the succulent house at Kew this plant is now commencing to flower, and it will continue in bloom during the greater portion of the winter months. Its canary yellow flowers are as large as a half-crown piece, and useful in a cut state. It is a suitable plant for training along a rafter or upon a pillar in a light position in a cool house, where it soon covers a large space with its long Ivy-like growths, and will yield a crop of useful flowers during the winter season. The remarkable resemblance which this plant bears to Ivy has been the cause on more than one occasion of its being thrown out on the rubbish heap as a plant altogether out of place in a greenhouse. Another curious species of *Senecio* also in flower at Kew is *S. juncifolius*, a kind having the appearance of a Rush, and bearing bunches of yellow *Coreopsis*-like flowers. Many of the Cape *Senecios* and the closely-allied *Othonnas* and *Kleinias* are remarkable for their close resemblance to plants botanically far removed from them.

Monstrous Medlar.—I send a monstrosity of the Medlar—three small fruit proceeding from the eye of another, which is stemless, itself forming the stem for the trio.—J. M., *Charmouth, Dorset*.

FLOWER GARDEN.

THE NEW HOLLAND VIOLET.

(ERPETION RENIFORME.)

THE New Holland Violet is a dainty little trailer and well worthy of culture. It is not very showy, perhaps, but yet so distinct from other alpine or "rocky gems" that it well deserves a sheltered corner and careful attention in all gardens wherein plants of an interesting—albeit not glaring—character are appreciated. Planted out in a suitable position in May or June, this plant soon makes itself at home in any light, rich, gritty soil; either sandstone or granitic formation seems equally suitable to it, and during hot dry weather one must needs treat it to copious artificial showers. Wherever it luxuriates increase by division is easy, but if there is a slug in the gar-

niger altifolius. *H. niger* major is earlier and finer than the typical *H. niger*, and is, I am told, not uncommon near Bath. The fact is, *H. niger* altifolius if grown naturally in the open air bears flowers less white than any other form of *H. niger*. As grown in a greenhouse, or protected under a handlight, they become nearly white, never purely so.—F. W. B.

MARVEL OF PERU.

MR. MUIR, in a recent number of THE GARDEN, very accurately described the behaviour of this plant in cold seasons and in cold localities. In a long hot summer and in warm light soils in the south it is a very useful decorative plant, and one well worth a place in the best border of any garden. In such favourable localities it quickly assumes the character of a round

frost all the winter, and plant out when just starting into growth the following year. At the end of that period the roots were great, ungainly, branching, carrot-like things, 2 feet to 3 feet in length, very brittle, and too awkward to be stored for a second winter. These remarks refer to the ordinary variety; the night-scented species I have not grown.

J. D.

AMERICAN COWSLIPS.

THE pretty plate of these in THE GARDEN (p. 438) has induced me to say a few words on this well-known group of American plants, which are as much esteemed in the States as the common wild Primrose or Violet is appreciated in this country. These Cowslips are very widely distributed, extending as they do from the southern parts of California to Behring Straits in the north, and from the Atlantic to the Pacific. Having such a wide range, is it to be wondered at that their forms are not only numerous, but in general appearance so widely different. Authorities in such matters, indeed, seem to be puzzled to know how many species or varieties there really are. As has already been stated (p. 438), all are now arranged as varieties of *Dodecatheon Meadia*, but for gardening purposes I think we should make them into three groups—viz. *D. Meadia*, *D. Jaffrayi*, and *D. splendidum*, all of which are totally distinct. *D. Jaffrayi* (*Meadia lancifolium* of Gray) is the largest of the group, having lanceolate leaves from 9 inches to 12 inches in length, of a dark greyish green with conspicuous reddish midribs. The flower-scape grows from 18 inches to 24 inches in height, and is sufficiently stout to resist wind and to support from six to ten fragrant flowers of a reddish purple colour. There is a dwarf growing variety of this which Dr. Gray calls *D. Meadia alpinum*; this I have never seen, and as far as my experience goes I have never been able to obtain any form of it, although I have raised numbers of seedlings all of which have been the counterpart of the parent, while in the case of *Meadia* and *splendidum* it is impossible to get two seedlings alike. The seedlings of each, however, maintain their general characteristics, and do not run into each other, as those of many plants do.

D. SPLENDIDUM is the gem of the whole family beautiful in the extreme, and so easy to cultivate that it seems strange it is so little known. It forms a rosette of light green ovate-lanceolate, almost entire leaves, about 6 inches in length, and lying prostrate on the ground; from their centre rise numerous flower-scapes from 6 inches to 9 inches in height, each supporting from six to twelve Cyclamen-like blossoms of a rich purplish crimson, with a bright orange ring encircling the orifice. On well established clumps I have seen from fifteen to twenty stout flower-stems, each supporting numerous blossoms. For rockeries, cool shady borders, or for the exhibition table it is one of the most beautiful of all hardy perennials. It prefers a light sandy peat, and should be planted very shallow—an important matter in its cultivation. The short sturdy little crowns may be seen every autumn just peeping through the soil and the fine thread-like roots running in all directions on the surface, forming a complete mat. These should receive every autumn a slight covering of light soil—just sufficient to conceal the crown and form a substitute for the fallen leaves, to which it is accustomed in the American woods. It produces abundance of seed, and the seedlings vary in colour from light to dark crimson, but never run into the light purple and white shades of *D. Meadia* or vary in size of flower or height. This comes very near to *D. frigidum* of Gray, of which I am inclined to think that it is a variety.

D. MEADIA, the common species, is found abundantly all over the States, and is known there by the name of Shooting Stars. It varies considerably in size of flower, height, and abundance of bloom; in fact, it is so variable that amongst seedlings scarcely two are alike. The typical species has lanceolate leaves, more or less toothed, about 8 inches or 9 inches in length, and



The New Holland Violet. Drawn in Messrs. Paul's nursery, Broxbourne, October 6, 1883.

den it is sure to do its best to destroy every leaf and young growth. Although quite hardy in most localities, yet it is best to keep a plant or two in pots in a cold frame in case of accident from nocturnal slugs or a too scathing climate. Its pretty little Violet-like blossoms are freely produced on well-established plants, being borne above the kidney-shaped leaves on the slenderest of stalks. For dainty little plants of this kind one almost requires a special bit of rockwork—an islet, in fact—so that one might the better defy the hungry snails. Then one might the more freely venture to plant out our choicest treasures, along with *Campanula Raineri*, *Primula minima*, *Dianthus alpinus*, *D. glacialis*, *Parochetus communis*, the most delicate of *Androsaces*, *Eritrichum nanum*, and a hundred and one tiny morsels of choice alpine, each and all of which are floral jewels of the brightest—"things of beauty" which slug and snail alike seem to have determined shall not be "joys for ever" in our gardens. B.

Helleborus niger altifolius.—I was at Glasnevin to-day, where this plant is producing pink-tinted flowers, as represented in Mrs. Duffield's artistic and faithful picture. Another variety named *H. niger* major is also in bloom. This has flower-stems and petioles very sparsely dotted with red, and although its flowers are far whiter than those of *H. niger altifolius*, its styles are also tinged with pink or red, so that this character can no longer be taken as absolutely belonging to *H.*

bush, a yard across and the same height, well furnished with glossy green foliage; and if care is taken to pick off all past flowers, it blooms continuously until frost. Most people are disappointed on first seeing this plant, and exclaim, "Is THAT the Marvel of Peru?" evidently expecting something extraordinary. It is an extraordinary plant, and well deserves its name, but there is nothing striking about its appearance to the casual observer. Note the flowers of a single plant, however; we will say they are white, and come back in a fortnight—the flowers are all yellow, or pink, or crimson, or striped. That is the marvel about it. Many plants sport in colour, but here is one that is continually changing the colour of its flowers, the intermediate flowers between each self-colour being speckled first and then striped, one colour waxing as the other wanes. The hotter the weather the more quickly do these changes take place and the fewer the two-coloured flowers that are produced. The changes seem to take place more quickly on the sunny sides of the plant, so that the same plant may be producing different colours on its different exposures, the shady side, as it were, lagging behind in the change. I found the handiest way of growing the plant was to raise it as a pot plant in an unheated greenhouse the first year, store the roots safe from

of a light green colour. The flower-scapes measure from 12 inches to 18 inches in length, and bear from ten to twenty flowers upon a stem of a light purple colour. The most distinct recognised forms are *Meadia brevifolium* of Gray and *integrifolium* of Benth., the latter a southern form, growing from 6 inches to 8 inches high, having entire leaves, and bearing from ten to fifteen light purple flowers; this variety is in cultivation under Dr. Gray's name. *Macrocarpum* I have not seen, but botanically it is very distinct, having capsules from half an inch to three-quarters of an inch in length. The leaves are nearly a foot in length. The flower-scapes measure from 12 inches to 15 inches in height, and bear a very large head of purple flowers. *Albiflorum*, a white-flowered variety, is very common in cultivation. It is not, however, recorded by Dr. Gray, and may be rare in a wild state. It is a free-flowering kind. *Elegans*, which is a stout, robust, and very distinct variety, bears from twenty to thirty large purple flowers on a straight stem.

AMONGST OTHER FORMS may be mentioned *albiflorum minus*, *purpureum*, *longiflorum*, and *lilacinum*. All the *Dodecatheons* are thoroughly hardy, easily grown, free-blooming, and well worth cultivation. Clumps of three or four of the most distinct should be found in every garden, and on the cool shady portions of rockeries they should be planted extensively, especially *D. splendendum*. Than this I know of no plant more charming, especially when planted in masses. The large growing varieties, such as *Jaffrayi* and *Meadia*, will succeed in ordinary borders without any care whatever, except a top-dressing every autumn to cover the surface roots and small crowns. T. P.

WINTERING BEDDING CALCEOLARIAS.

WHERE cuttings of *Calceolarias* were not put in until the middle of October they will not require any air much before the beginning of the new year. As they are generally put in cold frames or handlights, it is a simple matter to cover them in frosty weather, but it is not advisable to use any coverings unless there are signs of frost of sufficient intensity to reach them through the glass. During a prolonged frost the covering should remain on them both night and day until favourable weather returns. Our plants in cold frames have sometimes been covered up for three or four weeks at a time, and when uncovered have been as fresh and healthy as could be desired. We simply put a mat on the frame and then cover it well up with long dry litter from 9 inches to 12 inches thick, which is sufficient to keep out the severest frost. In mild weather after Christmas they will be all the better for a little air every day, increasing the supply as spring advances, until it is safe to take off the lights altogether during the day. About the end of February the plants should be topped, pinching off about two joints. This will cause them to break into growth below, and thus secure bushy specimens. About the middle of March they should be carefully lifted and transplanted either in trenches in which *Celery* is to be planted, or in some other position where they can be protected for a week or two should frosty weather set in. I find that if the plants are left too late in the frames they get too much crowded, and consequently become weak from want of room.

J. C. C.

5099.—**Winter bedding plants.**—"Semper-viren's" bed is the best of all forms, and well proportioned as to size, and I would advise that it be planted as follows: Centre *Yucca recurva* about a yard high, and next that a row of variegated *Periwinkle*—*Vinca elegantissima variegata*; the next row to consist of six plants of *Cupressus Lawsoniana erecta viridis*, 2 feet high, resting on a groundwork of *Sedum glaucum*, then a row planted thinly of *Euonymus aureus variegatus*, about a foot in height, with an undergrowth of *Sedum Lydium*. The remaining space to be filled out in dot form, at regular intervals, with *Retinospira plumosa* and *Erica intermedia alb-nata*, the groundwork to be *Sedum acre elegans*, on which in the summer

may be planted the best kind of bedding plants—of course without removal of any of the shrubs till they get too large for their positions. As there is a Box edging, the band of Golden Feather, with the above arrangement, will not be required.—W. W.

Cotoneaster microphylla.—I find this to be a most useful plant for a great variety of purposes, and when covered with its tiny blossoms, or at this season with its load of berries, it is highly ornamental, covering walls or rockwork, or even as a single specimen on the grass. It is a plant of the easiest culture, and one which grows freely in almost any kind of soil. As a wall plant, it looks well trained in almost any form until it attains a considerable height, when it should be allowed to grow in its own way; the branches then assume a pendulous form, and when covered with berries have a fine appearance. Good strong bushes on grass, with the main shoots secured to stout stakes, also look well.—H.

NOTES FROM HECKFIELD.

Easily grown winter flowers.—Having only fruit houses, plant cultivation, in the strict sense of that term, is not really required at our hands, but a regular succession of cut flowers and small plants for furnishing vases in rooms is required, and it has occurred to me that a few notes as to how and what we manage to get under such conditions during the winter months might possibly prove suggestive to others that may be in like circumstances.

Pelargoniums—double-flowered kinds in particular—are most useful for small vases and baskets to stand in the windows and as cut flowers for bouquet making, as they stand a long time without withering; these we strike from cuttings in April and May; they are grown in the open air, with the pots plunged in ashes the whole of the summer, 5-inch and 6-inch pots being the largest used. Plenty of manure water is necessary to keep the plants in vigorous health, and this is continued, of course in a modified form, all the winter. Our Strawberry house is now very gay with them, in which place they will remain till Strawberry forcing must begin in earnest; then they will be moved into late vineries and Peach houses till these must be closed; they are then relegated to cold pits and have then to take their chance, as by this time very little more is required of them.

Primulas and Cinerarias.—These we sow early in April with a view of getting them into flower in mid-winter, as they are useless to us as soon as the London season begins. They have the ordinary frame culture during the summer, and at this season are placed on shelves in Peach houses and vineries that are at rest. *Primulas* enjoy more warmth than *Cinerarias*, and with careful watering we manage to keep some of these in vineries that are still being slightly fired to prevent condensation of moisture on the fruit.

Poinsettias.—These are a very accommodating class of plants, as they do well at this season in either a moist or a dry atmosphere. These also we are obliged to restrict as to root room, no larger than 7-inch pots being used. They are propagated from eyes in May and June, and as soon as struck are potted singly, and afforded a slight bottom heat in a pit till the roots have taken a good hold of the soil; they are then gradually injured to colder treatment, a cold pit being their place till there is danger from frost, when they are placed in Pine stoves and Melon houses, where they are now well repaying all the shifting about that our lack of plant houses entails.

Euphorbia jacquiniæflora.—I know of no flower at once so rich in colour, profuse of bloom, and so effective when cut either for flower glasses or for dress ornamentation as this, and I may add or so easy to grow, from cuttings struck in a Pine bed in June, and grown during the summer in any available place where the temperature does not recede below 50°. As soon as Melon growing is over the shoots are trained to the Melon trellis, and from the middle of December onwards we can cut and come again till the place is again needed for Melons. I may add that young plants flower

best; hence we throw the old plants away as soon as our new stock is rooted.

Bouvardias.—Though we have never yet done these plants to our satisfaction, owing to want of the requisite structures, yet we do manage to get a considerable quantity of cut flowers all through the winter months; our plants are grown in cold frames during the summer, not planted out, but in pots, as being the more convenient mode of culture, because of the shifting about the plants have to undergo. We find them do best in but moderate-sized pots, in soil of a peat nature, say half peat and one-half loam and the other leaf-soil, potted firmly, but not hard, and with plenty of drainage, as they soon turn sickly if they get anything like water-logged. They flower well all through the winter on ledges and shelves in the Pine pits and the earliest forced vineries.

Eucharis Lilies.—As a rule we get good supplies of these flowers the greater part of the winter, from large pots of bulbs that are never moved from out of the fruiting Pine pit, where they occupy a half-shaded position that would be useless for Pines, and yet they seldom fail to flower three and more often four times in the year, this result being due to our disregard of the resting theory that some put into practice to get one lot of flowers in a twelve-month. The plants are not plunged, but simply stand on the Pine bed, where there is always a bottom heat of about 75°, so that 65° would be about the temperature of the soil in the pots. The only difference in treatment we ever make is that as soon as flowering is over less water is applied for a month or so, but they are never allowed to get really dry, so that this can hardly be termed resting, though there can be no doubt but that to this partial withholding of water, and particularly of manure water, is due the frequent flowering of the plants.

Forcing plants.—In addition to the plants named above, our early vineries, Fig, and Peach houses afford accommodation for forcing sundry kinds of plants, such as *Spirea japonica*, *Andrea gracilis*, *Rhododendrons*, *Andromedas*, *Azaleas*, *Lily of the Valley*, *Hyacinths*, and *Tulips*, and thus, with scheming and contriving and abundance of hard work, we usually manage to prevent dissatisfaction by having plenty of winter flowers. W. WILDSMITH.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 484.)

LINDSÆA LOWI—A most curious and interesting plant, found all over the Malayan Archipelago, where it clothes the lower part of Fern stems, as, although not being a thorough climber, it is, however, of very scandent habit, and is a tolerably rapid grower besides. Its roundish, green, wiry stems grow in zigzags and bear numerous fronds, pectinate in shape, having little rounded pinnules disposed on one side only of the rachis, the other side being totally deprived of them. These fronds when the plant is older become pinnate, having pinnæ on both sides of the rachis, and those pinnæ, instead of being rounded, are oblong in shape and three or four times the size of the others. They all are of a beautiful dark glossy green, and as these stems have the faculty of producing aerial roots and lengthening to almost any size, the plant has a very peculiar appearance, which would almost lead anyone to think that two plants totally different are growing intermixed. It requires a very close atmosphere. Stove.

L. MALABARICA (*Schizoloma malabaricum*).—A species from Malabar with a slightly scaly creeping rhizome, furnished with thick and very wiry roots, and from which rise long, narrow, and simply pinnate fronds, borne on tetragonous stalks nearly as long as the fronds themselves; the alternate numerous pinnæ, of a membranaceous texture and half ovate from a truncated base, decrease in size gradually towards the extremity

of the fronds, which seldom attain more than 8 inches in height, and are almost pointed at their apex. Stove.

L. NITENS (*Schizoloma recurvatum*).—This is a very pretty kind from Southern India, somewhat related to the species above described, but with fronds sometimes pinnate, but more often bi or even tripinnate, whereas those of *L. malabaricum* are always simply pinnate. They are also very distinct on account of their rachis, as well as the stalks on which they are borne, being of a pleasing pink colour, which gives this Fern a very pretty appearance. The pinnæ are lanceolate, recurved, and, contrary to those of the above species, are oblong in shape and very obtuse and subfalcate, its pinnules having a very broad apex and often forming a perfect parallelogram. The sori, situated along the upper margin, are slightly interrupted. Stove.

L. RENIFORMIS.—This West Indian species, although extremely rare in cultivation, is so thoroughly distinct that, provided a sufficient supply could be secured to satisfy all demands, it would no doubt soon be found in every good collection. Unfortunately, it is one of the most delicate to travel, and it is only after many fruitless attempts that it has been successfully imported at Kew Gardens, where it is growing luxuriantly. In general appearance it is very near *Adiantum reniforme*, or nearer still the rarer *Adiantum azaræfolium*, but the fronds, kidney-shaped as they are, do not rise from a compact crown, but from an underground caudex; besides they have none of the leathery texture peculiar to the two above-named species; in that respect it is nearer the New Zealand *Trichomanes reniforme*, whose fronds, also kidney-shaped, are much more membranaceous. Those of the *Lindseæ reniformis*, although not so translucent, are very similar, as they are also borne on slender, round, wiry stalks 2 inches or 3 inches high. It is one which requires a very moist atmosphere. Stove.

L. REPENS (*L. oblongifolia*).—A very handsome species, native of Ceylon, with somewhat rigid, membranaceous linear-lanceolate fronds, borne on short, stout stalks rising from a scaly creeping caudex. They generally measure from 12 inches to 16 inches in length, by about half-an-inch in breadth, simply pinnate and slightly attenuated at their base with very numerous sub-acute or half deltoid-ovate obtuse pinnæ, thirty or more pairs to each frond, their base being nearly parallel with the rachis and their lower margin quite entire, whereas their upper one is lobulate-crenate. There also exists a variety, minor, quite distinct, with pinnæ smaller, more membranaceous, and often pinnatifid or serrate. This variety is generally known under the name of *Davallia Boryana*. Stove.

L. RIGIDA.—This is a thoroughly distinct species from Malacca, at present seldom found in collections, where it has a very peculiar appearance, owing to its bipinnatifid and sometimes rigid, sub-falcate fronds of a particularly slender character being borne on long, wiry stalks, furnished with short distant prickles, and produced from a long, creeping, and densely scaly caudex. The pinnæ, from six to ten in number, are set very widely apart, linear, alternate and falcate in shape, with a very long terminal one; the pinnules, of a coriaceous texture and flabellate or oblong in form, are set closely on a winged rachis, sometimes sessile, but more often shortly petiolate with their upper base truncate, and their lower margins slightly arched, and the upper one semi-circular, lobed, and crenated. It is of a very bright and pleasing green. Stove.

L. SCANDENS.—This very handsome species from the Philippine Islands, besides being one of the most distinct of the whole genus, is also one of the most attractive. Its habit is also very peculiar, for on a paleaceous, wide creeping stout rhizome, densely scaly, some simply pinnate fronds from 10 inches to 15 inches long, by about 1½ inches broad, are placed at short intervals on its whole length. Their pinnæ, of a curious form, with the lower line slightly decurved and the upper one rounded and entire, their extremity broadly

rounded, are placed in a long row and close together on each side of the rachis; they are of a nearly pellucid texture, slightly petiolate and nearly imbricated as the upper part of the pinnæ very nearly touch the lower part of the one immediately above. It is a species particularly well adapted for growing on Tree Fern stems, although not of rapid growth. Stove.

L. SAGITTATA.—A real gem among the many pretty kinds from the West Indies, and as interesting as it is thoroughly distinct. It is a neat and dwarf-habited species, with fronds somewhat of a cordate shape in young plants, but as these grow older and acquire strength their beautifully undulated fronds become sagittate in form. In a young state—that is to say, when only partly developed—they are very pellucid, especially at their edges, but of a pale green colour when mature, with numerous dark green veins radiating from the centre, and some of which extend to the very apex, which terminates in a point. They measure at their widest part about 1½ inches by about 3 inches in their greatest length, and are borne on slightly winged dark brown stalks of wiry texture, and seldom exceeding 4 inches high. It is of very compact habit. Stove.

L. STRICTA (*L. botrychioides*).—This is an exceedingly pretty erect-growing evergreen species, from Trinidad, which, under cultivation, assumes many forms, all of which are very handsome. It is mostly seen with bipinnate fronds, and even not unfrequently assumes a tripinnate form, but it also remains sometimes simply pinnate. In all these stages, however, it is a most interesting and deserving plant, which varies in height from 8 inches to 12 inches. There is a peculiar appearance about it on account of the pinnæ, which are of a bright shining green, recurved, sometimes assuming almost a lunulate shape, being developed on one side of the rachis only. Stove.

L. TRAPEZIFORMIS.—This is one of the most robust growers from amongst the many species which from time to time have, from Trinidad and the West Indian Islands, found their way into our collections. It is also undoubtedly one of the most ornamental and handsome species belonging to the genus. Its elegantly spreading bipinnate fronds grow to upwards of 24 inches in height, and are provided with pinnæ from 6 inches to 8 inches long, thus making the breadth of the frond about 15 inches at its widest part. The pinnules, somewhat falcate, are broad, obtuse, and developed on one side of the rachis only. The whole plant is of a most brilliant green colour, which renders it highly attractive. Stove.

L. TRICHOMANOIDES.—A distinct and pretty dwarf-growing species from New Zealand, and in that respect at least totally different from all other known kinds, which, as will be seen by the above descriptive list, all come from much warmer countries. This charming little plant, which is equally well suited for growing as a pot plant or for planting in the Fern case, seldom grows to more than 6 inches in height. Its fronds, which are produced abundantly, are bipinnate, with pinnæ lobed and closely set. It is besides of a bright green and very pleasing colour. Green-house.

L. WALKERÆ.—A most curious-looking species from Ceylon with lanceolate fronds from 8 inches to 12 inches long, borne on stalks of about equal length, of a dark purple glossy hue, similar to that of the rachis, and produced from rather a thick creeping caudex covered with ferrugineous hair-like scales. The pinnæ, of a leathery texture, sub-opposite, lanceolate or linear-lanceolate, are disposed in pairs, about eight to each frond with a terminal one which sometimes is confluent with one or both of the upper pair. In general appearance this plant somewhat resembles a miniature form of the well known *Gymnogramma javanica*. Stove.

LLAVEA CORDIFOLIA (*Ceratodactylis osmundioides*).—A solitary species from Mexico, where it is found at considerable elevations, forming a genus by itself. Where grown successfully it is a most interesting, and at the same time a highly

decorative plant, on account of the glaucous or pale bluish tint of its handsome fronds, which are very singular in appearance. Unfortunately, although an old inhabitant of our gardens, it is seldom found in collections. Being generally grown in too warm a place causes the speedy death of plants which under cooler and drier treatment would last for years and every successive season increase in size and strength. Where it has the good fortune to receive suitable treatment it is greatly admired. It has numerous tri or quadri-pinnate fronds, which are produced from a succulent underground rhizome, and borne on thin, wiry, and flexible stalks of a delightful pale green colour, and these are covered at their base with broad, lanceolate, chaffy scales of a silvery colour. They grow from 24 inches to 30 inches long, and their upper part, which is usually fertile, is much contracted, and gives the plants all the appearance of an *Osmunda* of drooping habit. The lower half of the pinnæ, which are thoroughly sterile, are linear in shape and formed of numerous pinnules about an inch in length and oblong in form—the whole of a very pleasing light green or glaucous colour. The most interesting part of this charming species is undoubtedly the fertile portion of its fronds, which is elegantly pendulous, and possesses all the appearance of an assemblage of pale pea-green catkins; on that account alone the plant well deserves a prominent place among the so-called flowering Ferns, of which group it is one of the most distinct members. It is of thoroughly evergreen habit, and in a temperate house forms a splendid specimen, either grown as a pot plant, or better still planted on a rockwork or in any place where the drainage is perfect, on the summit of a projecting rock, for instance, and planted simply in a mixture of peat and sand in equal parts; a little crock dust may be with advantage added to the mixture, as it will help to keep the soil open, which seems the condition most essential to the welfare of the plant. It should be placed in a well ventilated place and syringing overhead should be carefully avoided.

PELLÆA.

INDOOR GARDEN.

DIEFFENBACHIAS.

MANY of these thick, succulent-stemmed Aroids have very handsome variegated leaves, differing considerably from most other fine foliage plants, and having a handsome appearance when associated with flowering and other ornamental leaved inhabitants of the stove. Most of those in cultivation are from the West Indies or the hotter parts of Southern America, and therefore require a good deal of heat to grow them. They are easily grown, and can be propagated in a warm house without difficulty from pieces of their succulent stems containing one or more eyes, inserted, so as just to cover the base, in pots half filled with sandy soil, the remainder all sand, and kept in a brisk heat, but not too moist, or they are liable to rot; neither is it well to keep the cuttings so close or confined as needful with most things. The eyes generally start into growth at the time roots are being pushed; when these are fairly formed the young plants should be moved singly into 5-inch or 6-inch pots in sandy loam or peat; either will do. If

PROPAGATION has been effected early in the spring the temperature should be increased as the weather gets hotter; 65° or 70° in the night, with proportionately more in the daytime, will do through the summer, during which season they cannot be kept too near the glass—if not absolutely touching it, but must be protected from the sun with a thin shade, or the leaves will lose their healthy colour. Syringe overhead daily in the afternoons through the growing season, giving air in the middle of the day. This is all the attention they require beyond larger pots, as the roots want

more room. Where large specimens are required they may be had either by heading back such plants as consist of a strong single stem, which will cause the stool to push out a number of shoots, or several rooted cuttings may be put together in a good-sized pot and treated in other respects as advised for the single-stemmed specimens. One season is generally long enough to keep the plants, as their leaves are not very persistent, and after the first summer they usually get bare at the bottom unless cut back and started afresh, striking the tops and such portion of the stems as required in the way already indicated. By the use of manure water large plants can be grown in comparatively small pots. The following is a selection of the best and most

DISTINCT KINDS, viz.: D. Wallisi, ground colour deep green, the central nerve greyish white, with white blotches on the leaf. D. Carderi, leaves deep green, about half the surface covered with large irregular white blotches. D. Leopoldi, a distinct and handsome sort, the leaves of a very deep green shade, extremely lustrous; the mid-rib has a broad ivory white band running its entire length. D. Baraquini-ana has handsome green leaves blotched with white; the leaf-stalks are also white. D. Chelsoni, green ground-coloured leaves, with greyish white nerves, and clear yellow mottling. D. amoena, deep green leaves, mottled with white and yellow. There are many others differing slightly from these, but the above are sufficient for ordinary cultivation.

INSECTS.—Dieffenbachias are little subject to insects. Red spider and aphides will live on them, but can easily be kept down by syringing. T. BAINES.

REFLEXED CHRYSANTHEMUMS.

I PURPOSE including the Anemone and quilled large-flowering Chrysanthemums as well as the smaller and hybrid Pompones under this heading, and, without preface, claim your sympathy for these grand flowers before they are completely ostracised. This is no mere assumption. You have only to take up the prize schedules or look through the reports of the shows to find what a secondary or no position at all they have invariably got. Now, do they deserve to be thus elbowed out of the way to make room for the Japanese and incurved classes? I am in no way interested except for their beauty, and while I have no hesitation (after growing a limited selection, but more especially in admiring them with others) in saying they should be grown much more largely, I hope you and some of your influential correspondents will also say a word in their favour. Confining myself to my own experience, I venture to say that as great beauty and as rich and as varied colours will be found in these sections as in the other two already named. In size what can surpass the Christines, the golden or peach-coloured? I have them in as fine condition against a south wall as they are indoors, and twice as floriferous. Then, in soft-colour tinting and the large number of blooms, what can surpass Little Beauty and its companion flower Beauté du Nord? the former is very double, and at no stage of its blooming shows a centre, and while every petal which is white is shaded and bordered with pink, the colour of the latter is violet and orange-tinted rose. If a decided colour is wanted for specimens, what is better than Dr. Sharp? and if a medium sized flower produced in great abundance is desired, there is the old Julie Lagravère, crimson. If the same colour is wanted for exhibition, and size is of importance, its new rival, King of Crimson is at command. I have been told there is no pure white in the reflexed class to compare to Mrs. George Rundle. This is not quite true. La Neige, if well grown, is a fine flower, but I am not going to commit the heresy of saying for general purposes it is better than the former. I have this year, for the first time, Emperor of

China, silvery white, and am of opinion it is a very desirable addition to the reflexed whites, which, with Mrs. Forsyth, makes the whites sufficiently numerous. I have Reverie, and though the point is disputed, it is undoubtedly a reflexed flower, very bright, tinted golden bronze, free and large, though inclined to twist its pedals. Coming to the large Anemone-flowered, what have the other classes in size, purity of colour, or perfectness of shape to surpass Fleur de Marie or Lady Margaret among whites; old Gluck or Sunflower among yellows; or Marginatum and Princess Marguerite among the lilac-rose? A gardening friend of mine yesterday took off his hat to two fine specimens of Gluck and Fleur de Marie as acquaintances of forty years ago; the latter had two flowers of the most perfect shape and purity of colour, as large as a breakfast plate and only in an 8-inch pot. They had been principally supported by liquid manure. Another class wholly neglected at many Chrysanthemum shows is the hybrid Pompones; they are a medium size, between the small Pompones and the other classes, and invaluable for cutting, besides being very floriferous. White and golden Madame Marthé are excellent, while no collection should be without the Cedo Nullis and Trevennas of the different colours. A special favourite, of mine and of all who will grow it is James Forsyth—yellow and orange-crimson centre. I have only space to note Elenore, now opening, crimson-tipped gold, and to say, that in asking extended patronage for these Chrysanthemums, I do so without any desire to detract from the Japanese and incurved kinds.

Clonmel.

W. J. MURPHY.

CYANOPHYLLUM MAGNIFICUM.

THIS is the best of all the Cyanophyllums—so much so, indeed, as to make the others not worth growing. I shall, therefore, confine the details of cultivation to this species, which is rightly named, for amongst all the fine-leaved plants that have been introduced, if we except some of the best of the Palms and their allies, there are none yet that equal the majestic foliage which this plant when well grown produces. A vigorous specimen will make leaves a yard long, by over 20 inches broad, their almost black-green silky upper and reddish-purple under surface affording a striking contrast with all other cultivated forms of vegetation. It is a Melastomad capable of bearing as high a temperature as the hottest stove plants require. A single stem is all the form of growth worth encouraging, although when strong it breaks freely. These side shoots or the extreme top make

CUTTINGS that will root in a few weeks placed singly in 3-inch or 4-inch pots, half filled with peaty soil, the upper surface all sand, kept moist, confined, and shaded when requisite in a temperature of 75° or 80°. Under such conditions they may be struck at any time of the year when cuttings are at hand, but, supposing them to be rooted in April, they should at once be stood where they will receive enough light, otherwise the leaves formed will be thin, and not able to last long. To grow this Cyanophyllum large it must have plenty of root room; the first move from the cutting state should be into pots 7 inches or 8 inches in diameter, using good peat in which the growth is quicker than in loam. Although the plant cannot be grown too near the glass, still its leaves are thin in texture, and if not shaded when the sun comes directly upon them with any considerable force they are liable to get injured but the shading should only be used when the sun is likely to do harm. Give air when the weather is mild, if only for a short time each day.

PLenty of WATER must also be given; as soon as the roots have got well hold of the soil, move

into pots 15 inches in diameter, using peat in a lumpy state, with a good sprinkling of sand and some rotten manure, for it is a gross feeder, and when the soil is full of roots it will take manure water freely, which will much assist the leaves in both size and the lustrous shade they get when the plant is well managed. It can be grown to a handsome size in a single season, and very large with a second year's growth. In autumn cease shading and give more air, reducing the temperature gradually, so that in winter it is about 65°, at which time keep the roots a little drier, but never withhold water to let them get as dry as many things require, or the leaves will suffer. Treat during the ensuing summer as before; in the autumn the extreme top may be removed and struck, which will have the effect of causing some of the lower eyes to break. When the shoots thus made are large enough, they can be taken off with a heel and struck. If required, the old stem may be headed down to the bottom, the ball half shaken out, and the stool repotted in new soil as soon as it has made a little growth; after heading down in this way larger leaves will be formed than those produced by the first growth. After the second season young plants will be preferable in some cases.

INSECTS.—The daily syringing which this Cyanophyllum should have during the growing season will suffice to keep down the smaller insects, but care must be taken that the water gets well at the under surface of the leaves, or thrips will effect a lodgment. Syringing will also keep down mealy bug, which is very fond of establishing itself in the inequalities at the under side of the leaves.

T. BAINES.

DAPHNE INDICA ODORATA.

Of all greenhouse plants this is one of the sweetest, and its lovely perfume is so pervading that a plant of it in bloom will scent a large house. Its dull lilac flowers are, however, not showy, but any deficiency in that way is fully made up by their fragrance and substance. They are so thick and stout, that they may be mounted singly and worked up in bouquets, to which a few pips impart a most grateful perfume. Without any forcing, too, or artificial heat, the plants may be had in bloom in February, and they will last at least two months in the greatest perfection. There are several ways of

PROPAGATING this Daphne, the one most generally pursued being by means of cuttings; the latter should be made of the half ripe wood which is, if possible, taken off with a heel, as in that way they strike better than when cut at a joint. In order to get them to root freely, it is necessary to put in the pots, which should be of small size, plenty of drainage, then fill them with sharp sandy soil, and in this the cuttings ought to be dibbled one in a pot, and made very firm by pressing the soil tightly round them. They should then be watered through a fine-rosed pot and placed in a propagating box where they can be subjected to a good brisk heat, or covered with a bell-glass and set on a light shady shelf in a stove. In either position they will soon callus and root, when they may have the glass tilted or air given, and after a few days they will stand without flagging. They may then be potted into pots a size or so larger, the best soil to use for them being a mixture of fibry loam and peat, with just sufficient sand to keep it porous. In this Daphnes flourish, and they will also do well in peat or loam separately, according to their quality, but which ever is used must have grit added to it, or the roots will not remain long in a healthy condition.

ANOTHER MODE of increasing this Daphne is by grafting, and the most suitable stocks for it are the Spurge Laurel and the Mezereon, some

preferring the one and some the other, but as the first is the more common and easily obtained through being found wild in many woods, that is the one most generally used. For grafting, small young plants are best, and these should be dug up and potted, and then placed in heat for a week or a fortnight, so as to give them a start, when they will be ready for grafting. This may be done in several ways, the easiest perhaps being wedge grafting, which is carried out by beheading the stock, leaving 2 inches or 3 inches of the stem and making a slit in the top. The grafts should then be prepared by taking off pieces of the sweet *Daphne* similar to those used for cuttings, but without the heel, and trimming the ends by slicing off a portion of each side so as to form them into a wedge, when they are ready for inserting in the slit made in the top of the stock, where they should be tied securely by the aid of a piece of raffia or soft bass, and then waxed over by using grafting wax made and sold for the purpose. This keeps out the air till the parts heal and a union is effected, when it may be taken carefully off and the ligatures removed to allow for the stock and scion swelling, which both soon do when growth commences, and root action is active in forcing up the sap. After grafting, close, moist heat is necessary for a time, but plants should not be subjected to it long, as it weakens them, and as soon as spring commences they will be found to do best in a frame or greenhouse, where they get only a little warmth while making their young shoots, and when growth is complete, it is a good plan to plunge them out abroad where they can be exposed to the sun, which ripens up the wood and makes them flower more freely than they do when kept under glass.

DAPHNES FOR CUTTINGS should be planted out in a pit or frame from which the lights can be removed, as with such an increased amount of root room and more liberty than they get in pots they grow much freer and bear the loss of the shoots better than they do under less liberal treatment, when they often die back after being cut instead of breaking freely again, as most other plants do. When planted out, as well as in pots, drainage is all-important, and the bed in which they are to go should have a layer of broken bricks under, and on them a foot of parings from the roadside or sharp, turfy loam, in which the plants are sure to do well. After flowering, these should be kept well syringed and without much air till they break, when they may have the lights tilted and by the middle of June withdrawn for the summer. The only insects that affect *Daphnes* are red spider, but under the treatment referred to above they are seldom much trouble, as the washings the leaves get from rains and the exposure to night dews keep them clean and free from such pests; but should they assail them, a good sousing from the syringe or garden engine will carry them off. S. D.

ARDISIAS.

A. CRENULATA is a compact growing evergreen plant from the West Indies. Its flowers are small and unimportant, but they are succeeded by an abundant crop of brilliant berries, which are very showy. They are about the size of Haws when ripe, bright red in colour, and produced in bunches, comparatively large for the size of the plant. They are also very persistent. This *Ardisia* is much used as a room plant, a purpose for which its general character well adapts it. It is best increased from seed which, if sown at the beginning of the year in moderate sized pans filled with sandy peat sifted fine, the seeds covered about $\frac{1}{2}$ an inch, and stood in a house or pit where a temperature of 65° or 70° can be kept up, will soon vegetate. After they have begun to grow place them where they will receive a fair amount of light. Keep the soil moderately moist, and when they are large enough put them singly in small pots and stand them on

some moisture-holding material, such as sand or ashes. This is an essential matter with seedling plants in little pots, for if they are stood on dry shelves, particularly in the summer time, they get dried up quickly, through which cause they get injured. Give them ordinary stove treatment during the summer as to water, heat, air and shade; by the end of July they will bear moving into 4-inch pots, after which encourage growth until the middle of October, when the temperature should be reduced gradually for the winter, through which 55° or 60° will be enough. Increase the heat about the end of February, and in the course of a month they will want moving into 6-inch pots, treating them afterwards as advised for the previous summer. This *Ardisia* does not require stopping, as it will branch out sufficiently of its own accord.

AS WINTER APPROACHES reduce the temperature, increasing it about the time advised in the preceding season; in spring the strongest plants may be moved into pots an inch larger, but it is not advisable to



Caraguata sanguinea in its native habitat.

give more root-room than absolutely necessary, as the smaller the pots the better the plants will look, and those that are not shifted can be helped with manure water. They will flower in the spring or summer according to the temperature they are subjected to. Give them plenty of light, especially whilst in bloom, which will help the flowers to set; all that is necessary further is to continue treating them as already advised. By autumn, if all has gone well, the berries will be fully coloured, and they can be used with advantage for decoration in a warm conservatory, or intermediate house, or in living rooms as already mentioned. If the plants are well managed they will be nice pyramids with healthy foliage down to the bottom, their handsome dark green crenulated leaves contrasting well with their bright coloured berries. If desired, they can be grown on larger by giving them more pot room, but they never look so pretty as in the first season of their fruiting, consequently it is well to keep up the stock by sowing some of the berries every year. The plant will strike from cuttings made of the young shoots, treating them when rooted as advised for the seedlings.

SPECIES.—**A. CRENULATA ALBA.**—A white berried variety of the above that will succeed with similar treatment.

A. OLIVERI.—This is a handsome decorative plant from Costa Rica, quite distinct in habit and general appearance from the preceding kinds. The flowers are bright purple. It is propagated by cuttings struck in the usual way, and when rooted treated as recommended for *A. crenulata*.

INSECTS.—The stout texture of the leaves does not offer much attraction for the smaller insects that prey on stove plants, and the syringing to which the plants are subjected daily during the growing season will keep them down. Scale or mealy bug must be removed by syringing with insecticide or sponging. T. BAINES.

NEW BROMELIAD.

(CARAGUATA SANGUINEA.)

M. ANDRE writes as follows respecting this new introduction in a recent number of the *Revue Horticole*: "I gathered the first specimens of this new Bromeliad in May, 1876, in the Western Cordilleras of the Andes of New Granada, between Tuquerres and Barbacoas at a place called Los Astrojos. It was growing here and there in epiphytal fashion on large trees which it lighted up with its fine blood-red foliage. The colours were so vivid, that the Indian cargueros who frequented this route, called the "terrible road," often gathered living plants of it in order to plant them as a votive offering on a cross formed of two trunks of Tree Ferns (*Alsophila*), and which had on this account received the name of 'Cruz de las bicundas,' Bicundo or Vicundo being the name for Bromeliads in this district of New Granada, *Caraguata sanguinea* on account of its red colour being named *Bicundo colorado*. I collected a considerable number of specimens which were dispatched with the first plants of *Anthurium Andreae* when I discovered this beautiful Aroid, but the Bromeliad perished before reaching Europe. In 1880, in a new exploration organised by some amateurs of the south of France, I succeeded in introducing good seeds of this *Caraguata*. These produced the plants from which the description and figures were taken which are now published for the first time." The accompanying illustration so well depicts the habit and general growth of the plant, as to render a description in this respect superfluous, but naturally it does not afford any idea of the wonderfully rich colour of the foliage, which M. Andre describes as being of a "tender green tinted with red, gradually becoming in the earlier stages of growth spotted with violet-red, which, changing later on to blood red, increases in intensity as the flowering time approaches. The coloration varies in individual plants to the extent that some are entirely purple, whilst others are more or less spotted."

This description, whilst giving a fair idea of the merits of the plant, scarcely does it justice, and it is doubtful if word painting could ever fully picture its beauty. The contrast between the rich clear green of the base of the leaves and the blood-red hue of the foliage generally is very striking, and, so far as I am aware, this *Caraguata* is far and away the most distinct and effective Bromeliad ever introduced to cultivation. Bromeliads are not general favourites in this country, but the plant here described ought, one would think, to form an exception, as its grace and brilliancy entitle it to a foremost place amongst decorative plants. If a supply of seeds can be obtained, so as to allow of a stock being readily raised, I feel sure that *Caraguata sanguinea* will be much grown. I should add that it is of moderate growth, rarely exceeding 15 inches in height by about 18 inches in diameter. M. Bruant, of Poitiers (Vienne), France, holds the stock, and is now distributing it. It obtained a first-class certificate in January of this year at a meeting of the French National Horticultural Society, and was one of the collection of ten new fine-foliaged plants which received the first prize (gold medal) at the general exhibition of that society in May last. The flowers, I should state, are not showy,

being of a pale straw colour; they form a crowded spike, which barely issues from the crown.

Byfleet.

J. CORNHILL.

PRESIDENT GARFIELD BOUVARDIA.

THIS comparatively new double *Bouvardia* seems to me to be a most valuable acquisition to this race of delicate and free-flowering plants. On seeing the coloured plate of it in *THE GARDEN* last spring I remember being peculiarly impressed with the beauty of this flower and resolving to obtain a plant of it at an early day. This I succeeded in doing some time since, after being repeatedly assured by a leading florist here that the President Garfield *Bouvardia* was a myth, and that there was no such thing as a double pink *Bouvardia*. He says he has frequently bought plants so labelled, but in all cases the flowers were white, or very nearly white. Whether his plants were in reality only Alfred Neuner or a sport from it or the Garfield I know not; but that my collection now embraces a genuine pink double *Bouvardia* is a fact of which I am really very proud. Compared with *THE GARDEN* plate, my flowers are finer in every respect. The colour is fully as deep, the florets much more double, each one having twelve petals instead of eight, as represented in the plate, and the corymbs are larger, some having 25 florets each. At present I have a small plant of it with nine large corymbs upon it and most of them are already in bloom. Another pretty feature of my flowers is that many, if not, in fact, most of the petals have a fine delicate line of light green running down the centre of each little petal. This is very distinctly marked at first, and gradually disappears after the floret has been expanded two or three days. I think it enhances the beauty of the flower materially. I find also that this *Bouvardia*, in addition to being a free bloomer, has the faculty of retaining its flowers for a long while after expansion, and they remain comparatively fresh. I have flowers now that have been fully expanded over a week, and they are pretty yet. This is a valuable feature which single *Bouvardias* do not possess, and florists will not fail to appreciate it. For cut flowers President Garfield *Bouvardia* must surely prove an exquisite little gem. Indeed, the only thing it lacks to make it perfection is fragrance. But even without that, no one who once gets it in his collection, even though it be among his few plants in a sunny window in winter, will ever care to be without it.

ALFRED NEUNER, the double white, is, of course, almost equally valuable, though not quite so new, and it should be grown as a companion to the pink. Its habits are very similar, it being also very floriferous and easily grown. With a pretty warm atmosphere that is not allowed to become too dry, and due vigilance in looking after mealy bug, which is apt to infest this genus of plants, I see no reason for lack of success in growing *Bouvardias*. Surely I will be pardoned for pointing, with some pride, to the fact that the two double varieties here spoken of (and I believe they are the only double sorts known as yet) originated in the United States with the firm of Nanz and Neuner, of Louisville, Kentucky, the white being sent out by them in the spring of 1881, and the pink some months later, if my information is correct.

In regard to propagation, I have no experience as yet. Whether, as has been stated, slips from side shoots have a tendency to produce a reversion to the single-flowering species or not is an interesting question, which I shall be glad to decide for myself. The doubles being sports originally, such erratic conduct would not be at all inconsistent with natural laws, and they are thus not at all amenable to rigid botanical rules. But let us be satisfied if we can reproduce them from strong leading shoots, the removal of which is generally beneficial to the parent plants.

Kingston, N.Y.

H. HENDRICKS.

Impatiens Jerdoniæ.—I was glad to see this Balsam (p. 467) brought under notice. It is a showy plant, which some thirty years ago or

more was thought much of. If crossed with the Zanzibar Balsam (*Impatiens Sultanii*), which is of similar habit and character, and which seeds freely, we may soon have something new between them. Hybrids of this class may possibly prove to be good bedders, as I. Sultanii is said to stand out and do well in summer. If anyone has given it a trial out-of-doors I shall be glad to hear how it behaved, for if it really will succeed in beds or borders anything like what it does in pots it will be charming, as it affords quite a new shade of colour, the flowers being a bright rosy red.—S. D.

CRINUMS AND HYMENOCALLIS.

THESE consist mostly of large growing bulbous plants that bear very fine flowers; they are so nearly allied to *Pancratiums*, that, so far as their cultural requirements are concerned, they need to be treated much in the same way that will suffice for the last-named division of *Amaryllids*, only there is this that must not be lost sight of in the management of the several species belonging to the collective Order, that they come from widely different parts of the world; some are found indigenous to the hot low districts of India, and also the warmer parts of America and the West Indies; others, again, are met with in the cool hill regions of India and at the Cape of Good Hope. Consequent upon this, although most of them enjoy a liberal amount of heat during the growing season, still there is a considerable difference in the degree of warmth they will stand when at rest. From this it is obvious that the cultivator will have to be guided by the temperature of the country from which the respective kinds come that he happens to grow. Like most plants of a kindred nature, after their growth is completed they require a good rest, at which time they must be kept dry. All the *Crinums* and *Hymenocallis* can be raised from seeds, which should be sown as soon as ripe; when this will be, of course will depend on the time of their blooming. Supposing that ripe seeds are at hand during the later months of the year, prepare a large seedpan, drain and fill it with sifted loam, to which add enough sand to make it moderately open; press the soil firmly down and strew the seeds over the surface about an inch apart, sprinkling a very little soil over them; stand in an ordinary stove temperature, and give as much water as will keep the material slightly moist; in the course of a couple of months the young plants will appear, after which place them near the light, continuing to maintain the soil in a healthy state as to moisture, but not too wet. In the spring increase the heat as requisite for the other occupants of the house or pit in which they are located. Their growth is not nearly so rapid as in the case of plants that come sooner to maturity; they will bear full exposure to the sun except in the brightest weather, and even then use no shading unless the leaves show signs of being injured. By midsummer prepare some more pans or pots with soil a little less sandy than was used for the seeds, and prick the seedlings out 2 inches apart, pressing the earth quite solid about them. During the summer they will bear as much warmth as most stove plants, with a fair quantity of air daily, and water as is necessary to keep the soil in a fairly moist state. Give more air with a lower temperature in the autumn; winter them in about 60°, but do not let the soil get dry, as the object is not to subject the bulbs to a dry course of treatment until they are strong enough to flower. The spring following move singly into 5-inch or 6-inch pots, treating generally as hitherto, syringing overhead daily to keep down insects. If they have plenty of heat, they will thrive fast this the second season, and by the autumn, when the temperature is again reduced, they will have grown to a considerable size.

WINTER as before, and in the spring they should be big enough for putting into 8-inch or 9-inch pots. Their management through the summer will require to be similar to that to which they have so far been subjected, and in the autumn some of the strongest should have the soil gradually let to get into a semi-dry state, giving only as much water

as will prevent their being injured by over-drying. Again start them with warmth and moisture in the spring, keeping the strongest that have been dried in the same pots, but giving a shift to the others. Through the summer those that have been submitted to dry treatment may be expected to flower, after which move them into larger pots and encourage free growth up till autumn. During the ensuing winter all that seem strong enough may be subjected to drier treatment, after which they may be expected to bloom regularly. Their natural time of flowering varies in the various kinds, and the treatment they receive causes a still further difference, so that with a sufficient number they may be had in bloom over a considerable portion of the year. All the species increase by offsets, which, when they have attained sufficient size will bloom if left growing with the parent plant, in which case the size of pot is the only question, but mostly it will be found best when the offsets have gained considerable strength to take them off and grow them separately; this is best done in spring just before growth commences. The treatment of the divided plants will require to be in every way similar to that advised for the seedlings. Like most other bulbous plants of a kindred nature, they do not like larger pots than necessary to grow and sustain them up to full size, and they want a good holding soil.

SPECIES AND VARIETIES.—There are a large number of kinds known to cultivators, but the following will usually be found sufficient for ordinary use. Most of them bear umbels of from a dozen to thirty highly fragrant flowers. *Crinum amabile*.—This is a reddish purple species from the East Indies. *C. giganteum*.—A large strong growing kind that has very large umbels of white flowers; a native of Guinea. *C. asiaticum*.—This is also a white flowered species; it comes from China, and is a very desirable plant. *C. Lindleyanum* bears white and purple flowers; a handsome kind introduced from Mazanham. *C. americanum*.—A well-known kind, with pure white flowers, very fragrant; from South America. *C. ornatum* *Herbertianum*.—A garden hybrid, ground colour bluish, striped with bright red. *C. scabrum*.—White, striped with red; a native of California. *C. erubescens*.—A white flowered sort from the West Indies. *Hymenocallis caribbæa*.—A handsome white-flowered species that requires a strong heat to grow it well; a native of the West Indies. *H. speciosa*.—Also a white flowered kind from the West Indies. *H. macrostephana*.—A most beautiful dwarf growing sort with white flowers, one of the finest of all the species.

INSECTS.—These plants are not much subject to insects, although red spider will live on the foliage. But this can easily be kept down by syringing. If scale, mealy bug, or thrips attack them, sponging will be the most effectual.

T. BAINES.

CHRYSANTHEMUMS IN NEW YORK.

THE display of *Chrysanthemums* made by the New York Horticultural Society at its hall in that city on November 7 was generally admitted to be the largest and best special floral exhibition ever held in New York. This flower has not yet become as fashionable here as in England, nor is it grown to any such extent as we read of it there; but it has been gradually gaining favour of late years here, and bids fair to attain even greater popularity in the near future. In confirmation of this the success of the exhibition in question is a significant instance. Few plants known to florists present so much diversity in the form and colour of their flowers as are found amongst *Chrysanthemums*. Hybridisers have now given us almost every shade and shape that can be desired by the most fastidious. Those who are not satisfied with the close, regular, stiff flowers in the Chinese varieties can have the more graceful blooms afforded by the Japanese sorts, and those who are averse to coarse, tall-growing plants have only to choose from the Pomponé or dwarf class. At the above exhibition some fine specimens were shown that were trained

in a single stem some 4 feet high and then allowed to branch like a dwarf Apple tree that was loaded with bloom. A very large and interesting collection of seedlings was shown, most of which were crosses between Japanese sorts. In these, as well as the general collection, Hallock & Thorpe, of Long Island, were leading exhibitors, and their plants attracted much attention. This firm took thirty-one first prizes in the florists' class. Amongst these were prizes for the largest display of named varieties, for single plants, groups of three, six, twelve, and twenty-five of all kinds and colours, and for the best collection of seedlings. They had nearly 300 distinct sorts in their various collections. Dr. Walcott, of Boston, Charles E. Parnell, and John Ferrell were among those who won prizes in the amateurs' class. Cash prizes, amounting in the aggregate to £125, were distributed among various growers and exhibitors in the different classes. In a country which can boast of some twenty or more societies devoted to Chrysanthemum culture, this brief notice of our little Chrysanthemum show in New York, which has attracted considerable interest among florists on this side the water, will, indeed, read strangely enough. But it is well to remember that this is a land of progress, pre-eminently so, as we claim here, but admittedly so, I think, in most respects, and it is just possible that even our florists will yet awake in time to catch the spirit of the age and country in which they live, and that our people will yet pause long enough in their mad career for gain to extend to such florists and plant-growers that support and encouragement which they will then deserve, and which has been so persistently withheld in the past. Every lover of Nature in this fair land, where she has strewn so much beauty and granted so many favouring elements of soil and climate to sustain and encourage it, longs for the dawn of such a period.

At the above exhibition Mr. Charles F. Evans, of Philadelphia, had a fine cluster of Rosebuds, which attracted marked attention. It was one of Mr. Bennet's new hybrid Teas, which have awakened so much interest of late. In shape the bud resembles Niphetos, which, in fact, is its Tea parent, but in colour it is very like the rich, velvety scarlet so much admired in General Jacqueminot. Its fragrance is most delightful, and in all respects it must prove a valuable acquisition to this comparatively new and excellent class of Roses. Mr. Evans obtained his few plants of this variety at a cost of £750, and is said to be under bonds not to sell a single plant of it for four years. This may be proper in a business point of view, but it seems a little unfortunate, if not really unkind, to the public, unless the Rose is for sale elsewhere.

H. HENDRICKS.

Kingston, N.Y.

POTTING LILIES.

EARLY potting is doubtless one of the principal points to be considered in Lily culture; indeed, I much doubt if the best results can be obtained if this operation is delayed beyond the first week in December. If a pot of Lilies is examined as soon as the stems decay, a number of healthy roots will be found round the outside of it having all the appearance of seeking for pastures new. Give them fresh soil and they will at once begin to take possession of it, and will be working freely in it by the time the flower-stems begin to push up. The influence of this good food on the flower-stems must be very great, especially if they get the benefit of it from the time they commence to form. I think the best results are obtained from plants which have been grown one year in rather small pots, and having filled the same with healthy fibres are shifted on without root disturbance. If a moderate shift is given, the new soil will be pretty well filled with roots by the time the plants come well into growth, and the flower-stems will push up with great strength. I have

had pots of *speciosum rubrum* carrying nearly 150 flowers, and which were shifted on in this way from 6-inch pots, never having had the ball disturbed. Such specimens as these form have a far finer effect than where bulbs of uniform size are placed together, as they better represent the true habit of the species. I agree with a correspondent who considers

LARGE POTS a mistake for *auratum*. This Lily is rather tender-rooted, and does not so quickly and thoroughly become master of the soil as *speciosum*, *longiflorum*, and some other kinds. Therefore, it is safer not to give it more soil than it is likely to be able to thoroughly fill with fibre, or there is much danger of its becoming sour during a period of heavy rainfall. It is certainly wiser in the case of this Lily to give less pot-room, and rely upon weak supplies of liquid manure, when the compost becomes packed with roots. Some use loam for this Lily, and if of a very fibrous character, there is no doubt that it may be employed with safety; but I would counsel the inexperienced to rely on pure peat, as, being naturally antiseptic, the roots are not easily injured in it, especially if about a sixth of white sand is added. Potted firmly and with good drainage, there is but little danger of the roots becoming inactive or perishing, and I always think that the foliage assumes a deeper hue when peat forms the greater portion, or, indeed, the whole of the compost. *Speciosum*, on the contrary, being altogether of a more robust character, seems to require stronger food—a good compost consisting of loam and peat in equal parts, with a little leaf-mould and a dash of silver sand.

GOOD DRAINAGE is indispensable, the more especially as they have to pass the greater portion of their growing time in the open air, and over the crocks should be placed a little very fibrous material, with a handful of soot on that, which will keep worms out until the pots become full of roots, and no damage can well be done by them. There can be no better place for them after potting than a cold frame, where they can be plunged up to the rims of the pots all the winter, as thus circumstanced the soil remains without watering in just the condition most favourable for the production of roots. Generally speaking, by the early spring roots are already working round the sides of the pots, and by the time they are placed in the open soil will be so occupied by them as to obviate danger from heavy rains.

J. C. B.

ABUTILONS IN WINTER.

As winter after winter comes round the value of Abutilons as winter flowering plants becomes apparent. Many of them may easily be made to bloom all the year round, but their flowers are more useful during the short days in the winter than in summer. They may now be had of almost all colours, and all of them are nearly equally effective. Some kinds bloom, however, more freely in winter than others. One which blooms profusely from October until March is the one named Waverley. It is a robust grower. The flowers are produced in great clusters, and their colour is a deep and intense yellow. They are large in size, and may either be cut off in clusters or singly for house decoration. Brilliant, Dazzle, King of Roses, purpleum and Scarlet Gem are all fine bright flowering kinds, and wherever there is a greenhouse or conservatory quantities of them should be grown. They are no precarious subjects to deal with; on the contrary, every one of them grows freely, and gives satisfaction without any coddling. Insects have a special dislike to them; our plants are never infested by them

a fact which speaks for itself. Winter blooming plants are propagated in the spring, and grown on in a cool frame, or in the open air in a sheltered spot throughout the summer. While out of doors they must have plenty of water and the shoots must be well pinched in, as the plants should be kept very dwarf until autumn, when young growths may be allowed to form, and it is these which flower all winter. Old plants grown on in 10 or 12-inch pots supply very large quantities of flowers, but spring-rooted cuttings make fine useful plants, and are best for conservatory decoration. We hardly ever allow any flowers to form during the summer, but conserve the energies of the plants for winter flowering. The blooms open quite freely in a temperature of 60°, and no matter how cold the weather may be they never show any signs of "damping off." Abutilons are plants suited in every way for amateurs, as no art is needed to grow them and they bloom well without any special care. They should have about this time liberal quantities of manure water at the root, and as soon as any flowers decay they should be plucked off, as they are much inclined to form seed-pods, and that always reduces their ability to flower well. A dozen small plants of such a kind as Waverley will supply many scores of flowers weekly, and there is no kind of floral decoration into which they cannot be introduced with the best effect.

CAMBRIAN.

Eucharis amazonica.—Under cool treatment the flowers of this lovely plant come much larger than those brought on rapidly in heat. This *Eucharis* cannot, however, be grown satisfactorily in a cool temperature, but if as soon as the flower-spikes show themselves the plants are taken to an intermediate house, the blossoms will be larger than would be the case if they continued in a higher temperature. We have quite lately proved this to be so. Having more flowering plants than we could accommodate in the stove, half of the number were taken to another house in which the temperature was quite 15° lower; those so treated have much larger flowers than those which remained where they were.—J. C. C.

Exhibiting Chrysanthemums.—Now, when Chrysanthemum shows are about over for this season, a few words of advice with regard to making up lists of prizes for next year may not be out of place. What I would suggest is that prizes be given for cut blooms shown with foliage as grown on stems 6 inches above the board, and shown in variety, say, back row, Japanese; middle row, incurved; and front row, large Anemone. These would have a good effect arranged on an exhibition table, and would give all good growers the same chance of becoming prize winners. As matters stand now, the best dresser is most likely to be most successful. The flowers shown with foliage as grown, without cups or collars to hold them together, would also look much more natural than they do now.—G. STEVENS, *St. John's Nursery, Putney.*

Echeveria retusa.—As a flowering plant for the greenhouse in winter this *Echeveria* has few rivals, especially if the small amount of attention needed by it be taken into consideration. Small specimens of it in 5-inch pots are useful for many purposes; they produce offsets freely, thus forming a cluster of three or four together, and beside the principal or centre plant some of these are occasionally strong enough to flower, and half-a-dozen or so such flower-spikes are very attractive. The best flowering specimens are those that have been grown in an exposed position during summer and only removed under cover in autumn. In our case we pot them in the spring, or rather early in summer, when all danger from frost is over, and place them on a bed of coal ashes, where they remain till autumn. In potting, any offsets needed for propagation are taken off, and, if plentiful, three or four together are put into one pot. To-

wards the end of the summer they commence to push up flower-spikes in quantity, which should be pinched off till required. In this way a succession can be kept up, as they come into flower soon after pinching is discontinued. This *Echeveria* will also grow readily from seeds, but as the plants make but slow progress during their earlier stages, they are best propagated by offsets.—H. P.

Allamandas (see p. 391).—When we used to grow these for exhibition we did not find any advantage in plunging them in bottom-heat after having fairly broken them into fresh growth in spring. The best plan by which an even set of bloom can be secured is to head the young growths partially back, thereby producing a simultaneous break that will invariably set all at once, or nearly so. By this method two shoots at least should be pushed forth from every one stopped, being a considerable gain eventually in the way of flower-spikes. In order to bring an *Allamanda*, such as *A. Hendersoni*, for instance, into good bloom for exhibition, the pinching should be done about twelve weeks before the exhibition takes place for which it is intended. The plant, when set for bloom, should be elevated as close to the glass as will ensure the safety of the young shoots, full exposure to sunshine at all times being aimed at. This will ensure flowers of greater substance, the petals of which will not so quickly reflex, a failing that *Allamandas* have if grown in shade or at a great distance from the glass. Most exhibitors on an extensive scale avoid having recourse to bottom-heat more than is really necessary. Plants so treated are more liable to suffer from exposure to a lower temperature than those otherwise grown, but some amount of suffering cannot, in all cases, be avoided.—J. HUDSON.

Aralia Sieboldi and its variegated variety are amongst the very best of room plants, as dust and a dry atmosphere do not hurt them much. Plants of them may be grown in 6-inch and 7-inch pots that will fill a large vase; they shed some of their lower leaves at this time of year, but quickly produce quantities of young ones to replace those shed. After a time, however, they get too long in the stem for vase plants, and, therefore, young vigorous plants must be substituted. As an outdoor decorative plant, too, this *Aralia* is most useful; it withstands ordinary winters in the milder parts of the kingdom without any protection. It is, however, as a pot plant for conservatory or room decoration all the year round that it is so valuable, young plants of it in moderate-sized pots with fine spreading foliage having a tropical effect in vases or plant stands. In order to promote luxuriant growth, rather rich light soil should be used; and as it is a very vigorous and abundant rooting plant, plenty of water and occasional supplies of liquid manure should be given if plenty of fine leaves are desired. It is a plant but little troubled with insect pests, but a good sponging and frequent syringings with clean water will be amply repaid by the healthy shining look of the foliage.—JAMES GROOM, *Gosport*.

SHORT NOTES.—INDOOR.

Billbergia rhodocyanea purpurea is described as being a fine addition to the family of Bromeliads, being quite distinct from every other known *Billbergia*. It was raised by M. Cayron, nurseryman at Cherbourg, and is in the hands of M. Truffaut, of Versailles.—J. C. B.

Count Brazzi's white Neapolitan Violet.—Of this we have some good examples. It is undoubtedly the finest of all the double white Violets, and one which, when better known, is sure to become popular. We have likewise a very fine double blue variety, also raised by Count Brazzi.—DANIEL BROS., *Norwich*.

Cytisus filipes.—In growth and appearance this is not unlike a miniature form of Broom, but the shoots are very slender and elegant, and the flowers are produced in great numbers all over the plant. At Singleton this *Cytisus* is grown in 6-inch pots, and used with excellent effect for house and table decoration.—CAMBRIAN.

Justicia speciosa.—Neat little bushes in 5-inch or 6-inch pots of this *Justicia* are just now very useful in many ways for decorative purposes, the whole of the plants being studded with purple flowers. In the temperate house at K. w, in company with *Sericographis Ghiesbreghtii*, this *Justicia* is quite a bright and striking feature in one of the octagons.—ALPHA.

Rivinas in fruit.—By a little judicious treatment these can be had in fruit at almost any time of the year, but it is during the dull months of autumn and winter that they are most appreciated, and that season is also their general time of fruiting, provided they are left to themselves. *Rivinas* are quick-growing subjects, but form, nevertheless, neat, bushy plants, that are most effective when in 6-inch pots, studded with small red or yellow berries. They are readily increased by means of cuttings or seeds, both of which grow without difficulty, and both appear to be equally floriferous. Moderately good soil of any kind suits them, and they thrive well either in a stove or intermediate house; indeed, during summer they do well in a greenhouse. Plants well grown and fruited are useful for table decoration. The sorts in cultivation are *R. levis*, in which the berries are bright crimson; *R. flava*, a yellow-fruited kind; and *R. humilis*, a red-berried species, in which the foliage is more hairy than in the two preceding. Cuttings struck in the spring and grown on during summer make handsome plants in the autumn.—P.

Clerodendron fallax.—In small pots this *Clerodendron*, owing to its free flowering habit, is very handsome, and withal a plant of easy culture. Late in spring I struck several cuttings of it, and although limited to 4-inch or 5-inch pots, most of them have flowered lately, or are rapidly approaching that stage. Its clusters of intensely bright crimson flowers are very conspicuous even though the whole plant be not more than from 9 inches to 12 inches high. In the shape of of large specimens it is when in blossom a striking object. The young plants under notice were kept during the summer in an intermediate house, where they were frequently syringed in order to keep down their greatest pest—red spider. This *Clerodendron* is readily propagated either by means of cuttings made of the young shoots, by seeds, or by pieces of the roots. For cuttings, free growing shoots should be chosen, which root quickly if kept close in a stove temperature. Fertile seeds, too, are freely produced even by small plants, and when ripe all that is necessary is to sow them in well-drained pots of sandy soil and place them in a stove. Root cuttings may be taken when repotting or otherwise disturbing an old plant. The roots chosen should not be smaller than a straw; they should be cut into pieces about from 1 inch to 2 inches long, and then dibbled into pots of sandy soil, the upper portion of the cutting being just covered. The general treatment is the same as that for shoot cuttings.—H.

Greenhouse Rhododendrons.—In the temperature of a warm greenhouse, or perhaps more correctly speaking an intermediate house, where at the present time the thermometer ranges between 55° and 65°, these *Rhododendrons* are flowering freely, and that, too, not only in the case of large plants, but also in that of plants a few inches high. Amongst them the most continuous bloomers are *Duchess of Edinburgh* (bright crimson) and *Princess Royal* (pale pink), but all possess the perpetual-flowering property to a certain extent. The only insect pests that infest them are thrips, and they seldom make their appearance unless the plants are kept too hot and dry, as, for instance, where fire heat is employed during the summer, when it does more harm than good. Although these tube-flowered kinds have sprung from the white *R. jasminiflorum* and the orange *R. javanicum*, intercrossed with each other, there is now a great variety in colour amongst them, some of the most distinct being *Princess Royal*, one of the first hybrids raised in this class, but still among the best of the pink-flowering kinds; *Duchess of Teck*, light buff-yellow, shaded with rose; *Taylori*, bright pink, with the outside of the tube white; *Duchess of Edinburgh*, bright orange-crimson, very showy; *Princess Alexandra*, bluish-white; *Duchess of Connaught*, in a general way like *Duchess of Edinburgh*, but, though equally bright, of quite a different shade of crimson; *Pink Beauty*, deeper in colour than *Princess Royal*, and larger in the

blossoms. To these hybrids must be added the typical *Rhododendron jasminiflorum*, which produces pure white flowers at all seasons, and is still one of the best of all tender *Rhododendrons*.—ALPHA.

GARDEN FLORA.

PLATE 417.

THE MAGNOLIAS.

(WITH A COLOURED ILLUSTRATION OF
M. PARVIFLORA.*)

THE genus *Magnolia* was named in honour of Pierre Magnol, Professor of Medicine and Botany at Montpellier, in the latter part of the seventeenth and beginning of the eighteenth century, and it falls to the lot of very few botanists to have their name and fame commemorated by so fine a genus. There are about a score of species at present known, all of which are mentioned in the course of this article, and of these only four or five are not yet in cultivation. The headquarters of the *Magnolias* are China and Japan and the United States, only four species being found in the Himalayan region. No other genus of hardy and half-hardy trees can boast of so many excellences as the *Magnolias*. The free-flowering qualities and great beauty of some of the Japanese species, such as *conspicua*, *obovata*, *stellata*, &c., are only equalled by the ease with which they can be cultivated. As a single specimen in a conspicuous position on Grass, at any rate in the south of England, *M. conspicua* and some of its allies are absolutely unrivalled. No lover of gardening who had ever seen the trees of the species just mentioned at Syon could ever forget the effect produced by their numberless snowy flowers. *M. grandiflora*, too, is perhaps the finest of all wall plants in our climate, and some of the deciduous kinds of considerably hardier constitution are in the first rank of ornamental trees for the adornment of parks and pleasure grounds. Apart from the large and showy flowers of some of these, they would still occupy a high rank for the beauty and distinct character of their foliage. The seeds of *Magnolias* contain a considerable amount of oil, and therefore travel badly, and retain their vitality only a short time. When packed tightly in clay or damp earth they retain their germinative power some months.

M. PARVIFLORA.†—The subject of the accompanying coloured plate speaks for itself; it is one of the most handsome of hardy ornamental trees and shrubs, and will doubtless become widely cultivated and duly appreciated by all lovers of gardening. It is as yet rare, but it is to be hoped it will be rapidly propagated and shortly distributed. No other figure, coloured or otherwise, has as yet appeared of this beautiful shrub, if we do not take into account a work on botany, published at the expense of the Japanese Government, the title of which I am unable to give owing to the fact that every word, with the exception of the botanical name and authority, is in Japanese characters. The nearest relation to the species now under consideration is the United States *M. glauca*. The coloured plate given herewith was prepared from a painting in oil executed in America, to which country *M. parviflora* was introduced from Japan; probably to this fact is due the absence in the picture

* This plate is from an oil sketch sent us by Mr. S. B. Parsons, of Flushing, Long Island, in whose nurseries this new species has flourished.

† *M. parviflora*, Sieb. and Zucc. *Fam. Nat.*, No. 351: Miquel, "Prolusio," 146; Maximowicz, "Mélanges Biologiques," tome viii., p. 509.





Flowers of *Magnolia grandiflora*.



Flowering branch and fruits of the Umbrella Tree (*M. Umbrella*).



Foliage and flowering branch of *M. cordata*.



Flowering and fruiting branches of *M. glauca*



Flowers and leaves of *M. macrophylla*.



Flowers of the Cucumber Tree (*M. acuminata*).

of the hairiness of the leaf-stalk, &c. In the article in *THE GARDEN*, Vol. XII., p. 229 (copied from the *Rural New Yorker*), *M. parviflora* is in all probability confused with *M. hypoleuca*; the description of the flowers there given decidedly applies to those of the last-named species, and that of the foliage quite agrees with that of *M. hypoleuca*, and not with *M. parviflora*. There is in the Kew herbarium a specimen of *M. parviflora*, no doubt correctly named, collected by Maximowicz in Japan; on this the roundish, pointed leaves have hairy stalks about half-an-inch long, the largest blade measuring 5 inches in length by 4 inches in breadth.

M. STELLATA.*—Few hardy plants introduced of late years to British gardens can vie with this charming shrub in interest or beauty. It was first exhibited in England five years ago by Messrs. Veitch, who obtained a first-class certificate for it. The plant flowers very freely in a young and small state, and makes an excellent subject for cool conservatory decoration; it is, however, perfectly hardy. The beautiful scented blossoms measure about 4 inches across, and the narrow petals are white with an external stripe of pale pink. Like most other horticultural introductions from Japan, this is cultivated by the natives, and it was observed more than 20 years ago in gardens at Nagasaki by Oldham. According to Franchet and Savatier, it is wild in the woods of Mount Fusi Yama and in Central Nippon, where it forms a small tree. The name *M. Halleana*, given to the species by Mr. S. B. Parsons, of Flushing, U.S., was intended to commemorate the services to the horticultural world of Dr. G. R. Hall, who sent from Japan to the Flushing Nursery a host of interesting and valuable plants. As, however, this beautiful *Magnolia* had been previously described under the head of *M. stellata*, this latter will have to be kept up.

THE PURPLE-FLOWERED MAGNOLIA (*M. obovata*).†—A considerable number of seedling varieties of this wonderfully pretty shrub are in southern gardens, and few plants are more worthy of cultivation. In the northern counties they require, in most localities, the protection of a wall. All the forms I have seen differ from the more generally known *M. conspicua* in their smaller size, in the different form and texture of their leaves, and also in the position, &c., of the petals, the flowers of the last-named species opening more widely than those of *M. obovata*. The colours, too, are different, purple and its shades being the predominant tints in *M. obovata*, whilst white, or white flushed with red or pink, obtains in the *M. conspicua* set. The shoots when cut open have a peculiar camphor-like odour.

VAR. DISCOLOR (Vent. Jardin de Malmaison, t. 24; *M. purpurea*, *Botanical Magazine*, tab. 390) is a form with larger flowers than the type.

VAR. LENNEI ("Flore des Serres," xvi., tab. 1693; *Revue Horticole*, 1866, p. 370; *THE GARDEN*, Vol. IX., p. 548, coloured plate).—This is a strong-growing form, with large blossoms, the outside of the petals being almost black at the base, and gradually lightening towards the tips. A couple of years ago a specimen in the nursery of Mr. Scott, at Merriott, was described in *THE GARDEN* as being about 15 feet in height and as much through, bearing upwards up a thousand flowers. *M. Lennei* originated as a seedling in Italy, and

is supposed to be a natural hybrid between *M. obovata* and *M. conspicua*. *M. Soulangeana nigra*, with the origin and history of which I am unacquainted, is a similar large-flowered, deeply-coloured form I have seen in fine flower in the Coombe Wood Nurseries of Messrs. Veitch. Other forms which must be placed under *M. obovata* are *M. Borreriana*, *M. rubescens*, *M. Fischeri*, and *M. reforescens*.

M. COMPRESSA (Maximowicz, "Mélanges Biologiques," tome viii., p. 506).—This is one of the only two *Magnolias* not yet introduced to cultivation which, so far, are known to exist in that extremely rich storehouse of horticultural novelties, Japan. No figure of the plant exists except one in the botanical work mentioned in my notes on *M. parviflora*. According to Maximowicz, it is cultivated in gardens at Yeddo, so there ought not to be much difficulty in adding its name to our list of acclimatised trees, and is found wild at the foot of Mount Fusi Yama and elsewhere. It has leaves from 3 inches to 5 inches in length by about an inch in breadth, and axillary flowers about the size of those of *M. fuscata*, white, tinged and striped with red.

M. SALICIFOLIA (Maximowicz, "Mélanges Biologiques," tome viii., p. 509; *Buergeria salicifolia*, Sieb. and Zucc., Fl. Jap. Fam. Nat., 348).—As far as foliage is concerned this is a very distinct plant; the flowers are as yet unknown to European botanists. The flowers are rather long-stalked, narrow, tapering to both ends. A native of the mountains of Nippon; not yet introduced to cultivation.

M. KOBUS (D.C. Syst. Veget., i., 456; *M. tomentosa*, Thunb. in Trans. Linn. Soc., ii., 336 (exclusis foliis, quae ad *M. hypoleucam*); *M. glauca* var. a., Thunb. "Flora Japonica," 236; Kobus, Kämpfer, "Icones Selectae," t. 42; *M. Thunbergi*, Hort.).—This is a charming deciduous shrub, with white, pink, or purplish tinted flowers. It is frequently confounded with *M. obovata*, and also with small-flowered forms of *M. conspicua*. It is a native of the woods of Southern Yezo.

M. HYPOLEUCA (Sieb. & Zucc. Fam. Nat., n. 349. *M. glauca*, Thunb. "Flora Japonica," 273, not of Linnæus).—Like several other valuable ornamental trees, this was first introduced into the United States from Japan, and afterwards found its way to this country. It is as yet decidedly rare; indeed, the only specimens I have seen are in the Coombe Wood Nurseries of Messrs. Jas. Veitch & Sons. In *THE GARDEN*, Vol. XVI., p. 373, *hypoleuca* is spoken of in high terms of praise; its merit "lies chiefly in the great beauty of its milk-white flowers, which resemble those of *conspicua*, and possess a delicious Banana-like odour, surpassing that of any other hardy *Magnolia*. Bright and attractive in foliage, the underside of the leaf is greenish white, hence the name." The leaves are indeed striking enough; they measure from 1 foot to 1½ feet in length by about half the width in the broadest part, which is above the middle. The timber of this tree is no doubt valuable in Japan, and in a report by Her Majesty's Acting Consul at Hakodati on the lacquer industry of Japan, published last year, it is asserted that "all sword sheaths have hitherto been made of this wood." Charcoal made from it, too, is used in the polishing and preparation of the high-class lacquered articles for which the Japanese are so famous. Japanese specimens of sword and dagger sheaths, &c., made of the wood of this *Magnolia* are to be seen in the museum (No. 1) at Kew. Of the New World species, this comes nearest in general resemblance as well as botanically to the Cucumber tree, *Magnolia acuminata*.

THE YULAN (*M. conspicua*).—An English garden affords no more beautiful a sight than a fine tree of this *Magnolia* in full bloom. Perhaps

the grandest specimen in the neighbourhood of London is one at Syon, which Mr. Woodbridge writes me is 25 feet in height, with a spread of branches of 34 feet. Unfortunately, however, the late frosts sometimes damage the snowy flowers in many places, even in the south of England. Against a wall, and the tree bears cutting well, frost is not so much to be feared. No one could, however, grumble at having to shelter such a beautiful tree during the flowering season. For conservatory work it is thoroughly fitted, and if grown in large tubs in the open air during the summer months and housed during winter a splendid crop of flowers in February or March would be the result. This species has been cultivated by the Chinese and Japanese from time immemorial, but it is hardly a century since it was first introduced to British gardens.

VAR. SOULANGEANA (Ann. Soc. Hort. Par., i., 99; *Botanical Register*, 1164; Sweet, "Flower Garden," 260; Regel, "Gartenflora," v., 255, tab. 168).—This variety originated near Paris, and is supposed to be a natural hybrid between *M. conspicua* and *M. obovata*. It has the large flowers of the former and the purple-tinted petals of the latter species. There is a tree at Syon 15 feet in height, with a spread of 13 feet. Scarcely different from this variety are *M. Yulan grandis* (Rinz in Regel's "Gartenflora," v., tab. 166), and also the plants which bear in gardens the names of *M. speciosa*, *M. cyathiformis*, *M. superba*, *M. Alexandrina*, *M. speciosa*, *M. spectabilis*, and *M. triumphans*.

VAR. NORBERTI (Hort.) is a dwarf-growing form, with the habit of *M. obovata*.

M. PUMILA (Andrews' "Botanical Repository," 226; "Venteat Jardin de la Malmaison," p. 37, tab. 37; *Botanical Magazine*, tab. 977. *Talauma pumila*, Lindley in Penny Encyclop., with figure).—This is a Chinese species, which was introduced to this country nearly a century ago. It has elliptic, wavy, rather leathery glaucous leaves and very fragrant, nodding, egg-shaped white flowers. Formerly this was treated as a stove plant, but it only requires shelter from frost and will grow well and flower freely in a cool conservatory.

M. FUSCATA (Andrews' "Botanical Repository," 229; *Botanical Magazine*, tab. 1008. *M. annonaefolia* et *M. versicolor*, Salisbury, "Paradisus Londinensis," 5. *Liriodopsis fuscata*, Spach, "Histoire des Végétaux Phanérogames," vii., p. 461).—Of this Chinese species there is a fine specimen in the temperate house at Kew, and it is nearly always in flower. It is a charming evergreen, especially suitable for a cool conservatory, and its deliciously fragrant purplish or reddish brown flowers are freely produced. It was introduced from China, in 1796, by Mr. T. Evans, whose name has been affixed to a Chinese *Begonia* of some interest—viz., *B. Evansiana*. When it first flowered in England, Andrews wrote of it as follows: "Of all the *Magnolias* with which we are as yet acquainted this species is the most elegant, whether for the growth of the plant, the brilliancy of the foliage, or the extreme delicacy, fragrance, and beauty of the flowers." Although these remarks do not fully apply now, the plant is still most deserving of cultivation.

THE GREAT LAUREL MAGNOLIA (*M. grandiflora*).—Unfortunately, this stately tree is not able to withstand the severe winters, by which the patience of many cultivators of out-door plants is so sorely tried. Even in the south of England it is safer to treat the great Laurel *Magnolia* as a wall plant. There are few more noble and imposing subjects when allowed sufficient space, and the front of a goodly house clothed with the deep green, glossy leaves and the large, handsome scented white flowers of this species is not a sight to be easily forgotten. At Kew there is a specimen which has developed into a standard since the removal of the wall against which it was

* *M. stellata*, Maximowicz in Bulletin Acad. Petersb.; "Mélanges Biologiques," t. viii., p. 509; "Botanical Magazine," tab. 6370; *Revue Horticole*, 1878, 270; Regel, "Gartenflora," 1880, p. 407. *M. Halleana*, *GARDEN*, Vol. XIII., p. 572 (coloured plate). *Talauma stellata*, Miquel, Prolus. Flor. Japon., p. 145; Ann. Mus. Lugd. Bot., p. 257. *Buergeria stellata*, Sieb. and Zucc. Fl. Jap. Fam. Nat., p. 237, tab. 11a.

† *M. obovata*, Thunb. in Trans. Linn. Soc., ii., 336 (excl. icon. Kämpf., t. 43). *M. gracilis*, Salisbury, "Paradisus Londinensis," t. 57; Koch, "Dendrologie," erst. theil., p. 379. *M. glauca* var. B., Thunb., "Flora Japonica," 237. *Buergeria obovata*, Sieb. & Zucc., Fl. Jap. Fam. Nat., i., 187. *Talauma Sieboldii* et *Magnolia obovata*, Miquel, Prolus., 145. *M. purpurea*, Loudon, Arb. et Frut. Brit., i., 35. *M. purpurea*, Koch, "Dendrologie," erst. theil., 377 (in part).

* *M. conspicua*, Salisbury, "Paradisus Londinensis," t. 33 (1806); Loudon, Arb. et Frut. Brit., i., p. 33. *M. Kobus*, Sieb. & Zucc., Fam. Nat., No. 350 (not of De Candolle). *M. Yulan*, Desfontaine's, "Histoire des Arbres et des Abrisseaux," ii., p. 6 (1809); Bonpland, "Description des Plantes Rares Cultivées à Malmaison," p. 53, tab. 20; *Botanical Magazine*, 39, tab. 1621; Loddiges' "Botanical Cabinet," 1187; Koch, "Dendrologie," erst. theil., p. 375.

* *M. grandiflora*, Linn. Sp. Plant., 2 ed., 755; Bart-ram, "Travels," 85; Michaux, "Flora Boreali-Americana," 1, 327; "Nouveau Duhamel," 2, 219, tab. 65; Andrews, "Botanical Repository," 8, tab. 518; Michx. fil., "Arbres Forestiers de l'Amerique Septentrionale," 3, 71, tab. 1; Loudon, Arb. et Frut. Brit., i., 261, tab. 1, 2; Koch, "Dendrologie," erst. theil., p. 367.



Flowering and fruiting twigs of *M. glauca* Thomsoniana.



Flower of the Exmouth Magnolia (*M. grandiflora exoniensis*).



Flowering twig of *M. obovata*.



Flowers and foliage of *M. auriculata*.



Foliage and flowering branches of the Yulan (*M. conspicua*).



Flower of *Magnolia conspicua*.

planted many years ago. Its present dimensions are: Height, 25 ft.; diameter of head, 22 ft.; circumference of stem at 1 ft. from the ground, 3 ft. 6 in. Mr. Burrell gives me the measurements of the finest specimen at Claremont, viz., 24 feet in height, with a stem 3 feet 2 inches in circumference at 1½ feet from the ground. *M. grandiflora* is a native of the Southern United States, and was introduced to this country about 1737. An extract is given in "Hortus Collinsonianus," from a letter written from Georgia, by John Bartram to Collinson: "The great Laurel-leaved Magnolia grows 100 feet high, and 3 feet or 4 feet in diameter." Collinson adds, "What a noble sight!" In THE GARDEN, Vol. II., p. 205, there is an interesting article, as well as an illustration, of "*Magnolia grandiflora* at Home."

VAR. LANCEOLATA (Ait. Hort. Kew.; *Botanical Magazine*, tab. 1952; var. *exoniensis*, Loddiges' "Botanical Cabinet," tab. 814; var. *stricta*, Hort.).—The leaves are oblong-elliptical, generally rusty beneath. It forms a tall bush or small tree of fastigate habit, and flowers early and freely; the best variety for general cultivation.

VAR. FERRUGINEA.—This differs from the preceding in having rather broader leaves and larger flowers, and in forming a broader and more compact tree or bush; by some authorities, too, it is stated to be a good deal hardier, having withstood winters which have proved fatal to var. *lanceolata*.

VAR. ANGUSTIFOLIA (var. *salicifolia*, Hort.; var. *Hartwegi*, Hort.).—The foliage of this is very distinct, being lanceolate, tapering to both ends, with wavy edges. It was introduced to this country from the Continent nearly sixty years ago, but I have seen no large specimens.

VAR. OBOVATA differs from the type in the leaves being of an obovate-oblong form, their broad ends contrasting markedly with the more or less pointed outline of those of the typical form.

A host of seedling forms have received varietal names in nurseries, but as it is impossible to distinguish many of them from each other, they are just given here without comment. I have seen a number of them, but neither in habit nor in leaf characters do they call for special remark—*macrantha*, *crispa*, *Gallisonieri*, *majardieriensis*, *nantensis*, *rotundifolia*, *præcox*, *latifolia*, *rubiginosa*, &c.

THE EAR-LEAVED UMBRELLA TREE (*M. Fraseri*).—This species attains a height of from 30 feet to 50 feet. The light green glabrous leaves, which are oblong-obovate or spatulate in form and auricled at the base, are from 8 inches to a foot in length, by about half that breadth; as in the Umbrella tree, they are mostly crowded together at the tips of the flowering branches in an umbrella-like circle. The flowers are milky-white, and measure 3 inches or 4 inches in diameter; according to Loudon, they are agreeably scented, whilst Gordon states that they exhale a disagreeable odour.

THE UMBRELLA TREE (*M. Umbrella*).†—The leaves of this species are obovate-lanceolate, pointed at both ends, soon becoming glabrous; they measure from 1 foot to 3 feet in length, and the slightly-scented white flowers are from 5 inches to 8 inches across. In a wild state the Umbrella tree rarely exceeds 40 feet in height, and occurs in York and Lancaster counties, Pennsylvania, to Virginia and Kentucky along the Alleghenies. To Philip Miller is due the credit of introducing this

fine tree to English gardens. A year or two later it was independently introduced by Collinson, the following memorandum written by him being quoted from "Hortus Collinsonianus": "In the year 1753 I had sent me from South Carolina a species of Magnolia, called the Umbrella. I had it planted in Mr. J. Gordon's garden for him to increase it; it flourished finely and flowered; May 24, 1760, opened its two first blossoms, and has 24 more to flower; this is the first tree that has flowered in England."

THE GREAT-LEAVED MAGNOLIA (*M. macrophylla*).—For size and beauty of foliage the great-leaved Magnolia undoubtedly occupies the first place amongst all the trees and shrubs with undivided leaves which are hardy in British gardens. Its leaves attain a length of from 2½ feet to 3½ feet; in shape they are obovate-oblong, cordate at the narrowed base, and hairy and white beneath. The open bell-shaped fragrant flowers are white, with a purple blotch at the base of the inner petals, and measure 8 inches or 10 inches across. It is rare even in a wild state. Its native distribution is as follows: Iredell and Lincoln Counties, North Carolina to Middle Florida, and west of the Alleghany Mountains, from South-eastern Kentucky, southward through Tennessee to Central Alabama. A tree 20 feet to 40 feet in height, with trunk rarely exceeding 1 foot in diameter. The following dimensions of a tree at Claremont are kindly furnished me by Mr. E. Burrell: Height, 30 feet; circumference of stem at 18 inches from the ground, 2 feet 9 inches.

THE LAUREL MAGNOLIA OR SWEET BAY (*M. glauca*)†.—The former of the two English names above quoted seems the best suited for English readers, as with us the latter, under which this charming species is known in the United States, is applied to a totally different plant, viz., *Laurus nobilis*. White Bay is another of its American names, but Laurel Magnolia, one of the names adopted by Dr. Asa Gray in his "Manual," seems distinctive and definite enough to answer all purposes. Magnolia glauca is certainly a very handsome shrub, with oblong or somewhat oval leathery leaves, light bluish green above and silvery below, and delightfully fragrant globular flowers, which open a rich cream colour and gradually acquire a pale apricot hue. In damp, sheltered places the plant is sub-evergreen, but in drier and more exposed spots deciduous. The bark of the young shoots is a rich apple-green, that of the older branches glaucous or whitish. In its native localities it sometimes attains a height of 20 feet, and it is found in swamps throughout Essex County, Massachusetts, and from Queen's County, Long Island, to Louisiana and Southern Arkansas, generally near the coast. The roots yield a yellow dye. According to Emerson, the plant affords a good tonic and warm stimulant and diaphoretic, and has been used with great success in chronic rheumatism, in intermittent fevers, and particularly in fever and ague.

VAR. PUMILA (Nuttall in *American Journal of Science*, v., 295) is a dwarf variety, not exceeding 3 feet or 4 feet in height; found in East Florida.

VAR. MAJOR (*Botanical Magazine*, tab. 2164; Reichenbach, "Flora Exotica," 342; M. Thompsoniana, Hort.).—This is a remarkable form of vigorous habit, with leaves and flowers two or three times the size of the type. It originated as a seedling in the Mile End Nursery, of Mr. Thomson. Loudon thinks that the *M. glauca* var. *longifolia* (Aiton, "Hortus Kewensis," 1 ed., ii., 251)

* *M. macrophylla*, Michx., "Flora Boreali-Americana," 1, 327; Michx., f., "Arbres Forestiers de l'Amerique Septentrionale," iii., 99, tab. 7; Bonpland, "Jardin de la Malmaison," 84, t. 23; Nuttall, "Sylva," 1, 83; *Botanical Magazine*, tab. 2189; Loudon, Arb. et Frut. Brit., 1, 371, t. 6; Gray, "Manual of the Botany of the Northern United States," 49; Koch, "Dendrologie," 1 ed., 374; M. Michauxii, Hort.

† *M. glauca*, Linn., "Species Plantarum," 2 ed., 755; Lam. Dict., 674; Michaux, Fl., 1, 237; "Nouveau Duhamel," 2, 233, tab. 66; Bonpl. El. Malm., 103, tab. 42; Michx., f., "Arbres Forestiers de l'Amerique Septentrionale," 3, 77, tab. 2; Loddiges, "Botanical Cabinet," 215; Loudon, Arb. et Frut. Brit., 1, 267, t. 3 and 4; Gray, "Manual of the Botany of the Northern United States," 49; Koch, "Dendrologie," 1 ed., 369; Emerson, "Trees and Shrubs of Massachusetts" (ed. 1875), 603.

is a wild form identical with the plant of garden origin here mentioned.

Other varieties the names of which are met with in books, but very rarely in gardens, are *arbores*, *sempervirens*, *latifolia*, *Gordoniana*, and *Burchelliana*. The last two were described by Sabine in the "Transactions of the Horticultural Society" as Gordon's Double Swamp Magnolia and Burchell's Double Swamp Magnolia respectively, these names being altered by Koch in his "Dendrologie" to M. Gordoniana and M. Buchananiana. The var. *pumila* of Lavallée's "Arboretum Segrezianum" does not belong here at all, but is a true species from a different country, viz. China.

THE CUCUMBER TREE (*M. acuminata*).—This forms a large tree 60 feet to 90 feet in height, with a trunk 2 feet to 4 feet in diameter. Its English name is owing to the slight resemblance borne by the young fruits to a small Cucumber. The leaves, from 5 inches to 10 inches long, are oblong, pointed, green, and slightly hairy beneath. The slightly fragrant, bell-shaped flowers are a glaucous green colour tinged with yellow. The wood is "soft, close-grained, preferred for pump logs" (Sargent's "Catalogue of the Forest Trees of North America").

In a wild state it is found in rich woods from West New York to Ohio and southward. From "Hortus Collinsonianus" we learn that the Cucumber tree was introduced to this country by Collinson. His memoranda respecting it are as follows: "My two deciduous or mountain Magnolias were planted from seed in 1746; planted one in the corner of the bed in the best garden. May 20, 1762, the mountain Magnolia flowered in my garden, which I raised from seed about twenty years ago, being the largest and highest tree in England, and is yet in very few gardens." At the present time there are handsome trees of this species at Kew, the finest being 45 feet in height, spread of branches 46 feet, circumference of stem at 1 foot from the ground 5 feet. To Mr. Woodbridge I am indebted for the dimensions of the largest specimen now at Syon, viz., height, 34 feet; girth of trunk, 5 feet 6 inches; spread of branches, 33 feet. Mr. F. W. Burbidge has kindly furnished me with the measurements of the finest tree in the Trinity College Botanic Gardens at Dublin; height about 55 feet, circumference of trunk 30 inches. Mr. F. W. Moore writes me from the Royal Botanic Gardens, Glasnevin, respecting a fine tree near Ardee, in Co. Louth; this is 30 feet high, and has a very fine head. Finally, Mr. E. Burrell sends me particulars of a grand tree at Claremont: height, 40 feet; circumference of stem at 18 inches from the ground, 5 feet 6 inches.

VAR. MAXIMA has larger leaves than the type and is supposed to be a quicker and more vigorous grower.

VAR. AUREA is a valuable ornamental tree with golden foliage, slightly streaked and mottled with green. It originated in an American nursery, but I am ignorant of its exact history.

THE YELLOW CUCUMBER TREE (*M. cordata*).†—According to Loudon, this was introduced to England in 1800. It was discovered by the elder Michaux in forests along the banks of rivers in Georgia. It is quite hardy in the south of England at any rate, and good specimens are to be seen in the arboretum at Kew. The leaves are broadly ovate, more or less heart-shaped at the base, the upper surface being smooth, and the lower tomentose. The very faintly odorous yellow flowers, the interior petals being frequently

* *M. acuminata*, Sp. Plant., 2 ed., 746; Michaux, "Flora Boreali-Americana," 1, 328; "Nouveau Duhamel," 2, 222; Michx. fl., "Arbres Forestiers de l'Amerique Septentrionale," 3, 82, tab. 3; Loddiges, "Botanical Cabinet," 418; *Botanical Magazine*, tab. 2427; Loudon, Arb. et Frut. Brit., 1, 273, tab. 7 and 8; Gray, "Manual of the Botany of the Northern United States," 49; Koch, "Dendrologie," 1 ed., 371.

† *M. cordata*, Michaux, "Flora Boreali-Americana," 1, 328; Michx. fl., "Arbres Forestiers de l'Amerique Septentrionale," 3, 87, tab. 4; *Botanical Register*, 4, tab. 325; Loddiges, "Botanical Cabinet," tab. 474; Reichenbach, "Flora Exotica," t. 250; Loudon, Arb. et Frut. Brit., 1, 275, t. 9; Koch, "Dendrologie," 1 ed., 371; M. striata, Hort.

* *M. Fraseri*, Walter, "Flora Caroliniana," p. 159 (tab.); Gray, "Manual of the Botany of the Northern United States," p. 49; Koch, "Dendrologie," 1 ed., 372. *M. auriculata*, Lam., Dict., 3, 673; Michaux, "Flora Boreali-Americana," 1, 328; "Nouveau Duhamel," 2, 222; Andrews, "Botanical Repository," 9, tab. 673; *Botanical Magazine*, tab. 1206; Loudon, Arb. et Frut. Brit., 1, 276, t. 10. *M. pyramidalis*, Bartram, "Travels," 340; *Botanical Register*, 5, tab. 407; Loddiges, "Botanical Cabinet," 1692; Loudon, Arb. et Frut. Brit., 1, 277, t. 11. *M. auricularis*, Salisbury, "Paradisus Londinensis," tab. 43.

† *M. Umbrella*, Lam. Dict., 3, 673; "Nouveau Duhamel," 2, 221; Gray, "Manual of the Botany of the Northern United States," 49. *M. tripetala*, Linn. Sp. Plant., 2 ed., 756; Michx., "Flora Boreali-Americana," 1, 327; Michaux, fl., "Arbres Forestiers de l'Amerique Septentrionale," 3, 90, tab. 15; Loudon, Arb. et Frut. Brit., 1, 269, tab. 5; Koch, "Dendrologie," 1 ed., 370.

marked with reddish lines, are from 3 inches to 4 inches across. The yellow Cucumber Tree forms a small or medium-sized tree, and is found in Ash County, North Carolina, along the flanks of the Alleghany Mountains to the Savannah River, and in Northern Alabama.

M. CAMPBELL (Hook. fl. and Thomson, "Flora Indica," i., p. 77; Hooker, "Illustrations of Himalayan Plants," t. 4 and 5; "Flora of British India," vol. i., part 1, p. 41).—It is very unfortunate that this superb species has not fulfilled the hopes centred on it when it was introduced to this country some years ago. Being found at elevations of from 8000 feet to 10,000 feet along the outer Himalayas, it was expected that the climate of Britain would not prove too severe. Such, however, has turned out to be the case. There is a fine young tree in the gardens of Mr. W. Crawford, at Lakelands, Co. Cork, which Mr. Gumbleton (GARDEN, Vol. XXIII., p. 492) tells us is 35 feet high. The harsh, dry north-easterly winds of last March, however, proved too much for the numerous flower buds, and so no one has yet seen flowers fully developed in the British Isles. It is to be hoped that Mr. Gumbleton may have the pleasure next year of recording the perfect development, and of describing from fresh flowers one of the most splendid of the flowering trees of temperate climates. The tree attains in its native localities a height of 150 feet, and the scented flowers, which vary from deep rose to crimson, are produced before the leaves appear.

M. GLOBOSA (Hook. fl. and Thoms., "Flora Indica," i., 77; "Flora of British India," vol. i., part 1, p. 41) is a small deciduous tree from the interior valleys of Sikkim, where it inhabits the skirts of woods at 9000 ft. to 10,000 ft. elevation; it has globose snow-white flowers as large as a small fist, and is allied to the Chinese and Japanese *M. conspicua*. It might prove hardy in this country, but it has not yet been introduced.

M. SPHÆNOCARPA (Roxb. "Coromandel Plants," vol. iii., pl. 266; Hook. fl. and Thoms., "Flora Indica," i., 78; "Flora of British India," vol. i., part 1, p. 41).—This beautiful species, like the last, has white fragrant flowers, and has not yet been introduced. It is a native of the sub-tropical valleys of Chittagong, Khasia, and Nepaul.

M. GRIFFITHI ("Flora of British India," vol. i., part 1, p. 41) is a native of the forests of Upper Assam; it is an evergreen tree, with leathery leaves from 10 inches to 14 inches in length and 5 inches to 6 inches in breadth. Some doubt seems to exist as to the structure of the flower of this species, which may not really belong to *Magnolia* at all, but to *Manglietia*, a very nearly allied genus.

A plant cultivated at Kew, received some years ago from the Continent as *Magnolia Galeottiana*, proved to be *Talauma Candollei* var. *Galeottiana*, and is figured in the *Botanical Magazine*, tab. 6614.

GEORGE NICHOLSON.

Royal Gardens, Kew.

Stone edgings.—"R. A. H. G." (p. 452) has done good service in directing attention to these, for most gardens are considerably overdone with Box, which in the vegetable department harbours slugs and other vermin; moreover, it prevents salt being used for the destruction of weeds—a great drawback, as where it can be applied without doing harm to the edging it is a great economiser of labour. It keeps the gravel clean and always makes it look bright. Tile edgings are stiff and formal, the only ones I care for being the cable. The most serviceable are the Staffordshire ware, which are very hard, there being a good deal of iron in the clay, and this, with the severe burning to which they are subjected, prevents their breaking under the action of frost. The best of manufactured edgings, however, are bad, and I much prefer stone, such as flint and the large smooth pebbles, which in some parts are common, and may be had for little more than the carting. These, as "R. A. H. G." points out, are admirable for many of the low growing plants. I have never seen *Gentiana acaulis* do so well as

it does when grown between them. This is easily accounted for, as its roots find their way down along the sides of the stoves, where they form a perfect mat, and are always supplied with moisture. It must be a dry time indeed if the soil is not damp close around the half-buried stones, which are cool and a great stay to the plants. The way to start with these dead edgings is to strain a line along the side of the path, and with a spade cut out a trench as one would for laying in Box, when the stones can be placed regularly along at one uniform height and the soil filled in behind them again. When this is done, the planting of the *Gentians*, or whatever plants it is intended to have, may commence by dibbling them in between the stones, where they will soon grow and spread and form such lines of beauty as will be a real treat to look on. Sedums, Saxifrages, and *Sempervivums* are nearly all good for the work, and variety is charming and affords a nice change.—S. D.

SEASONABLE WORK.

FLOWER GARDEN.

PLEASURE GROUNDS.—All recently planted ornamental trees and shrubs should be examined to see that they are properly staked and tied to prevent wind-waving; likewise a good mulching will be useful to keep out frost. Make preparations for screening and protecting tender, half-hardy evergreen trees and shrubs during a time of severe frost. Collect and remove leaves, branches, and rubbish of every kind from the lawn and pleasure-grounds in order to render them neat and tidy during winter. In places where the lawn is getting covered with Moss, a good top-dressing of lime and earth mixed and properly blended together will be useful in eradicating the latter and rendering the grass more close and green. Clean all shrubberies and beds exposed to view from the principal walks, and in places where it is desirable to extend game covert, take advantage of the present open, mild weather to peg down Laurels, Rhododendrons, and other shrubs for that purpose. In the formation of new walks use plenty of stones, brickbats, or other rough material for bottoming, so that when finished they may be dry and firm. In laying down turf edgings, let the turf when finished be about 1 inch higher than the gravel at the sides, but the latter at the centre of the walk should be on a level with the grass margin. This would give a declivity of 1 inch from the centre to the sides both ways.

FLORAL DECORATIONS.

ORCHIDS in goodly numbers, as regards various species and varieties, may now be turned to good account in different ways for the decoration of the dinner table and drawing-room. In a cut state, effective arrangements may be made with a few spikes each of *Calanthe Veitchi* and *vestita*, selecting a trumpet-shaped vase of medium height, so that the well-developed spikes of these beautiful autumnal Orchids can be displayed to good advantage. Those spikes should be chosen that have but a few remaining buds to expand, as by so doing no needless sacrifice of flowers need be made. Of foliage to associate with these the following will harmonise well, viz., a few heads of *Cyperus alternifolius* of different sizes, or a shoot or two of *Pandanus graminifolius*, or a few small leaves of *Eucharis amazonica* might be used with advantage in lieu of either of the aforementioned, or, failing a supply of *Eucharis*, Ferns might be used, the best, perhaps, for the purpose being the pendent fronds of the *Goniophlebiums* or *Nephrolepis*, some sorts of *Davallias*, as *D. elegans*, *dissecta*, or *Tyermanni*. A few fronds of the Maiden-hair might also be added, but would not be in themselves of a sufficiently bold character to rely upon entirely. Single flowers of *Cattleyas* or *Lælias* in specimen glasses for the dinner-table cannot be easily excelled. As a background to these handsome exotics, one *Davallia*

and two or three medium sized fronds of Maiden-hair would be the best selection. *Cypripedium insigne* and *Sedeni* may now be had in good condition. The first-named can be cut with a good length of stem. About three flowers placed in a small upright vase with a few durable Fern fronds will last many days in good condition. A shoot or two of any of the *Narcissi* that have been forced early and from which the foliage can be spared would be a useful addition. The somewhat perpetual character of *C. Sedeni* in developing so many flowers from the same spike for months in succession causes one to avoid cutting any length of stem in the case of this Lady's Slipper. We break ours at the base of the flower-stalk and use them in small glasses with rather wide tops. Spikes of the Alexandrian *Odontoglossum* (*O. crispum*) look well in almost any form or arrangement. Lasting, as they do, a long time on the plant, it is a charity to cut them in order to ease the plant of its burden. Any of the above-named kinds of foliage might be selected in order to give effect to fair-sized spikes of this Orchid. A warm room, however, should not be its position—the coolest place free from draught will be the best, taking the precaution also to have a good depth of water in the glass which holds them. Single blooms of this and one or two at the most of *Dendrobium nobile* will be excellent for button-hole bouquets. The old, but still valuable *Zygotopetalum Mackayi* with its delicious perfume, especially under bright sunshine, may be advantageously used in like manner.

INDOOR PLANTS.

FERMENTING MATERIAL FOR STOVES.—Nothing in the shape of fermenting material has yet been found more conducive to a genial growing atmosphere than good fresh tan. And it is much better to get this in at once than to put the work off until later, for if the arrangement of the house is such as to admit of a sufficient body, say 3 feet or 4 feet in thickness, it will keep up a heat for three months. In the use of this material care should always be taken to procure it, if possible, immediately it has been taken out of the pits, before it has had time to ferment, and on no account to mix any with it that has lain long enough to get worms in it, as if these exist only in small quantities they breed in the warmth of a stove to such an extent as to become a positive nuisance by getting into the soil of all plants that are even not plunged in the material, but simply placed upon it. To destroy the worms that are sure, more or less, to have got possession of the old tan that has been in use during the preceding year, the pit, before the new is put in, should be thoroughly dusted with dry, newly-slaked lime. The work will necessitate the temporary removal of a considerable number of the occupants of the house. Advantage of their absence should be taken to scrub and clean all the glass and woodwork, and if, in addition, the brickwork is limewashed it will be an advantage. This, with the pointing of all cracks and inequalities, is essential where

MEALY BUG has been plentiful. Where this intolerable pest has got possession of the woodwork, the bars, rafters, wall-plates, shelves, and every portion should be painted over with clear paraffin, using it without stint, so as to get it well into the cracks and open joints where the insects congregate. The penetrating nature of this oil is such as to be more effectual in the destruction of this insect than any other material, and it likewise has the advantage of being so cheap as to entail little cost, even when used freely. In addition to this, if not already done, an effort should be made to reduce these insects on the plants as low as possible. There are some who, through the incautious use of paraffin, have killed or injured plants with it, who are timid at again trying it, but there is nothing to fear from its use on all smooth-leaved subjects that are at all firm in their texture, if only it is sufficiently diluted and care is taken that it is kept thoroughly mixed with the water during the time it is being syringed on to the plants. Without this its naturally light nature

causes it to float almost entirely on the top, so that if the syringe or a sponge is charged from the surface it is almost certain to contain the oil in such proportion as to be destructive to the plants. For the same reason plants should not be dipped in water mixed with paraffin, as unless the precaution is taken to keep it continually agitated whilst the dipping is going on the chances are that the leaves get coated with oil in an all but undiluted condition. All this in reference to the use of paraffin as an insecticide has been often urged, yet from the injury frequently seen through its careless use the caution cannot be too often repeated. Where either dipping or syringing is to be carried out it is a good plan with any plants, the foliage of which is at all tender, to syringe them overhead with clean, warm water immediately previous to the application of the paraffin mixture. Such things as Gardenias, Stephanotis, and others of a similar character, bearing leaves of considerable substance, may be syringed freely overhead as they stand in the houses, as the paraffin in such proportion as it is necessary to use will do no harm to the roots. A good-sized wineglassful of the oil to a gallon of water is sufficient.

ZONAL PELARGONIUMS.—At no season of the year are these so useful as in the winter. A great number of new varieties make their appearance, yet, further than having large individual flowers, with possibly an infinitesimal difference in the shade of colour, many have little to recommend them. The double kinds possess the merit of lasting longer than the single sorts, the petals of which fall much sooner. For general purposes the bright red or scarlet, with the pink and white colours are most useful. During the winter season the individual flowers are finer and the colours better brought out where a considerable amount of heat is used, but under such conditions to enable them to stand well when cut the plants require to be kept with their heads close to the glass, and have air admitted continuously through the day, and in the night as well, except when the weather is severe. When treated in this way the plants will bear much more heat than is usually supposed, producing a proportionately greater quantity of flowers.

GREENHOUSE RHODODENDRONS.—There has been recently a number of fine kinds raised of the *R. javanicum* race, possessing more or less the character of flower which that species exhibits; the colours run through the different shades of yellow, with light and dark pink, red, and crimson. One of their good qualities is that with little warmth they can be had in flower almost any time through the winter, when, in addition to their merits for conservatory decoration, the flowers are useful for bouquets. This race of Rhododendrons, though good growers, are not so vigorous as to outrun the space at command even where the glass accommodation is limited, and on this account they deserve a place in small establishments. They do not require much pot room as compared with many hard-wooded plants.

MEYENIAS.—The two forms of this plant, white and violet, are amongst the freest flowerers, blooming well where required in the winter. To have them in good condition in the early months of the year it is necessary to keep the plants now in a moderately warm house or pit. They are the most useful for standing about in the stove associated with fine-leaved plants, as the flowers do not usually last long when cut.

IMANTOPHYLLUMS.—Though these plants will thrive if kept continuously in a greenhouse, they succeed very well forced, and where there is a sufficient stock, it is well, with a view to keeping up a succession, to put a plant or two in heat every three weeks or so, by which means there will be some in flower almost continually. The cool end of the stove or forcing pit or anywhere where they will receive an intermediate temperature is better suited to them than a strong heat. They are plants that do not soon out-grow reasonable limits; they divide readily, and moderate-sized examples are of more service than larger ones. Big plants may be broken up after they have done flowering just before growth commences, reducing them to

one, two, or three crowns, keeping them in small pots as compared with such as are required for many things, and although when restricted for root room in this way, they do not increase quite so fast; still, they bloom just as freely. Successional plants that are wanted to come in later should be kept comparatively dry at the roots and quite cool. There are now a number of fine varieties raised from seed, the flowers of which are marked improvements upon the older forms.

BERRY-BEARING SOLANUMS.—Where these useful decorative plants are required with their berries in a fully ripe coloured state for as long a season as possible, some cuttings should be rooted as soon in the new year as they can be got, for unless the plants are struck early they will not flower and set their fruit so as to admit of its getting coloured in the autumn. These Solanums vary much in their habit when raised from seed, and the best way to secure a uniform profuse-berried condition is to raise the stock from cuttings; if some of these are put in at once and another lot later on, the first will have their fruit ripe by the beginning of October, the later batch coming in to succeed them. If the plants have no young growth about them suitable for cuttings, a few of the best should immediately be put in a little warmth, where they will quickly commence to grow; as soon as the young shoots are 2 inches long they will be large enough, and will strike in two or three weeks if put in genial warmth, after which they should be moved singly into small pots and kept on growing in an intermediate temperature until spring, stopping them two or three times, so as to lay the foundation for a close, bushy form. The small-growing *S. capsicastrum* with its slender drooping shoots is quite as handsome as the bushy habited sorts more usually grown. It requires similar treatment in every way, only that the principal shoot should be supported with a stick, leaving the side branches to droop naturally, which they will do so as to form a pretty pyramid hanging down and all but covering the pot.

ORCHIDS.

EAST INDIA HOUSE.—It is very desirable that a note should be made of all Orchids flowering at this season of the year, so that the houses may be kept gay with flowers from now until the early weeks in the new year. The deciduous *Calanthes* are indispensable for this purpose. Most of them have completed their growth, and are either in flower, or the spikes are freely developing themselves. They seem to succeed best in a house with the temperature at 65° at night, but 5° or 10° less will suit them, and in that way a succession of blooms may be obtained for a longer period. They begin to flower in November, and continue until February; and how useful the spikes are for cutting to place in vases. They will remain in beauty for three weeks in a cool room. The varieties that open their flowers first are *C. vestita* and *C. vestita rubra oculata*. *C. Veitchi*, a garden hybrid raised by Mr. Dominy by crossing *Limatodes rosea* with *C. vestita*, opens its flowers about the same time. Succeeding these, at an interval of about a month or six weeks, is the more beautiful *C. Turneri* and its varieties. This species is usually confounded with the *vestita* section, but it is quite distinct from them. *C. Turneri* was introduced by the Messrs. Veitch, of Chelsea, nearly thirty years ago. It was sent to them from Java by their collector, Mr. Thomas Lobb. There were a number of bulbs sent, and the first to flower produced pure white blooms, with a rosy red blotch on the lip; another had pure white flowers, and was named *C. Turneri alba*; this has been erroneously named *C. nivalis*. A third variety produced white flowers with a reddish purple blotch, but it is lost to cultivation. *C. vestita* and the variety of it with a red blotch on the lip was also sent to Messrs. Veitch from Moulmein by Dr. Kane, of Exmouth, in 1848. The plants do not require so much water when the bulbs are formed, but they do not throw up such strong spikes if the compost gets over dry. If the plants have been grown on in the lower temperature recommended,

it is best to place them in one of 60° to 65° to open their flowers. The very distinct and beautiful *Cypripedium Spicerianum* is now flowering freely from small plants, and as it is now obtainable at a cheap rate, it should be in every collection; it likes the warmest house, and grows as freely as *C. insigne* with the same treatment as regards potting, only *C. insigne* will flower freely in the coolest house.

CATTLEYA HOUSE.—In this section there are numerous species of Orchids in flower, some of them very distinct and charming. Take, for instance, *Oncidium cheiroporum*, mentioned the other day; its gracefully nodding spikes of sweet-scented flowers seem to please everybody. We saw a mass of them one year in Messrs. Low's nursery, which reminded us of a bed of golden Wallflowers; this will grow freely all the year in a cool house, but it does not like the moist, cool atmosphere when it is producing its flowers. *Pilumna fragrans* and the large-flowered variety, which has been named *P. nobilis*, are very beautiful during this month. The pure white, sweetly-scented flowers have a lemon-yellow blotch at the base of the labellum; it grows freely in pots treated exactly like Cattleyas, and succeeds best near the glass at the coolest end of the house. Another very sweetly-scented Orchid is *Oncidium tigrinum*; its long spikes of distinct showy flowers are very effective. This species does not succeed well in some collections, but if it gets the treatment it likes, it grows strongly and flowers freely. In Mr. Bull's houses, at Chelsea, it seems to be quite at home, producing large pseudo-bulbs and correspondingly strong spikes. It is a Mexican Orchid, and does well with the treatment given to *Lælia autumnalis*. It is a free flowering species; every good bulb produced will give a spike of flowers. It is an excellent variety to cut. *Cypripedium Harrisianum*, if it has been grown in a warmer house, should be put into this one to flower, as the flowers produced are much darker in colour than those opened in a warmer house. *C. insigne*, although it will grow and flower freely enough in a cool house, does equally well with the Cattleyas. *Vanda cœrulea* has been in flower with us (as it is in most collections) for some time; this requires very similar treatment to the Mexican species of Orchids named above. It must be near to the glass and receive plenty of light and air. We grow this *Vanda* in baskets and the others in pots. This beautiful *Vanda* does not succeed well with some growers; the reason for this cannot always be found. One reason we were enabled to find out on examining a plant once to ascertain why it did not succeed. The plant had formed thick succulent roots just under the Sphagnum, and as fast as they were formed the slugs had eaten the ends off them. It likes plenty of water when growing, with as much light as possible, and to be placed in a basket with Sphagnum and clean drainage.

COOL HOUSE.—*Masdevallia ignea* is frequently to be found in flower, and it makes a beautiful contrast with *M. tovarensis*; add to this *M. Veitchi*, the distinct and beautiful *M. Chelsoni*, a garden hybrid, and we have three brilliant species to form a contrast with the more pale and delicately tinted forms of the *Odontoglossums*. *Odontoglossum Rossi* is now coming into flower. Of this there are now very numerous and fine varieties, and it succeeds well with the treatment given to *O. crispum*. *O. cirrhosum* ought to be mentioned as one throwing up its flower-spikes at this time, while the pseudo-bulbs are fully formed; this species seems to like liberal supplies of water, from which it should not be withheld now. There are many young growers starting to cultivate cool Orchids, and as the plants have been selling at a cheap rate, they have been enabled easily to do so. We would say to such that there are a few main principles necessary to success. First, watering. It has been said that "keep the Sphagnum growing freely on the surface and they will be all right." To do this requires abundant supplies of water, but when this is done there is danger of souring the compost

and the plants will not thrive. To avoid this use small pots for the size of the plants, and the best fibrous peat, with plenty of drainage. Do not be afraid to give air; a close, damp atmosphere will cause a watery growth, which will in a year or two debilitate the plants. We like to see the bulbs of a dark reddish brown tint when ripe. To obtain this, judicious airing, watering, and potting are necessary; and when the plants are kept in good health by these means, insect pests seldom trouble them. The form of house is only of secondary importance. For winter, a house with its ends to the north and south is, we think, the best. They do not get light enough in a lean-to with a northern aspect, although this is the best place for them in the summer and autumn months. The temperature of our house has fallen below 40° at night during slight frosts, and the heat was turned on; and well it was we did so, as the nights were cold, causing the glass to register 8° of frost, with a stiff breeze blowing. It is now milder, and we can easily dispense with the artificial heat. The house will not require much water sprinkled about at this season, but most must be used when the air is dry and cold outside, the heat from the pipes drying up the damp more rapidly at that time.

FRUIT.

FIGS.—By this time the trees in the early house will have been brought into a satisfactory state by frequent waterings, and the fermenting material will be gently exciting the roots, but until the embryo Figs begin to push forth, and the terminal buds show signs of breaking, no increase must be made upon the temperatures given in my last paper; indeed, should the weather become severe the minimum heats there advised will be quite sufficient throughout the present month. Syringe the trees regularly twice a day. Keep the evaporating pans filled and turn the fermenting material frequently, adding fresh leaves from the reserve as they are required, always bearing in mind that a steady warmth of 65° to 75° about the roots is at all times one of the most important points in early forcing. Give a little air at the apex whenever the temperature touches 65°, and close again before it recedes below 60°. Keep the glass quite clean and free from accumulations, which are apt to settle in the lower side where fermenting materials are used, as Figs in the brightest and best of houses cannot have too much light and warmth from above in winter, while neglect of these conditions very often fosters elongated growths, sickly foliage, and imperfectly fertilised fruit, which falls before it is ripe.

SUCCESSION HOUSE.—Where a second house is to be started to succeed the early pot trees it should now be pruned, or, more correctly speaking, thinned out, cleansed, and tied in ready for shutting up at Christmas. If scale has taken a hold, spare no pains in scrubbing and cleaning the shoots, but carefully avoid bruising the embryo Figs near the points, thoroughly scald and lime-wash the walls, paint the wires and woodwork, and finally dress the trees with a solution of Gishurst compound, 8 ounces to 10 ounces to the gallon of water. Examine the roots, and if root pruning has been neglected, the operation may still be performed by cutting trenches round the balls and filling them in with fresh compost of a rich calcareous nature. When filling in the trenches use the compost in a dry state and ram it in until it becomes as firm as the old balls which have not been disturbed for years, then mulch well with good rotten manure, and give a series of waterings at short intervals throughout the month to insure a healthy growing state before the trees are excited.

CHERRIES.—If the trees in the early house, from which ripe fruit is expected early in May, have not been pruned and cleansed ready for starting, this operation must not be delayed. Old established trees which have filled their allotted space do not as a rule make much young wood; consequently there will now be very little to remove; but good service may be done by thin-

ning out the old spurs and cutting away barren branches where they can be spared to make room for younger growths. When this has been done, wash the trees and the trellis with strong soap water, and dress with a solution of Gishurst, 8 ounces to the gallon of water; also wash the glass and woodwork, unless the latter has been painted, and limewash the walls. If the trees have had full exposure to autumnal rains, the borders will be wet enough for the present, but otherwise make repeated waterings until the soil is thoroughly moistened. Remove all old mulching and inert surface soil, and replace with good, fresh, friable loam and lime rubble if the trees are young and vigorous, and add 2 inches or 3 inches of rotten manure where they are old and require rich stimulants from the outset. If pot trees are used for the first crop or for filling up vacant spaces, get them washed, top-dressed, and ready for taking in when the house is closed about the middle of the month. When forcing is commenced do not exceed a night temperature of 40° in severe weather and 45° when it is mild. Always force with a chink of air on the ventilators, and run up to 50° or 55° with a circulation, when, as is often the case, these figures can be touched without having recourse to fire heat or perhaps the most gentle warming of the pipes. Where Plums occupy a portion of the house, the same careful thinning of the spurs, cleansing, and dressing will apply, and the crop will come on very well under the same conditions as to syringing, watering, and temperature; but the Plum being more tardy in its later stages, the trees should be conveniently arranged for syringing, when the application of water would be highly injurious to the Cherries, or, better still, they might be grown in pots or tubs, as they could then be removed to another house to finish, when a dry atmosphere becomes indispensable to the proper ripening and preservation of the Cherries. To carry on the successful forcing of Cherries a few healthy trees, including such kinds as May Duke, Black Circassian, Governor Wood, and Bigarreau Napoleon, should be kept against a reserve wall, where by means of annual lifting and replanting in pure loam they can be maintained in a fit state for removal to the houses at any time after the fruit is gathered with the certainty of their giving a full crop the following season.

CUCUMBERS.—Autumn-sown plants now in bearing will require liberal supplies of diluted liquid at the temperature of the bed. If in pots or boxes, keep adding light, rich turf to the roots as they appear on the surface, and renovate the plunging material when the bottom heat thermometer indicates a fall below 80°. Keep the foliage well up to the glass, but guard against crowding, otherwise many of the old leaves will turn yellow and require removal at a dead time, when the knife should be sparingly used. Let the night temperature be regulated by the state of the weather, as nothing is gained by hard firing when external conditions are unfavourable; much, however, may be done by covering with mats or blinds during the hours of darkness, when, aided by steady firing, a minimum of 68° on cold nights will maintain progress until days become longer. On bright days run up 10° or 12°, and whenever the air temperature equals that of the bed give a chink of air to prevent it from rising higher, but not to cause a depression, as sudden depressions from this cause do more harm than a lower temperature without air. Avoid much syringing if the foliage can be kept clean without it; otherwise choose the lesser evil, as good fruit cannot be expected when the plants are infested with insects, but keep the evaporating pans filled and the atmosphere properly charged with moisture by damping the walls, paths, and other surfaces with warm water of a slightly stimulating nature. Keep plants intended for later use steadily progressing. Stop the leaders when they have ascended two-thirds of the trellis, and thin out the side shoots as soon as they appear if all of them are likely to produce more foliage than can be exposed to the influence of light when fully developed. If the fruit is not

likely to be wanted, remove all male and female blossoms as they appear, tie out the young growths horizontally, and endeavour to get the ridges or hills well filled with roots by frequent additions of rich, light, turfy loam in preference to forcing with stimulants a luxuriant growth which cannot be maintained when dead winter is upon us, and the plants are expected to produce fruit. Look after the weakest plants from the late sowings, as they very often come into use in the months of March and April, when Cucumbers are not over plentiful.

VINES.—Advantage having been taken of the unusually mild November weather, the early house will now be on the move, and timely attention will be needed, particularly where the Vines are pruned on the modern long-rod system, to secure an even break quite back to the base of the current year's growth. If the terminal buds show signs of taking the lead, tie the points down to a low level and syringe the dormant buds with warm water several times a day. Turn the fermenting material frequently for the twofold purpose of giving off warmth and ammonia, and add fresh leaves and short manure from the reserve ground as the work proceeds. When the buds begin to push, the outside borders may receive a good covering of new Oak leaves in sufficient quantity to maintain a top-heat of 75° to 80°. Let them be in a fermenting state when they are placed on the border, make them very firm and replace the lights or shutters with a sharp pitch to the front for throwing off water. Admit a little air at the top of the house when the weather is mild, and slightly raise the temperature on bright days, when it may run up to 68°. A minimum temperature of 58° will be sufficient for the present, and 5° less when colder weather necessitates constant fire-heat.

SUCCESSION HOUSES intended for starting about Christmas should be pruned and ready for shutting up at the end of this month. It does not often happen that bleeding follows November or December pruning, but where there exists a doubt the application of a little styptic, liberal ventilation and the withholding of water from the inside borders until after the middle of the month will be advisable. If inarching or bottle grafting is intended, cut back the rods at once, also the young Vines, and let the two start together for the first operation. Select ripe short-jointed pieces of wood for grafts, and lay them in the ground out-of-doors until the time arrives for putting them on. Bottle grafting may be performed at any time after the wood is ripe, but before the leaves fall or when the buds or the stock begin to swell are perhaps the best periods for putting on the scions.

LATE GRAPES will require constant looking over for decaying berries. Keep the houses dry and cool, free from plants and scrupulously clean. Avoid all sweeping or other disturbances which will set dust in motion, and have the Grape room fired and aired on fine days ready for their reception at the end of the month. Pot Vines will now stand a little more heat, particularly by day when the weather is bright and fine, but no hard and fast line can be laid down for forcing at this uncertain season, and it is always best to err on the side of low night temperatures until after the turn of the year, when time apparently lost can be redeemed without distressing the Vines. Attend to disbudding and tying out, select the most compact shows for the crop, and guard against leaving too many bunches, as an over-cropped pot Vine is always an expensive failure. From this time forward more care will be needed in the preparation of the additional supplies of fermenting material, as rank steam would prove fatal to the tender foliage. A few of the strongest and best ripened Vines may now be selected from the spring-struck stock for growing into fruiting canes. Cut them down to within 2 in. of the base, and remove them to a cold house where they can be protected from frost.

STRAWBERRIES IN POTS.—Where very early fruit is a necessity a few of the most promising plants of Vicomtesse Héricart de Thury may be taken into a light, airy pit where they can be placed near the glass, regularly syringed and

supplied with tepid water. If a body of fermenting material can be introduced, fire heat will hardly be needed, at least until we have a change to colder weather, when a night temperature of 45° with a rise of 10° by day will suffice until we get over the shortest day. Where convenient pits or suitable Strawberry houses are not available, the shelves in early Peach houses and early Vineries may be filled with plants; but this practice is not recommended, as they invariably leave a legacy of red spider, which does more injury to the permanent occupants than the ripe Strawberries are worth. The unseasonably mild weather is causing early kinds on sheltered borders to throw up an abundance of flowers, and unless they are kept as cool as possible, the same easily-excited varieties in pots will soon follow; it will therefore be well to keep the lights off plants which have been stored away in pits, and to defer the housing of others until the weather becomes colder. On a dry day examine maiden plants by the margins of walks, from which next year's runners are to be obtained. Tread them

early Pea border. The old "brick and stick" traps we still consider the best. Directly the young Peas come up cover them an inch thick with sifted coal ashes, which will keep off mice and protect them from cold surface winds. Beans, of which we like Green Windsor best, should now be sown, if not already done. Young Cauliflowers expose fully all day, except in severe weather, shutting them up in the evening.

INSECTIVOROUS PLANTS.

MR. G. S. BOULGER gave an interesting lecture on this subject the other day at Richmond. He said that one of the elements of scientific research was patience. Our ancestors had observed some of the phenomena of which he had to speak, but the explanation was not to come until recent years. It used to be said that one of the differences between plants and animals was that plants lived on inorganic food, while animals lived on organic

secreted copiously upon its tentacles a sticky moisture, and upon this flies, and sometimes even butterflies, were caught. If a fly touched one of the tentacles it adhered to it, and they all began to bend over, so that the fly was carried to the centre. In the course of some hours, all that was soluble in the fly was dissolved, and it was reduced to a mere skin. This plant was remarkable for its virtually world-wide distribution. Venus's Fly Trap (*Dionaea*) was confined to a small area in Carolina. It had a broad leaf furnished with teeth, but was without the sticky secretion. On the blade of the leaf were six long jointed hairs. If the leaf was touched anywhere but on those hairs nothing happened, and both these plants were perfectly free from irritation when brought into contact with rain or wind, but if any insect or any solid body touched one of the hairs of the *Dionaea*, the leaf closed up like a rat-trap; it was, however, a more refined



Venus's Fly Trap. Dionaea muscipula.

firmly into the soil, and feed and protect the roots from frost by mulching with rich rotten manure.

KITCHEN GARDEN.

THAT all-important affair, the weather, as regards outside garden operations, is just now all that can be desired; therefore take time by the forelock, and be up and doing. Every available inch of land should now be turned over, and where manure is required use it freely. We find from many years' experience that good farmyard manure is still the best for most purposes. If Globe Artichokes are not yet protected, delay that operation no longer. Our Artichokes grow on each side of a long walk, and are quite as effective as some sub-tropical plants; therefore in this case we combine the useful with the ornamental. We are now sowing Rhubarb, Asparagus, and Seakale. We thus keep the stock well to the front, so that we have always plenty on hand. Mint, Tarragon, and Chives will now require due attention. Of these we have a capital stock outside; therefore the trouble of putting in a few boxfuls is not great. Keep a sharp look-out for mice on the

food. That distinction broke down in various ways. For instance, we had a large group of plants known as Fungi, which lived exclusively upon organic matter. Then it was said that animals were capable of taking in solid food, while plants were not; but greater knowledge of animal physiology showed that that was a mistake. They did take solid food into the mouth and stomach, but before it could be taken into the tissues and blood it must become liquid. If it came to merely taking solid food into the stomach, he would have to speak of some plants which took solid food into a structure which they were justified in calling a stomach. He then referred to the Sundew, which grows in quantity on Wimbledon and Esher Commons, and other places round London: Venus's Fly Trap, a native of Carolina; and some others, of which he exhibited large models. The British Sun-dew (*Drosera*), he said, was allied to a plant which was hung up by Portuguese peasants in their cottages for the purpose of catching flies. In the sun it

piece of mechanism than a rat-trap. It did not close completely at once, so that a small fly could escape, but when it did close, it was so completely that the outline of the fly could be seen outside the leaf. Then, and not till then, there was a copious secretion. The result was that after a short time all that was soluble in the fly disappeared, and then, generally about twenty-four hours after closing, the leaf re-opened, and, if a young plant, was ready again. But these plants always knew when they had had enough. The *Dionaea* never ate more than two or three meals in a lifetime.

THE BLADDER-WORT (*Utricularia*), a very minute water plant, was found in England, and in most parts of the world. It was a submerged plant, with deeply cut leaves, having bladders upon them. These bladders were furnished with trap doors, which opened inwards and closed against a jamb, so that once in there was no getting out again. A great many water fleas found their way in. There

was no fluid poured out in the bladder, and no signs of anything like digestion. The water fleas simply died and decayed, and the plant probably only absorbed the products of decay.

THE SIDE-SADDLE PLANT (*Sarracenia*) was mainly a native of the western states of America. It had a cluster of pitcher-shaped leaves springing from the ground, and most of them were cunningly baited in order to attract insects. There were a number of glands secreting honey, so that the victim might be led pleasantly on its way to destruction. In some respects it was similar in its mechanism to an eel trap. The inside of the pitcher-leaf was lined with hairs which pointed downwards, so that as the insect went down it generally found there was no retreat. Birds would sometimes slit open the leaves with their beaks to get at the maggots in the decayed matter within them. The lecturer next referred to the

ALDROVANDA, a submerged water plant found in South Europe, Queensland, and Bengal. It had no roots. There were six leaves, open, with sensitive hairs over the surface, and when any of them were touched it closed instantly. It probably had the power of digesting in one part of the leaf, and of absorbing the products of decay in another part.

THE SAXIFRAGA TRIDACTYLITES, a little plant common in the south-west of England, seemed to capture flies out of sheer mischief, for they seemed to do it no good. Passing on to speak of the

DIGESTIVE POWERS of insectivorous plants, Mr. Boulger said that in the case of the *Sarracenia* a liquid was poured out into the pitcher when a fly was caught. It was not distinctly acid, and did not show any digestive property whatever, but it was very wet—wetter than water. If a fly tumbled into a drop of water it was capable of getting out sometimes without getting very wet, but if it fell into glycerine, or such a liquid as that in the *Sarracenia* it was wetted all over, and died of asphyxia. The plant had no true digestion, but it absorbed the liquid products of decomposition. After describing the modes of digestion or absorption by the *Darlingtonia*, *Heliamphora*, *Utricularia*, *Polypompholyx*, *Genlisea*, and other plants, he referred to the Butter-wort (*Pinguicula*), a marshy plant growing in many parts of England and Sweden, which caught flies upon a sticky substance on its leaves, which rolled up their edges over the insect. It secreted a liquid which was found to be acid, and also to contain a digestive principle. It was probably this acid in the secretion which produced the curdling of milk which was poured over it. It was found to eat the curd of the milk, which really was of the nature of cheese. They did not know another plant the digestive powers of which had reached that amount of strength. The secretion which had been chiefly experimented upon in *Drosera* and *Nepenthes* was acid, but did not contain the "ferment" necessary for digestion until supplied with animal food, but it was then capable of digesting both the starchy and albuminoid matter. It had been suggested that the flies were dissolved by the acids and then trickled down outside and manured the roots, but the plants had been fed with animals dyed red, and the red was found afterwards in the cells of their structure. To prove that some plants derived benefit from animal food, Dr. Francis Darwin took a number of specimens of the *Drosera* and fed half of them with beef, carefully excluding insects from the others. Those which were fed with beef produced longer and more numerous buds, flowers, fruits, and

seeds, and weighed a great deal more than those which were not so fed. All this pointed to the fact that there was no valid distinction in physiology between plants and animals. They might even go further and say that they had an opportunity here of performing experiments on the

ACTION of poisons upon plants, which perhaps would not shock people to the same extent as when those poisons were experimented with upon what were usually considered the more sensitive animals. Whether they were right in saying that they were more sensitive might be open to question, but all events they saw that there was a wonderful unity in nature.

FRUIT GARDEN.

THE CULTURE OF BANANAS.

"W. M., Guernsey," inquires about this in THE GARDEN (p. 741). His questions are: Can they be grown in a vinery? What height do they grow to? and where can they be purchased? These might be answered briefly thus: Yes. From 4 feet to 20 feet, according to species selected; and of any of our larger nurserymen, for though all do not grow them, any of these would know where to procure them. A good many used to be grown at the Regent's Park Botanic Garden, and plenty are grown at Kew. In fact, there are few of our botanic or old-fashioned public or private gardens in which one or more of the different species of *Musa*, *Plantain*, or *Banana* are not to be found. But it may prove useful to give a fuller answer, not only for the benefit of "W. M.," but others. As to varieties, the best to grow for their fruit are the following: *Musa Paradisiaca*, the Paradise Banana or true Plantain. This produces a fine cluster of fruit when well grown, but as it reaches to a height of 30 feet when fully developed, it may be dismissed as useless for the purposes of your correspondent. In lofty plant stoves or Palm houses this and the following species are highly ornamental and fruit well.

Musa sapientum, or Wise Man's Plantain, is of similar character and height. Of the more dwarf species, *coccinea* seldom or never sets or swells a good cluster of fruit, and it is small and light were it to do so. The same may be said of *M. nepalensis*, a yellow-flowering species; *M. ornata*, an orange one; and *M. zebrina*, a purple-flowering species. These grow from 5 feet to 10 feet high, and are grown for their fine foliage, like *M. Ensete*, or their flowers, like *M. coccinea*. *M. zebrina* is highly ornamental, the leaves being striped across in lines or bands of green and black, or nearly so. But the only Banana really worth growing for its fruit is the *Musa Cavendishi*, which may be fruited to the highest perfection, at a height varying from 3 feet to 6 feet, according to culture and character of house in which it is grown.

The *Musa Cavendishi*, being a native of China, can also be successfully grown in a lower temperature than most of the others, not, however, but what it enjoys heat, and can be grown more successfully in a plant or Pine stove than in a vinery. Still, however, it is so hardy as to pass through the winter safely in a cool greenhouse. But "W. M." and others will do well to bear in mind that such mere living is a very different matter from successful fruiting. However, by keeping a vinery at say 40° to 45° during winter, this best of all the fruiting Bananas will pass through the cold without serious check or injury. It will be well, however, if possible, so to time the season of fruiting as not to have the plants either showing or swelling their

fruit during the season of enforced low temperature. Should the fruit be ripening, which it does from the top of the cluster downwards, the whole cluster may be cut and hung up in the plant stove or the kitchen to finish. The high temperature and arid air of the former is the more favourable for the imparting of a full aroma and rich and luscious flavour. But I must crave "W. M.'s" pardon for ripening the fruit before planting the Bananas. They will thrive and fruit admirably in a vinery in summer, the temperature best suited to the setting and swelling of Grapes being equally well suited for the growth and fruiting of the Banana. *Musa Cavendishi* may be grown in pots, tubs, or, best of all, planted out in narrow, rather deep borders at the back of the vineries. Twelve, 14, 16, or 18-inch pots will suffice for fruiting them in successfully. Round or square tubs, from 20 inches to 3 feet across, will do equally well or better. Borders from 3 feet to 4 feet wide, and as much deep, are all that could be desired to save space and favour early fruiting. A combination of pot and planting-out culture proves the most profitable. If the suckers are pushed on in pots till they fill 10 or 13 inch pots full of their large and fleshy roots and the plants are then planted out in borders from 4 feet to 6 feet apart, they will not only show fruit immediately, but the fresh root runs will double the length and size of the clusters and weight of the fruit. More especially will this be the case should the borders have bottom heat.

THE FINEST BANANAS ever grown by me one cluster of which weighed over 20lbs., and many others almost equally heavy and fine in quality, were grown in a border at the back of a vinery. The border consisted of a narrow pit, about 5 feet wide and 6 feet deep. This was filled within 2 feet of the surface with a mixture of tan and leaves in December. When the heat rose, about 2 feet of rough turfy loam mixed with half-rotten leaves and a little gritty silver sand and charcoal were placed on the top of the fermenting material. The vines were started meantime, and by the period the bottom heat reached between 70° and 80°, the Bananas were planted. The atmospheric temperature for a few weeks did not exceed 50° or 55°, but the roots bounded off in the borders with amazing strength and vigour, and all through the summer cluster after cluster of fine luscious Bananas were forthcoming. This successional fruiting is one of the chief merits of this useful plant.

The same plant never fruits but once; the cluster springing out of its centre renders this impossible. But the Banana never fails to throw up plenty of suckers from the base of the old stems. The border, in the case to which I have just referred, became a forest of suckers, and so rapidly did they grow into fruiting size, that some of them caught up the parent plants before the former had ripened their fruit. The fact is mentioned here for a double purpose, and to illustrate the value of the stimulating force of hot-house heat, and also the serious loss or inconvenience that arises from the cultivating such tropical fruits in vineries in which a low temperature must be maintained. In the case referred to so valuable and numerous were the fruiting Bananas, that the vines were left out-of-doors for several months to ripen more of them. But, as a rule, where Bananas are to be grown extensively for their fruit, they should have a house for themselves, in which the temperature should not fall lower in winter than from 55° or 60°.

or may run up in summer to 70° and 90°. No plants pay better for liberal culture and tropical conditions than the Banana; when grown in vineries they must not be overshadowed by the vines, or if these are so shortened as to give full justice to the Bananas, there is really not much gained by growing them with the vines.

Liberal culture not only tells favourably on the size and quality of the fruit, but also on the vigour, sturdiness, and early fruiting of the suckers. The latter, if allowed to grow to a good size on the plant, may be made to fruit within from six to twelve months of the time of its removal. These plants, whether grown in pots or planted out, delight in fresh soil, and after fruiting the old stumps should be thrown away, the suckers potted in fresh soil, and the borders, if planted out, re-made and replanted with the finest suckers. The question of bottom or no bottom heat is an open one. But if your correspondent wants the greatest quantity of Bananas of the highest quality in the least time, he will succeed best if he can command a bottom heat of from 70° to 80° at will all the year round.

D. T. FISH.

— The cultivation of Bananas under glass is by no means difficult, but it is doubtful if they will succeed satisfactorily under the shade of vines; when the vines are at rest the temperature would be too low for Bananas. We grow them here in a stove among a general collection of plants. This season two plants fruited, and the heaviest of the two clusters weighed over half a hundredweight, although grown in only an 10-inch pot. After the fruit is all cut we throw away the old plants, saving only one sucker, which has been allowed to grow at the base of the old plant. That is taken off with as many roots attached to it as possible, and potted in a convenient sized pot. The suckers which we have this season being strong were put into 10-inch pots at once. In these they will remain until the pots are well filled with roots, when they will be shifted into 14-inch ones, and finally into 18-inch ones, in which they are expected to fruit. The soil which we use is chiefly turfy loam, with a little rotten manure in it. Good drainage is necessary, as they require abundance of water when the pots in which they are to fruit are well filled with roots. When the last shift is given them the pots should not be filled too full; on the contrary, room should be left for a good rich top dressing when they begin to show fruit, and when the fruit is swelling plenty of manure water should be given them. We plunge the pots in a bed of soil, but they get no bottom heat. The temperature of the house in which they grow ranges from 60° to 70° in winter, and from 65° at night to 80° in the daytime in summer. When the fruit is ripening a little higher temperature by means of sun-heat is allowed. They should fruit in about eighteen months—more or less—according to the size of the sucker when taken off. When showing fruit the stem generally is about 6 feet high, and the fully-developed leaves on a good strong plant measure 5 feet long. There are several varieties of Banana, but the best for fruiting in moderate-sized houses is *Musa Cavendishi*, which can be bought for 10s. 6d. each. When the fruits are approaching maturity they should be kept rather drier at the root than hitherto, and water should not be allowed to touch them; if possible, too, a drier atmosphere should be maintained. Bananas are very ornamental as well as useful, and their fruits, which are used in various ways, make a good addition to the dessert.

W. J. S.

NAMING FRUITS.

At a recent meeting of the American Pomological Society held in Philadelphia, the president (Marshal P. Wilder) spoke as follows on this subject: "In former addresses I have spoken to you of the importance of the establishment of short, plain, and proper rules to govern the nomenclature and description of our fruits and of our duty in regard to it, and I desire once more to enforce these opinions on a subject which I deem of imperative importance. Our society has been foremost in the field of reform in this work, but there is much yet to be done. We should have a system of rules consistent with our science, regulated by common sense, and which shall avoid ostentatious, indecorous, inappropriate, and superfluous names. Such a code your committee have in hand, and I commend its adoption. Let us have no more Generals, Colonels, or Captains attached to the names of our fruits; no more Presidents, Governors, or titled dignitaries; no more Monarchs, Kings, or Princes; no more Mammoths, Giants, or Tom Thumbs; no more Nonsuchs, Seek-no-further, Ne Plus Ultras, Hog-pens, Sheep-noses, Big Bobs, Ironclads, Legal Tenders, Sucker States, or Stump-the-Worlds. Let us have no more long, unpronounceable, irrelevant, high-flown bombastic names to our fruits, and, if possible, let us dispense with the now confused terms of Belle, Beurré, Calabasse, Doyenné, Pearmain, Pippin, Seedling, Beauty, Favourite, and other like useless and improper titles to our fruits. The cases are very few where a single word will not form a better name for a fruit than two or more. Thus shall we establish a standard worthy of imitation by other nations, and I suggest that we ask the co-operation of all pomological and horticultural societies, in this and other countries, in carrying out this important reform. As the first great national pomological society in origin, the representative of the most extensive and promising territory for fruit culture, of which we have any knowledge, it became our duty to lead in this good work. Let us continue it, and give to the world a system of nomenclature for our fruits which shall be worthy of the society and the country—a system pure and plain in its diction, pertinent and proper in its application, and which shall be an example, not only for fruits, but for other products of the earth, and save our society and the nation from the disgrace of unmeaning, pretentious, and nonsensical names, to the most perfect, useful, and beautiful productions of the soil the world has ever known."

In naming and describing new fruits the society has adopted the following rules: 1. The originator or introducer (in the order named) has the prior right to bestow a name upon a new or unnamed fruit. 2. The society reserves the right, in case of long, inappropriate, or otherwise objectionable names, to shorten, modify, or wholly change the same, when they shall occur in its discussions or reports; and also to recommend such changes for general adoption. 3. The names of fruits should preferably express, as far as practicable by a single word, the characteristics of the variety, the name of the originator, or the place of its origin. Under no ordinary circumstances should more than a single word be employed. 4. Should the question of priority arise between different names for the same variety of fruit, other circumstances being equal, the name first publicly bestowed will be given precedence. 5. To entitle a new fruit to the award or commendation of the society, it must possess (at least for the locality for which it is recommended) some valuable or desirable quality, or combination of qualities, in a higher degree than any previously known variety of its class and season. 6. A variety of fruit having been once exhibited, examined, and reported upon as a new fruit by a committee of the society, will not thereafter be recognised as such, so far as subsequent reports are concerned.

Pot Strawberries.—A custom exists of removing an inch or so of the top soil from Strawberries in pots for the purpose of replacing it with fresh compost. I could never see the advantage of this practice, which simply amounts to destroy-

ing or mutilating some of the roots that others may be better fed. Common sense would tell us that food may be given in a different fashion from this; and as a fact if a top dressing of soot is given during the autumn, the plants will get all the nourishment they need until they are fully in growth.—J. C. B.

Winter Pine-apples.—The Queen Pine is best flavoured in summer, but next to worthless in winter; it is then deficient in flavour and frequently black at the core, while, judging from outside appearance, it looks quite sound. The smooth-leaved Cayenne is a good Pine at all seasons, and especially so in winter, when it is always juicy and richly flavoured. Charlotte Rothschild is another of the same character, but hardly equal to the smooth Cayenne in flavour. Black Jamaica is a delicious winter Pine, and for flavour should be placed first on the list of Pines suitable for that season. The fruit is, however, small compared with that of others; generally it ranges from 2 pounds to 4 pounds, and is in every respect excellent.—J. MUIR.

Autumn Bergamot and other Pears.—In reply to "E. B." (p. 464), allow me to say that I am not aware that there are any varieties of the Autumn Bergamot, but I do know that it may be found in different gardens under different names. I found it here sixteen years ago under the name of Comte de Paris, a name which I cannot find in many lists of Pears, but having grown Comte de Paris by its side I find the two to be quite distinct, the last-named being inferior to the Autumn Bergamot. In the fruit orchards of Surrey Autumn Bergamot was much grown thirty years ago, and was considered to be a valuable market Pear. In my father's orchard he used to grow as standards Chaumontels, and they invariably bore well. These had to be stored until about the middle of December, when they were sent to market and frequently realised as much as 3d. each. The variability of this Pear is remarkable; sometimes it may be had very large, at other times rather small; but as regards flavour it is one of the best Pears grown on standard trees. I have been in many parts of England since that time, but I have not found Chaumontels grown so largely anywhere as in the counties of Surrey and Sussex. The Crassane was also largely grown at that time in the shape of standards in sheltered orchards, and I have seen magnificent crops gathered of it and sent to market in November and December. Whether the same sorts are cultivated now in the same way I cannot tell, but thirty years ago all the varieties I have named were prominent market fruits.—J. C. C.

SHORT NOTES.—FRUIT.

Good and bad Grapes.—In the note on this subject last week (p. 493) read "four of the best" without inverted commas; it is not a quotation; and at the bottom read "in a list of sixty-five Vines for all sorts of vineries has recommended only one Gros Colmar."—S. W.

5101.—**Select Peaches and Nectarines.**—I would recommend "T. B. S." to try *Grosse Mignonne*, *Crimson Galande*, *Bellegarde*, *Rivers' Early York*, *Early Alfred*, and *Violette Hative* Peaches, and *Lord Napier* and *Humboldt* Nectarines. Trained trees will yield fruit a year sooner than dormant buds. Trained trees can, of course, be maidens.—G. A. PASSINGHAM, *Milton, Cambs.*

The best Apples about Swansea.—When I visit a garden I invariably ask which apples are found to do best in the particular district in which it may be located, and from what I can learn the following are general favourites about Swansea, viz., *Juneating*, *Keswick Codlin*, *Lord Suffield*, *Irish Peach*, *Red Astrachan*, *Cox's Orange Pippin*, *Hawthornden*, *King of the Pippins*, and *Northern Greening*.—CAMBRIAN.

Lord Suffield & Keswick Codlin Apples.—These are about equal as regards bearing properties, and it is very rarely either fails to produce a fair crop. Of the two, however, *Lord Suffield* is the most useful. It is ready for use as soon as the *Keswick*, the fruits are larger, and they keep good for a much longer time. Our *Keswicks* are now much shrivelled and down in quality, but the *Lord Suffields* are still in prime condition.—CAMBRIAN.

Musch-Musch Apricot.—In order to show the distinct character of this Apricot, I may mention that in the middle of November the leaves were quite green, while those of the *Moor Park* variety growing on the same wall were nearly all down. Not only do the leaves of the *Musch-Musch* long retain their hold, but the young shoots continue also to grow late, and frost has not hitherto hurt them. This variety is an excellent bearer, but not so good in flavour as the *Moor Park*.—J. C. C.

Pruning bush fruits.—I like to prune these late because I find that by pruning late in the season I can make more certain of having a good crop of fruit. I find from experience that by pruning early I am not at all certain of a crop in consequence of the birds, unless I go to a good deal of trouble. Last season I pruned some of our Gooseberries and Currants early, and the consequence was that the birds pecked out the remaining buds so much that we scarcely had any leaves on our bushes, to say nothing about fruit; this happened, too, in spite of liming the bushes two or three times after they had been pruned; whereas bushes that I left unpruned until February had a great many more buds on them, for the simple reason that the birds had far more wood to peck the buds from in the case of the bushes left unpruned.—G. G. I.

English-grown Grapes.—If "S. D." (p. 428) wishes for a good white Grape as a companion to Black Hamburgh, he should, by all means, plant Mrs. Pearson, which I am confident he will find most satisfactory in an airy vinery. In moist heat this Grape rusts, and has not a handsome appearance, but grown in a cool, dry house we find no white Grape, English-raised or of foreign birth, to compare with it. It is a very good grower and free bearer; the bunches are large and handsome. The berries are medium sized and of high Frontignan flavour when first ripe, but after hanging a couple of months they become so very sugary as to lose some of the Frontignan flavour. The colour is a clear rich amber, and the skin sufficiently thick to make the Grape a good keeper. Altogether, we find it a most excellent and useful variety, which should be grown largely.—E. H. W.

KITCHEN GARDEN.

BEST MARKET PEAS.

I SOMETIMES wonder why so few market growers give a trial to new varieties of Peas. Probably those who devote the greater part of their land to the production of vegetables do try most of the new sorts, but it is evident that the majority of those who only devote a few fields to Peas, Runner Beans, Brussels Sprouts, Turnips, and Potatoes seldom change their selection of varieties. This I have had frequent opportunities of observing. They sow certain sorts, principally because they can be purchased at a comparatively cheap rate per bushel—a "penny-wise-and-pound-foolish" policy. Except in seasons of scarcity there is no demand for inferior sorts, and many tons of such produce have almost to be given away; only superior samples find purchasers at remunerative prices. My advice, therefore, is to grow sorts that are attractive in appearance and of good quality; they will seldom prove unprofitable. Having friends market gardeners, I always make it my business to direct their attention to any new Peas I may have on trial, and which are apparently well adapted for field culture. In this manner they have been enabled to select some really good sorts, and by sowing a few quarts of these have thoroughly tested them, and also succeeded in saving a considerable quantity of seed, much of which they have sold at a high price.

THE EARLIEST PEA still most largely grown by market gardeners is Sangster's Improved No. 1; but Caractacus, which somewhat resembles it, if grown under precisely similar conditions, proves at least a week earlier, and produces quite as heavy a crop of rather larger and well-filled pods. A difference of a week may not seem much, but it often does mean a very large difference in the value of the crop. Strange to say, Caractacus is not nearly so good as William I. in a private sheltered garden, but in the open fields, where the soil is heavy and cold, it is the better of the two. In some districts where the soil is lighter and warmer William I. will be found to be the best early Pea, and the size and colour of the well-filled pods render it a favourite with buyers. Laxton's Earliest of All with us is really the earliest of all, but I am afraid it will not be found to be

sufficiently robust for field culture. Kentish Invicta is a fine early sort, but the seed rots badly in the ground, and the same may be said of the newer wrinkled seeded Day's Sunrise. Daniel O'Rourke, Taber's Perfection, Dickson's First and Best, Dillestone's First Crop, Ringleader, and other similarly small-podded old sorts are not worth growing. Amongst

SECOND EARLY VARIETIES Advancer has been tried, but it lacks robustness, and the rather later Laxton's Supreme still finds most favour with many growers. It is a heavy cropper, and the pods are of good colour and fill well. I cannot, however, speak highly of its quality. To succeed this Fortyfold is grown, and this proves very profitable, though it makes rather too much haulm in some places. Hair's Dwarf Mammoth is most excellent for second early and also very late crops, but this good old wrinkled sort is not nearly so much grown in either private gardens or fields as it deserves to be. As a

MAIN CROP PEA, Dr. McLean is much the best. We have had it good frequently, but the crops of fine large-filled pods seen in open fields far surpassed anything we have yet achieved. It is rather too pale green in colour, but the quality surprises the townspeople, and no difficulty is experienced in selling this kind. Gladiator, a variety first obtained this season, with us proved a heavier cropper than the Doctor, but was inferior in quality, and on the whole I am doubtful if it will replace Dr. McLean under field culture. John Bull is a failure, but Evolution, another of Mr. Laxton's Peas, possessing a much stronger constitution, sturdy and branching, and very prolific, the pods being long, green, and well filled, is certain to find favour with market growers. For my own part I should like it better if more sweet and tender when cooked. Sharpe's Invincible is a failure, but G. F. Wilson is worthy of a trial, being certainly preferable to the old Blue Scimitar, still extensively grown. For

LATE CROPS, Yorkshire Hero is extensively grown, and is still one of the best. This variety answers to the name of Veitch's Perfection among gardeners, and in most seed establishments I believe the two sorts come out of the same bag, the only difference being in the price charged. Omega I consider a failure in most private gardens, and it does not please the market growers. Sturdy I believe will prove a valuable late sort, as it is very robust, branching and prolific; the pods are perhaps rather too small, but they are closely packed with delicious Peas. It will be seen that I have omitted several dwarf sorts much grown in private gardens, but all have been tried, and those not possessing good constitutions, or which produce thick, fleshy pods, are discarded. Sensational pods, as regards size, are useless in the market; there, Peas, not pods, are required. W. IGGULDEN.

Marston Gardens, Frome.

ORCHIDS.

Miltonia Moreliana atrorubens—

Under this name Dr. Paterson sends us what we consider to be an uncommonly fine form of *M. Moreliana*, remarkable alike for size and colour, which is very deep and rich. The blossoms measure $3\frac{1}{2}$ inches across; the sepals and petals are of a deep port wine tint, while the lip, which is 2 inches in length by 2 inches in breadth, is a deep rose-purple, traversed by pencillings of a heavy vinous purple, with which colour the ivory-white column makes a beautiful contrast. This is the best variety we have ever seen of this species.

Pruned Dendrobiums.—I am unable to tell Mr. Douglas (p. 497) just now how many flowers our pruned plants of *Wardianum* produced, but if he will refer to the note concerning the two tall bulbs which I sent to THE GARDEN office last year, I think he will find that they showed a maximum degree of floriferousness. I had not then heard of any 4-foot bulbs bearing more flowers than they did, and this season the same

plant is showing equally well. I hear that other growers have tried pruning, particularly at Straffan, near Dublin. Perhaps Mr. Bedford, the gardener, there or Mr. Burbidge, can tell us something about them.—J. S. W.

Cymbidium Mastersi.—It is probable that "W. B.'s" plants (p. 497) have been either too dry at the root or else the moisture of the atmosphere has not been in due proportion to the temperature. Either of these conditions would cause the flower-spikes to turn yellow and die, precisely as in the case of *Coelogyne cristata*. With me the smallest plants of *Cymbidium Mastersi* do well in the Cattleya house, the minimum temperature of which at the present time is 53° . Formerly they were grown in the East India house, but there they became a prey to thrips, a sure sign that the conditions were wrong; they were then changed to the Cattleya house, where, with sufficient moisture, they grow strongly and flower freely.—W. C. T.

Cymbidium giganteum.—A grand flower-spike of this handsome East Indian Orchid, carrying no fewer than fifteen expanded blooms, has been sent to us by Dr. Paterson from his garden at Fernfield, Bridge of Allan. This is, without question, one of the noblest of autumn and winter flowering Orchids, and the natural grace of the long pendulous flower-spike seems to heighten the rare beauty of the large blossoms, the colours of which are cinnamon-brown and maroon-crimson, beautifully intermingled with various shades. The variety sent by Dr. Paterson appears to be identical with that known as the Assamese form, a bright and large flowered kind. This *Cymbidium* is not, we know, very difficult to grow, but we should welcome any note from Dr. Paterson as to how he manages to produce such fine, showy spikes.

5104.—**Angræcum sesquipedale.**—This plant (p. 497) should not be potted, nor should its roots be detached from the wall now, as the bloom spikes will shortly appear, if they have not already done so. After blooming, however, removal may be effected without the plant receiving much check, especially if care is used in liberating the roots from the wall, and for this purpose the best implement is the bone end of a budding knife, used tenderly as a wedge on either side of the root, beginning at the thick part and working steadily towards the point. If the wall is kept continuously damp for a few days before the operation, the whole of the roots may be detached without breaking them, unless the wall be exceedingly rough. In the meantime, all new roots should be kept from fixing themselves either to the wall or stage, and the growing points of those already fixed should be induced to leave it by chipping the wall immediately below the roots, and fixing a piece of brown paper or chip of wood for the roots to grow on.—W. C. T.

SHORT NOTES.—ORCHIDS.

Cypripedium Calceolus major.—Has anyone succeeded in flowering this plant, and if so, in what respect does it differ from the normal form? Along with several friends, I purchased roots of this Orchid last season, but in no case did the plants ever appear above ground. Perhaps Messrs. Hooper can tell us something about this variety, or whence it originated.—A. D. WEBSTER.

5103.—**Cymbidium Mastersi**—"W. B." (p. 497) has been keeping his plant too hot and too dry. We keep our plants of this *Cymbidium* in a well-aired intermediate house all the year round, the summer temperature of which varies from 65° to 70° and that of the winter from 55° to 60° . This plant cannot withstand the least dryness at the roots. To a pot-bound plant throwing up its flower-spikes a little weak manure water may occasionally be given. We have a plant with one growth throwing up five spikes of flower, twelve flowers being on each spike.—W. W., *The Firs, Laurie Park, Sydenham*.

For *Cymbidium Mastersi* 60° to 65° is quite high enough temperature. I do not think it requires keeping dry at any time. If in good health, there is no reason why it should not flower in a temperature of from 55° to 60° at night. I saw the other day five plants of it in Messrs. Veitch's nursery at Chelsea growing in an intermediate house. Quite small plants of it moist at the roots were throwing up vigorous flowering spikes.—J. D. I.

Cattleya Eldorado.—Of this late autumn flowering *Cattleya*, Mr. Fowler, of Ashgrove, Pontypool, has sent us one of the finest varieties we have ever seen. The flowers are about the average size ($4\frac{1}{2}$ inches across), but the colour is superb. The sepals and petals are a deep lilac-rose, each tipped with an intense magenta, much in the same manner as in those of the Backhouse variety of *C. Trianae*. The lip is also of a very deep magenta-crimson and with exquisitely frilled white edges. The deep orange blotch in the throat seems to heighten the beauty of the other colours. When represented by such fine varieties as that under notice this species is one of the most beautiful of all *Cattleyas*. Mr. Fowler also sends a bloom of another autumn flowerer, *C. maxima*, likewise a beautiful *Orchid*. In this case the labellum has pencillings of amethyst on a pale lilac ground, rendering the flower distinct from other *Cattleyas*. A very remarkable flower of *Odontoglossum crispum* also comes from the Ashgrove collection. The flowers are unusually broad, and the sepals and petals overlap like those of a Pansy. These with the labellum have the characteristic crimped margins in a marked degree. The flowers sent were cut from a bulb which has not rooted since imported.

Remarks on Cattleyas.—With reference to potting newly-imported *Cattleyas* (see p. 496), I am always cautious in giving advice until I have proved by practical experience that it is good. Many years ago Mr. Pilcher, gardener to the late Mr. Rucker, West Hill, Wandsworth, told me that it was safest and best to pot *Cattleyas*, *Laelias*, &c., when newly imported in drainage material only. That was his plan, and I have always followed it and found it to answer. We keep the drainage rather moist, and as soon as young roots begin to issue from the base of the pseudo-bulbs we place the usual potting material round them. There is no need to do this sooner. If the young roots are a long time in forming, the compost becomes sour before the roots lay hold of it, while if my plan is followed the roots are able to lay hold of the new compost at once. As regards the time of potting, from long experience I unhesitatingly say that winter is the best time for repotting every *Orchid* that can be potted. I find our *Cattleyas* are now making new roots from the base of the pseudo-bulbs, and we are repotting the whole of them that require it. Such as do not need repotting are surface dressed. Mr. Catt is evidently fortunately placed if he can keep thrips off his plants. Our whole garden swarmed with them last summer. It is not easy to keep houses cool with a temperature of 75° and 80° or more in the shade out of doors. I fancy our plants are again clean, but they have been washed two or three times and fumigated five times. Therefore it is not from want of attention if thrips are troublesome. Mr. Catt ascribes his freedom from this pest to "low temperatures and plenty of air at all times." May I ask Mr. Catt what he means by that sentence? "Plenty of air at all times" will scarcely apply to a greenhouse at this season of the year. What are Mr. Catt's temperatures? Our *Cattleya* house stands at 55° at night and from 60° to 65° in the daytime, while sun-heat may, of course, run it up to 70° .—J. DOUGLAS.

Sussex names.—What do the Sussex men mean by "Haps tree" and by "Nonesuch" as applied to a field crop?—G. [The "Haps tree" may be a Poplar, as we have the name "Aps" (*Aspen*), *Populus tremula*, and we have no doubt your Sussex man's "Haps tree" is nothing else but this "Aps," pronounced with the usual exasperating aspirate of the lower English. The name "Aps" itself is simply an inversion of "Asp," conceived (like the Lancashire "brid" for "bird") in the same wanton spirit of perverseness which says "cruds" for "curds" and "crub-chain" for "curb-chain." As for the "Nonesuch," we do not know what your field crop can have been. We have heard of *Nonesuch* (black) *Medicago lupulina*; *Nonesuch* (white) *Lolium perenne*; but we are

not aware that an oil is, or has been, expressed from either of these. Besides these, we have (from Gerard) *Nonesuch* (*Lychnis chalcidonica*), which is manifestly not what we want.—W. M.]

NOTES OF THE WEEK.

The Strawberry tree—I send you a sample of fruiting branches of our Strawberry trees (*Arbutus Unedo*). They grow some 20 feet in height here, and as much in diameter. They are covered with fruit and flowers at the present time.—J. MUIR, *Marjann Park, Taibach, S. Wales*.
* * With this came finely fruited branches of this fine evergreen shrub, which seems to thrive uncommonly well in South Wales.—Ed.

Hackney Chrysanthemum Society.—The 37th anniversary meeting of this the oldest Chrysanthemum Society in the country was held on Friday evening last, under the presidency of Mr. Sanderson. Some handsome silver cups were presented as selected prizes for the awards made by the judges at the recent exhibition at the Royal Aquarium, Westminster. During the evening the cash prizes were also distributed to successful exhibitors, who were present. The hon. sec. afterwards announced that the sum of £155 18s. 6d. had now been paid as prize money for the year 1883. As an instance of the continued progress and success of the society during the past year, it was stated that over 50 new members had recently been enrolled. The secretary also further informed the meeting that the names of the Baroness Rothschild and the Baron Leopold de Rothschild had been added to the list of patrons. An appeal was made for donations to the prize fund for the ensuing year, with the result that nearly £40 was subscribed.

International forestry exhibition.—Amongst the most recent contributors to the guarantee fund, which is still below the proportions which it is expected to attain in view of the largely increased magnitude of the project, is a promise of a grant of £100 from the Commissioners of Her Majesty's Woods and Forests and a like sum from the Surveyor's Institution. The executive committee have been much encouraged by the numerous promises of support which they have lately received from official as well as from private sources. Many officials have shown their readiness practically to endorse the recommendation of the Science and Art Department, and to prove that some attention at least has been paid to the practice of scientific forestry, while naturalists have welcomed the idea of bringing under one roof trophies of the chase and other products of the forest. The subjects of the essays invited will point in the direction of the utilisation of lands now waste by planting the sources whence our supply of timber for shipbuilding purposes will be derived, and generally the uses of all sorts of forest produce. The idea of an exhibition of forestry has been most heartily taken up in America. At the meeting of the Forestry Association of the province of Quebec, a sub-committee was formed to ensure a representative collection of timber specimens, &c., being sent from Canada, and to assist private contributors from that dominion. The Hon. N. W. Lynch, Commissioner of Crown Lands for the Province of Quebec, has allowed his name to be placed upon the list of patrons, and the Hon. James Mitchell, who holds the position of Surveyor-General in New Brunswick, the forest and timber lands of which state he has under his control, has applied for a space for exhibits.

Terminalia elegans.—In calling the plant known under this name a *Terminalia* we have a good illustration of the errors that are committed, sometimes unavoidably, by dealers in new plants who name their introductions without having sufficient knowledge of them to name them correctly. For trade purposes it is of course necessary that a name of some kind should be given, and if the proper name is not known a new one is straightway invented. That the plant above mentioned is not a *Terminalia* must be apparent to any one acquainted with that genus, which is closely allied to *Combretum*, and differs both in

nervation of leaf and structure of wood from the plant here called *Terminalia*. So far as is known, this plant has not flowered under cultivation, but there can be no question as to its proper botanical position, which is with the *Araliads*, and most likely the genus *Aralia* itself. If we wanted further proofs than are supplied in the nature of the plant itself, we have one in the fact of its grafting freely on the *Aralias*, which is perhaps the most successful method to adopt for its propagation. There is no instance of any plants so far removed from each other as *Aralia* and *Terminalia* are ever growing upon each other in the way this so-called *Terminalia* grows on *Aralia reticulata*.—B.

5098.—Wireworms.—In your issue of THE GARDEN for November 24, "F. H.," I think, is mistaken in assuming the "worms" of which he complains to be wireworms (*Agriotes obscurus* and *A. lineatus*). From the description given I am inclined to regard them as millipedes, probably *Julus minimus*. Upon close examination the difference between wireworms and millipedes may readily be seen. The wireworm has six legs, situated immediately behind the head, and one sucker leg at the other extremity of the body, while all the Chilognathæ have twelve times that number of legs. The wireworm differs in size from its first year, at the end of which it is about the thickness of a small needle, half an inch in length, and of a whitish yellow, to the end of its fifth year, when it is fully an inch long, one line in thickness, hard, tough, and of a rich golden colour, a part of each of the segments being marked with yellow of a deeper shade. I have never heard of any member of the Chilognathæ family displaying destructive propensities as "F. H." describes, such as destroying Brussels Sprouts, Broccoli, &c. However, it is well known that all the millipedes are particularly fond of the Strawberry, clusters of them being found with their bodies half buried in the fruit, especially in wet weather. The habits of the wireworm are different from those of the millipedes also in this respect, viz., it never comes to the surface of the soil during its five years of larval and pupal life, but lives wholly on roots, tubers, &c. The knobs on the roots of the plants mentioned by "F. H." are the effects produced by the operation of an entirely different agency from that of either millipedes or wireworms. With regard to measures for the extermination of the last-named pest, a common practice is to slice Potatoes, fix the slices on skewers, and bury them where the grubs are most troublesome; examine them every morning, when probably the larvæ will be found sticking to the Potato slices in the same manner as we find the *Julus* in the Strawberry. I would suggest that the ranks of the millipedes might be thinned by the application of the same principle, substituting for the Potato something more to their taste.—G. W. OLIVER.

Primulas (W. S. Gower).—Good in colour, but rather small.

Chinese Primulas (T. G.).—A very good strain, large, of good form, and with bright colours. The white flower with pink edges is particularly good.

MR. ELLAM for some years gardener at Bodorgan, Anglesey, has, we learn, been appointed successor to the late Mr. Fleming at Cliveden.

DR. JOHN A. WARDER, who died last month at North Bend, Ohio, was a leading member of the American Forestry Congress, and the author of "American Pomology" and other agricultural works.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—G. T.—1, *Pteris umbrosa*; 2, *Asplenium fraxinifolium*; 3, *Aspidium aculeatum*; 4, *Asplenium bulbiferum*.—J. C.—*Anthurium margaritaceum*.—Helena.—1, *Echeveria retusa*; 2, probably a *Davallia* (send frond with spores); 3, *Grevillea robusta*; 4, *Cyperus alternifolius* (*J. G. K.*—1, *Cydonia japonica*; 2, *Asplenium fenticulaceum*; 3, *Cyrtodeira fulgens alba*.—C.—*Anthurium margaritaceum*.—A. C.—*Caulodora decandra*.—J. R. R.—*Chysis bracteescens*.—T. G.—1, send frond with spores; 2, *Blechnum brasiliense*; 3, *Doodia dives*; 4, *Maxillaria picta*.

This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

CHRYSANTHEMUM REFORM.

I FEEL sure all true lovers of Chrysanthemums will be grateful to THE GARDEN for taking up the matter of reform in Chrysanthemum culture, but while prizes are given for such monstrosities as one sometimes sees, tasteless growers of plants will continue to compete for them. At a provincial show which I visited the season before last prizes were given for trained Chrysanthemums, and the second prize was awarded to two plants which had been trained to resemble ships—masts, bowsprit, &c., all complete. The resemblance to a ship was not, as may be imagined, very great, but to make it more so, flags, such as one sees on Christmas trees, were fastened to each mast. At the Chrysanthemum show held here about a fortnight ago the majority, if not all, of the plants were trained and twisted till all the flowers were evenly spaced and on a level as much as possible; otherwise they were handsome, well-flowered plants. The single cut blossoms were very fine, but they must have been gathered from plants "of lanky hideousness." I should suggest, as a practical way of trying to reform this matter, that at Chrysanthemum and other shows (for there are other sinners besides Chrysanthemum growers) prizes should be given for the best plants that had not been disbudded or trained. If the promoters of flower shows would do this, we should, I am sure, soon see some really fine naturally-grown plants, and the public taste would be gradually improved. Will not some wealthy reader of THE GARDEN offer prizes at one of our principal shows for such plants?

Tunbridge Wells.

G. S. S.

FLORAL COMMITTEES' AWARDS.

AN analysis at the end of each year of the awards made by the floral committee of the Royal Horticultural Society would, I think, show some singular discrepancies. Whatever else may be laid to its charge, it cannot be said to be at all niggardly as regards the bestowal of its certificates, which seem to be awarded out of all proportion to the number of subjects shown. Greater discrimination as respects the awarding of first-class certificates seems imperatively necessary. A certificate of the highest class is given to one of the now almost innumerable sorts of Dahlias—very good it may be in its way. The next plant submitted to the committee's decision may probably be an Orchid—*Vanda Sanderiana*, for instance—which in point of fact did receive a first-class certificate this year. In this case the two plants are widely different as regards merit, yet there was no difference in the award. *Rhododendron Curtisi*, too, a plant that will be talked about and sought after when numbers of other things decorated this year with first-class certificates will be entirely forgotten, only got this award. Such an anomalous state of things needs but to be pointed out surely to secure its speedy alteration. Perhaps such discrepancies were not so noticeable when the committee began its operations, now nearly thirty-five years ago, as now; but improvement is the

order of the day, and time has worked wonders since then. The matter lies in a very small compass; some form of award should be adopted by which real merit could be recognised. The Davis bequest is, I believe, partly applied to the giving of medals to deserving new flowers, fruits, &c., but medals could not be given to all; they might, however, be distributed in this way a little more generously than they are at present. Floral certificates might be granted to florist's flowers as distinct from stove and greenhouse plants. I should like, too, to see second-class certificates made more use of than at present. I do not think that a single one has been awarded this year, though plenty of subjects shown well deserved one. It may be said that if a plant is not worth a first-class certificate, it is worth nothing at all; but that is not my opinion. The committee has been established to decide the respective merits of subjects brought before it, and one means to that end would be a freer use of this particular form of award. It would serve to induce exhibitors to try again for the higher award.

Q.

AMERICAN CHRYSANTHEMUMS.

DR. WALCOT, of Boston, Mass., has sent me cut flowers of a few of his seedling Chrysanthemums, some of which are very distinct and beautiful. It is also rather surprising to find that these flowers have so much endurance, that they reached me after their voyage of 3000 miles almost as fresh as when cut from the plants. The mode of packing especially deserves notice, as being both simple and effectual. Each flower or truss was cut with 6 inches or 8 inches of leafy stem. A little moist cotton wadding had been placed around the severed stem at its base, this being surrounded by a small piece of sheet india-rubber to prevent the wadding from drying too quickly. The flowers and stems each so treated were packed in tissue paper in a tin box, the cover or lid of which was hermetically sealed by a film of sheet rubber.

The flowers themselves vary from perfectly single to good double blooms, the colours being singularly brilliant and effective. Two only of those sent are named, these being Robert Walcot, a Japanese kind of a vivid crimson-red tint, each floret being yellowish behind; and George Walcot a bold flower, with flat or ribbon-shaped florets of a pale rose colour, edged with rosy crimson. No. 3a is a pure white flower in the way of White Princess; and a vivid dark crimson Pompon variety, having a yellow centre in the midst of its densely-crowded florets, is quite distinct from anything we have seen before. The single varieties are very bright in colour, and have an elegance of form quite wanting in the double kinds. Dr. Walcot is an amateur cultivator, and will, we hope, be still further rewarded in his culture of the Chrysanthemum. He is, if not actually the first, at least one of the first of American growers who have treated the Chrysanthemum as an annual by raising fresh batches from home-saved seeds every spring. It does not appear to be generally known that seed sown in February and grown on with the treatment usually given to cuttings will produce flowering plants in nine or ten months. This is, however, a fact, and one which we hope our own growers will speedily realise for themselves. Although some of the earliest of seedling Chrysanthemums ever obtained in Europe were raised at Oxford many years ago, yet nearly all the kinds now cultivated have been raised in the Channel Islands or in France. The late Mr. Salter used to purchase numbers of unnamed seedlings from the Guernsey growers in his time, and even to-day most of the new Japanese varieties are raised in the Channel Islands. The Pompones and the early or summer-flowering races originated in France, and it is from France that most of the new varieties of these still come to us. These beautiful flowers from Dr. Walcot, however, lead us to hope for great things from America in the way of new seedling Chrysanthemums.

In the way of incurved or show flowers perhaps the old kinds may never be beaten, and, wonderful as they are from some points of view, they do not lend themselves very gracefully to artistic purposes, or suit well for decorative uses. As flowers for personal ornament they are not generally admired. For one lady who will wear blooms of Mrs. G. Rundle, or its sulphur and yellow forms, we find twenty who prefer Elaine or Peter the Great, or who content themselves with the fringed and tasselled Japan kinds. At the same time we decry no particular form. Give us vivid colour; give us variety, elegance of form and perfume if you can (such as *Progne* already possesses); in a word, let all tastes be consulted, let all wants be satisfied. There is here a wide and open field for improvement and progress, and the results Dr. Walcot has obtained in his New Jersey garden are so far most encouraging. We now more especially desire large-flowered kinds for early blooming out of doors, and even more valuable would be varieties to bloom naturally during January and February. Dr. Walcot has quite recently (Nov. 7) been awarded prizes and certificates of merit for some of his Chrysanthemums in New York, and we cannot do better than let him tell us how he began the raising of these popular flowers. "I began the raising of seedlings some few years ago. Finding that I could procure seeds by keeping my house quite dry, and by giving water to the plants themselves very sparingly, I made some attempts at cross-fertilisation, and am satisfied that I have gained nothing by them; even at this time of the year it is very difficult to keep insects out of my houses, and, with a careful selection of proper plants, I fancy that they will distribute the pollen better than I could hope to do. Growing Chrysanthemums as I do for the pleasant occupation of the few leisure hours of a busy life, I have not given them to the trade—they are in the hands of my friends; nor have I done more than exhibit, some of them at horticultural shows at Boston, and once at New York, when they received medals and certificates of merit. Some of my more recent seedlings are to me so satisfactory that I am going to send you a few for your opinion." These flowers were sent from Boston on November 24 and reached me on the 5th of December quite fresh and nearly as beautiful as when cut from the plants. Dr. Walcot also informs me that Mr. John Thorpe, a nurseryman near New York, has also raised this year some seedlings of unusual promise, and with this exception but little or nothing seems to have been effected in Chrysanthemum improvement from American saved seeds. The following is a list of such of Mr. Walcot's seedlings as have been exhibited, and to which awards of merit have been made:—

Seedlings of Dr. H. P. Walcot's raising, 1879—1883: President Parkman (Japanese), plant of robust, compact growth, flowers full, bright rosy purple; President Hovey (Japanese), flowers large spreading brown, with salmon tint, white at the insertion of the florets; President Wilder (Japanese) florets red tipped, gold reverse, gold centre, bright, yellow; Pontiac (Japanese), same habit and growth as President Parkman noted above, flowers full clear canary yellow; H. L. Higginson (Japanese), flowers medium sized, floret tubular, yellow-brown, extremities flaring and brown-red; Savannah, small flower, brilliant red, bright yellow centre; Hiawatha (Chinese), incurved, rose-violet, with lighter back, good form; Minnehaha, large white flower, backs of petals slightly tinted with pink, finely incurved; George Walcot (Japanese), seedling of 1882; Robert Walcot (Japanese), seedling of 1882. The other flowers in box are from seedlings of 1883.

Two points of especial interest are worthy of note in connection with the above communication. Firstly, we find that a definite and successful beginning has been made in America, and that really fine varieties of Chrysanthemums are now raised there from home-grown and home-saved seeds. Secondly, Dr. Walcot's box of flowers arriving as they did in such perfect freshness and beauty proves to us at once the possibility of

a cut-flower trade springing up between the two countries, at least that an interchange of new or interesting flowers and fresh specimens may be made for horticultural or scientific purposes. Cut in the fully developed bud state and laid in a box of clean, moist Moss, Tuberoses, Lilies, and Gladioli, and many other flowers would withstand a ten or twelve days' journey perfectly well; at any rate, what is possible with the *Chrysanthemum* is possible with many other garden flowers.

F. W. B.

Plants for mounds.—It is surprising how effective some of our small indoor plants can be made to look when grown on a raised mound of peat or loam, or, as one might call it, a pyramid of soil. Many of our small trailing Ferns, such as *Davallias*, some of the *Polypodiums*, and Filmy Ferns, are only made to form really attractive objects by growing them in a mass on a mound or pyramid, and in most cases such plants thrive better under this treatment than under any other. At Kew there are some pretty specimens of this kind formed by several *Peperomias*, such as *prostrata*, this latter looking much healthier when grown in this way than when grown in baskets. The *Pellionias*, too, are excellent both in health and colour thus treated, *P. pulchra* being especially happy. *Hoya bella*, generally an unsatisfactory plant, is as free and healthy as one need wish when planted against a peat mound or a piece of *Dicksonia* stem. Two of the most attractive plants in the stove are *Philodendron melanochrysum* and *Cissus porphyrophyllus*, and their health and vigour are attributed to their having a nice peaty looking piece of Tree Fern, in which their stem roots seem to delight. The *Cissus* is one of the most beautiful of stove plants when grown as at Kew, the large corrugated deep bronzed foliage, thickly marbled and spotted with pink and white, being particularly striking. As much may be said for the *Philodendron*, whose velvety leaves with their crystallised surface are very ornamental. Another pretty plant when grown upon a mound of soil is *Mikania pulverulenta*, a bronze-leaved composite with crisped foliage, something like a *Panax*. There has been a fine specimen of it in the stove at Kew during the whole summer, and it is in very fine condition still. Some of the dwarf *Eschynanthuses*, *Fittionias*, *Cyrtoderias*, *Chamæranthemums*, and similar trailing plants suggest themselves as suitable subjects for this style of cultivation; thus managed, they would certainly look well, and it is by no means unlikely that they would prove more at home under such treatment than when grown in baskets or small pots.—C.

PLANTS IN FLOWER.

Aralia papyrifera (the Rice Paper Plant) is now finely in flower in Sir George Macleay's garden at Pendell Court, Bletchingley, where it is planted out in a cool house. Its huge clusters of blossoms and large spreading foliage have a fine effect.

Ipomœa Horsfalliæ—This showy climber should be on the roof of every house devoted to the growth of stove plants. We have it now flowering freely, and are about to try the flowers for button-hole bouquets, for which, if they answer, they will be much valued.—J. H.

Masdevallia tovarensis.—This requires more heat during winter than that with which most of the species are satisfied. It is happier in the Cattleya house than anywhere else, the leaves keeping greener, and the growth after flowering being stronger than when kept in the cool house.

Single *Chrysanthemums*.—Mr. Jupp, Brantridge Park, Balcombe, sends us some pretty examples of these raised from seeds sown last March. Thus treated, they come into bloom after most of the large-flowering sorts are over, and are therefore very useful. They are free flowering, dwarf in habit, and well covered with foliage down to the pots. Their colours are of all shades and tints, and they are, moreover, sweetly scented.

Clove Carnations.—I send you herewith three blooms picked off one plant this morning in the open air. This is, as you will see, the old crimson variety, very true to character. The most lovely plant now in bloom in my cool house is *Gladiolus Ville de Versailles*.—WILLIAM BAYLOR HARTLAND, Temple Hill, Cork.

* * * Very fine blooms considering the season.

White Scabious.—A plant in a pot of a pure white variety of *Scabiosa atropurpurea* has been sent to us from the Earl of Effingham's garden, Tusmore Park, Bicester, by Mr. Aggiss

who says that he has a large quantity of this Scabious in all colours, and finds it invaluable both for cutting from and for floral decoration of all kinds. The dwarf purple Scabious, too, is a most useful plant, and not half enough grown in private gardens for blooming in winter.

***Phalænopsis intermedia* Portel.**—One of the finest specimens of this lovely Orchid that has flowered in this country is one that is now in perfection in Baron Schroeder's collection, The Dell, Egham. This plant has a long branching spike profusely laden with flowers, which are white with rich amethyst lips. This rare Moth Orchid was the subject of a coloured plate in THE GARDEN last year.

***Maxillaria lepidota*.**—Some flowers of this singular yet attractive Orchid have reached us from Dr. Paterson's garden, at Fernfield, Bridge of Allan. They are borne singly on stalks about 9 inches long, and have fine attenuated tail-like sepals about 3 inches in length. These are bright rich yellow, deepening into a chocolate-purple towards their extremities, while a deep blotch of the same colour is exhibited on the short spur.

The white *Lycaste*.—The chastely beautiful and at present very rare white variety of Skinneri is now finely in bloom in Mr. B. S. Williams' nursery, Upper Holloway. Judging by this specimen, there are forms even of this variety, for the flowers of this are larger and the sepals wider than we have hitherto seen them. Contrasted with the deep-coloured varieties of the same *Lycaste*, it has a striking effect, for there is not a trace of colour in the flowers.

December open-air flowers.—Mr. Kingsmill has sent us from his garden at Eastcote, Pinner, a few flowers plucked from unprotected plants in the open border. Among them are the Algerian *Iris stylosa*, a fine bloom of a beautiful deep lavender colour; *Sternbergia lutea*, with rich orange-yellow flowers; *Anemone stellata*, with bright magenta blooms; the blue *Lithospermum prostratum*, and some uncommonly fine blooms of Belgian *Pansies*, as large and rich in colour as one could wish them to be in spring.

Pitcairnea aphelandræfolia is one of the few Bromeliaceous plants that are worth growing in a general way. Its narrow grassy foliage is elegant, and its flowers, produced on erect spikes, well overtopping the foliage, are bright and attractive, being of a vivid orange-scarlet. As it never grows to any great size, this *Pitcairnea* is useful for growing in pots for floral decoration in winter, as it habitually flowers at this season. It is now in flower in Mr. B. S. Williams' nursery at Upper Holloway.

December Primroses, yellow of all shades, whites, crimsons in many tints, and even some of a bluish purple colour, have been brought to us in fine bunches from Mr. G. F. Wilson, who gathered them on Thursday last in his wild garden at Oakwood, Wisley—a proof of the mild open weather which we have so far enjoyed. These coloured Primroses are all seedlings selected year after year from thousands of plants; consequently they are the embodiment of what good Primroses should be. The most remarkable point about them is their varied colours, especially the blue-purple sort named Scott Wilson, a most uncommon tint.

***Luculia gratissima* in pots.**—Many are under the impression that this beautiful and sweet-scented greenhouse shrub is difficult to flower until it reaches a large size, but such is really not the case, as plants of it may be had in bloom when only about a foot in height. At the present time there is in the Victoria Nurseries, Holloway, a quantity of plants of it in bloom none of which exceed a yard in height, and the majority are only about half that height. Each plant is carrying one or more large clusters of its fragrant and delicate pink blossoms, which, accompanied by the broad and healthy green foliage, produce a grand effect. This *Luculia* is a plant that should be grown in every greenhouse, either in pots in a small state or planted out as standards or bushes.

It is somewhat surprising that this shrub should be, comparatively speaking, so little known. At South Kensington the other day, where blooms of it were exhibited, we heard an amateur who possesses a large collection of stove plants express his admiration of it and at the same time confess that he was unacquainted with it.

***Philageria Veitchi*.**—However interesting this plant may be, owing to its being the offspring of two distinct genera—viz., *Philesia* and *Lapageria*, its usefulness for horticultural purposes is apparently far below that of its parents. Distinct and pretty enough the flowers certainly are, but they are rarely produced, and although it may be that large plants will prove more floriferous than the largest we have at present, it must rank below both *Philesia* and *Lapageria* as a useful free-flowering plant. There is a fine healthy plant of it in the Kew collection bearing one flower, about the size of that of *Philesia* and similar in form. The segments are rose coloured, with a tinge of purple on the outer ones. The unfloriferous character of the *Philageria* is one of the rare instances of a hybrid being less free flowering than either of its parents; the general rule is the reverse.

***Chrysanthemum Reform*.**—As my idea of *Chrysanthemum* culture coincides in a great measure with that of Mr. Engleheart, I send you a few sprays as samples of our growth. Grown in our way, that is, not disbudded, I consider they are much more pleasing and effective both as pot plants and as cut blooms than the large, but few blooms which one can obtain from plants grown after the exhibitor's fashion. Where there is a large demand for cut bloom, *Chrysanthemums* such as those I send are invaluable, as one can cut armfuls, so to speak, without missing them. All our plants are grown in 8-inch pots.—FRED. BEDFORD, Straffan, Kildare.

* * * The *Chrysanthemums* which Mr. Bedford has sent are indeed fine; they consist of single stems, each carrying from seven to a dozen blooms, and these not small, half-developed, but as full and as large almost as exhibition blooms produced one to a stem only. The kinds that carry the most flowers among this gathering are *Peter the Great*, *Jardin des Plantes*, *Mrs. G. Rundle*, *Mrs. Dixon*, *Golden Queen*, *Empress of India*, *Elaine*, and a pretty blush pink *Pompone* named *Rosinante*.—ED.

Small *Chrysanthemums*.—Amongst the large numbers of these plants now in flower in the conservatory at Kew are some pretty little specimens in 6-inch pots. These consist of half a dozen plants which were cuttings only two months ago. For use where full-sized plants would be too large, and even for table decoration, these little potfuls of dark green leaves and a score or so of flowers would be of great service. The smaller flowered kinds are most suitable for growing in this way. Where church decoration at Christmas-time is done on a large scale little plants such as these would be valuable. Their dwarfness may be attributed to the cuttings being taken from large specimens after growth was completed and the flower-buds set. A host of plants, indeed, such, for instance, as *Poinsettias*, *Hydrangeas*, &c., might with advantage be treated in this way, where short flowering specimens are required, or where the plants have grown unsightly, but whose flowers cannot be dispensed with. A little extra care is all that is necessary to succeed with work of this kind.

Cool Orchid house.—This term is very misleading, as some give the name to the cool *Odontoglossum* and *Masdevallia* house, others to the *Cattleya* house, and many are induced to expose plants only suited to the *Cattleya* house to the low temperature of the cool *Odontoglossum* and *Masdevallia* house, and thus injure or lose valuable plants, as has happened to myself in the beginning. Would it not be better if contributors to THE GARDEN abandoned the use of cool houses altogether, and adopted solely those of East India house, *Cattleya* house, and *Odontoglossum* house, which would leave no doubt as to what they intended to convey to your readers?—H. J. ROSS.

TREES AND SHRUBS.

CARYOPTERIS MASTACANTHUS.

IN the first week of October last the Rev. H. Ewbank, St. John's, Ryde, Isle of Wight, sent us a flowering spray of this plant from which the accompanying engraving was made. "This plant," he said, "is most delightful in the autumn; in fact, it looks like a bit of May imported into October. It is covered all over with light blue flowers, and they are slightly fragrant. It has the additional recommendation of growing very easily on a north wall. I may also say that a small cutting which was struck in the spring is quite an ornament of the greenhouse, and covered all over

Varieties of *Pernettya mucronata*.—At the back of the Palm house at Kew a couple of circular beds have been planted with the new varieties of *Pernettya* which have attracted so much attention of late, and which formed the subject of a coloured plate in THE GARDEN in May last. It may be truly said of these *Pernettyas* that they are amongst the brightest of berry-bearing shrubs at this season, and if unstripped by birds they will continue in beauty till spring, when soon after that they again come into flower. For winter bedding these *Pernettyas* are of very great value, their dense wig-like masses of roots enabling them to be moved at almost any time without injury—a character shown by the plants at Kew, for though only just planted they



Flowering branch of *Caryopteris mastacanthus*; flowers blue (natural size)

with bloom. Few pot plants could be prettier just now. I am sure this delightful shrub ought to be widely known." It is a native of China and has been recently introduced to this country by Messrs. Veitch, who thus describe it in their catalogue: "A sub-evergreen free-growing shrub, with Verbena-like foliage. It produces dense clusters of light blue flowers from the axils of the leaves of the young shoots. It flowers profusely for several weeks, and the young growths have a Sage-like fragrance." Another species, *C. incana*, is a similar plant and equally pretty.

Mistletoe.—I should like to ask through THE GARDEN whether Mistletoe is known to grow on the Yew Elm. From a railway carriage I saw the other day a very fine bunch of it growing on a tree which, at the rate of speed at which the train was moving, I could not distinguish, but which I believe was a Yew Elm; if not, it was certainly an Oak. I am aware that Mistletoe is rarely seen growing on an Oak, but I have no recollection of ever seeing it on the Elm.—J. C. C.

are as fresh and healthy as if long established. Cut sprays of *Pernettyas* last a long time in water, and may be used in various floral arrangements with good effect; the small shining dark green foliage is also very pretty; and sets off both berries and flowers to good advantage. Prominent amongst the different varieties were *coccinea compacta*, *atro-coccinea*, *rosea*, *rubra*, *coccinea salicifolia*, *lilacina*, *rosea lilacina*, *coccinea purpurea*, *nigra major*, *sanguinea pumila*, *rubra coccinea compacta*, *rosea purpurea major*, and *atro-coccinea decussata*. These names are in most cases indicative of the colours of the fruits, but some few refer to peculiarities of the foliage or the habit.—ALPHA.

SHORT NOTES.—TREES AND SHRUBS.

LORD POWERSCOURT writes a very interesting letter on "Tree Planting in Ireland" in the new journal *Woods and Forests*.

Platanus californica.—Messrs. Lee have sent us a very handsome leaf of a Plane thus named, and if the tree is as fine as the leaf, one would expect something unusually good. Of its hardness and stature we know little.

The Mountain Ash.—Stunted and crowded specimens of this tree are seen sometimes in parks and shrubberies, but to be seen in true character, this tree must have good soil and plenty of room for development. I have nowhere seen it in such grand condition as in the sloping woodlands of West Somerset, where Nature has planted it and allowed it time and space to grow in its own way. Here, in the month of October, it may be seen heavily laden with bright scarlet berries, visible from a long distance off and very ornamental.—J. C. C.

ROSE GARDEN.

ROSES FOR TOWNS.

WHILE we and others enjoy an unlimited amount of pure air and open country, often surrounded by a good old English forest or wood to shield our Roses from cruel nor'easters, we must not forget that there are others, and legion is their name, who have to fight the hard battle of growing the queen of flowers under more disadvantageous conditions. Large masses of people are compelled to live in or near our great centres of industry, and I suppose this must always be so. These, though prevented by business from enjoying with us the beautiful hillside or the shaded vale, are not less devoted to their somewhat limited space of ground than we are to our broad acres, and they, too, equally with us, can say with Lord Bacon, "That gardening is the purest of human pleasures and the greatest refreshment to the spirit of man." But with all the drawbacks that beset the suburban gardener, there are instances in which he competes with success against his better-favoured countryman. In proof of this I need only refer your readers to Mr. Mawley, one of the secretaries of our National Rose Society. He with a small garden and a very limited stock of plants has achieved, for a suburban amateur, more, I venture to say, in the way of success as an exhibitor than any other Rose grower under similar circumstances. It has been proved that the thick and more glossy-foliaged varieties are those best adapted for town work; they resist the smoke and dust more readily than the more porous-leaved varieties. They are, too, in most cases stronger in constitution, and are more easily divested of dirt by syringing or washing than are the rougher-foliaged kinds. Prominently amongst these are Paul Néron, Dupuy Jamain, John Hopper, Charles Lefebvre, Auguste Rigotard, Baroness Rothschild, Madame Hippolyte Jamain, Captain Christy, Gloire de Dijon, and nearly all the Tea-scented Roses. To avoid disappointment to the purchaser for town growth, the above or similar kinds should be selected. The class of Roses not suitable for towns are Marie Baumann, A.K. Williams, Maurice Bernardin, Madame Lacharme, Mrs. Jowitt, Duc de Wellington, Fisher Holmes, Xavier Olibo, &c. Some of these latter may, in some situations and under certain conditions, thrive, but such is the exception, and not the rule. So much has already been said as to the best modes of

PLANTING, soils, &c., that it seems needless for me to advise that if the soil is light or sandy it should be removed to a depth of at least 2 feet, and replenished with some good strong loam of a clayey character. The best time for planting is in November, but this may be done up to March if the ground is in good condition. Some timid people will not plant until the severities of winter are over, but there are so many means of protecting the base of the plants (and that is all that is essential)—by earthing up with soil, laying boughs of evergreens over the plants, or, if procurable and more to be preferred, common Bracken. On the other hand, I have seen and even planted Roses in February and March which have done remarkably well. One advantage of late planting, if no other, is the supply of blooms which one reaps from these late-planted Roses. If Roses are planted in the autumn, they will necessarily be ready for pruning at least two weeks before those planted in spring. For autumn-planted

Roses I should recommend pruning the first week in March. These, then, in the case of the weaker growing varieties, may be pruned down to two or three eyes from the ground, and for the stronger growing sorts five or six eyes at least should be left. It is, then, for the suburban grower more particularly to watch the growth of the plants in spring, and, without damaging the young foliage, to wash off all dust, dirt, or smoke—to such it is a constant care and watching—without which he cannot hope to be rewarded by anything beyond small half-developed and sickly-looking flowers.

W. H. FRETtingham.

Beeston, Notts.

PEGGED-DOWN BEDS OF ROSES.

IN order to form beds for pegged-down Roses that are to last in a satisfactory condition for some years, it is necessary that the plants should be on their own roots, and medium sized ones are better than large ones. In our case, when we began with own-root Roses, our first plants were from cuttings inserted in the month of August and struck in a cold frame. More cuttings were put in at the end of October; for these a spot was prepared under a warm wall, and they were inserted firmly in the soil. Those put in the frame gave us the greatest percentage of plants, but those in the open also struck fairly well. From these two sources we obtained in 12 months as many plants as we wanted, and quite as large as we cared to have them for this particular purpose. Next to having suitable plants is the question of soil; unless that is of the right sort and in sufficient quantity, the undertaking will not be a permanent success. How long beds of Roses grown in this way will last in a thriving condition I do not know, but I may remark that plants in large beds formed fifteen years ago have made as good growth during the last summer as at any time previous; in fact they are in the most vigorous condition. But then the soil was well prepared. In the first place the top or surface was taken off and laid on one side, the depth of soil thus removed being about 12 inches; the bottom soil was then taken out to nearly the same depth, and its place was supplied with fresh material consisting of three parts loam and one part thoroughly rotten hotbed manure. With this the surface soil was mixed so that the plants had nearly 2 feet in depth of good material in which to grow, and the quantities of flowers which they annually produce show that our labour was not lost upon them. Notwithstanding the length of time they have been planted, they still continue to throw up shoots 5 feet or 6 feet long and almost as thick as a man's thumb, and that in such numbers that we have always plenty of vigorous young wood to take the place of that annually cut out. It appears to me that this is the secret of growing Roses in pegged-down beds. Young wood of suitable strength will always produce much finer flowers than could be had from spurs on branches two or three years old. It is, therefore, desirable to start with a thoroughly substantial soil, and give liberal treatment afterwards.

THE PLANTING out of Roses from pots may take place at any time, but early in May is the best season in the year for such work. Those lifted from the open ground may be planted at any time from November to March. When planting let the collar of the plant be placed a little under the surface; the first summer's growth should be allowed to grow in its own way. In autumn a light dressing of short animal manure should be spread on the surface and lightly forked in. In exposed situations where frost is likely to be severe the shoots should be pegged down before frost sets in, but except for that reason they are not likely to sustain any harm, provided the pegging down is done before growth commences in the spring. By the end of the second year there ought to be a sufficient number of branches to cover, when pegged down, the whole of the surface at distances of 9 inches apart. After that routine work will consist in cutting out the old branches which have flowered, in order to make room for the young ones. This may be done either in November or

December after the pruning is done; the surface should be cleared of all rubbish, and once in two years the beds should have a dressing of short farmyard manure, laid on pretty thickly and carefully forked in about the roots. Such portions of the manure as cannot be buried with the fork should be covered with some fresh soil. I may mention here that in any case in which there may happen to be too little young wood to cover the surface some of the old branches may be left. If the young side growths which flowered during summer are pruned back to a spur, leaving two or three eyes to each, they will flower freely; but young growth which has not flowered is in every way preferable. When dealing with established beds there will be long vigorous shoots. These should be shortened back somewhat, because the stronger the wood the better will be the flowers produced. If shoots the whole length of a year's growth are left, the buds nearest the ends where the wood is weakest will break, while those near the stem where the branch is strongest will remain dormant.

THE SUMMER MANAGEMENT will consist in keeping the beds free from weeds, and in all cases where they are expected to be in the best possible condition the roots must have plenty of water in dry weather during the early part of the summer. Plenty of moisture at the roots is also especially necessary while they are in full blossom, as if they get exhausted at this stage, the after-growth, on which the supply of flowers for next year depends, will be weak, and in all probability mildew will attack the leaves and seriously injure the health of the plants. One part of the summer management will consist in attending to the rising branches. In order to secure the strongest growth possible it is desirable to let them grow erect in their own way until they are 4 feet or 5 feet long before pegging them down. In our case we allow them to have their own way until the middle or end of August before we peg them down, and then we deal with the strongest shoots in a gentle manner, bringing them down by degrees. We do not study trimness so much as the securing of a plentiful supply of well-developed flowers, and this we cannot have without vigorous growth. As Roses grown in this manner flower with great freedom, it is desirable to thin out the flower buds as soon as they are large enough to handle—a practice more desirable in the early part of the season than later in the summer. These instructions, I should have said, are only applicable to Hybrid Perpetuals. Of others dealt with in this manner I have no experience.

J. C. C.

PROFITABLE ROSE GROWING.

ONE of the greatest difficulties with which market growers have to contend is that of carriage, but with Roses this difficulty exists only in a minor degree; these if cut before they are fully expanded may be cheaply and easily packed in damp Moss, and sent very long distances in good condition. The demand for Rose buds during winter and early spring in London and other great centres of population is a growing and almost inexhaustible one. Of course in order to have Roses at a time when they are in the greatest demand and fetch the best prices it is necessary that they should be grown under glass, and to do them well they must have a house to themselves. Any kind of house may be used, but, like other things, the best is best, and for pot Roses there should be beds in which the pots may be plunged in a gentle bottom-heat; a good bed of leaves with pipes under them is a good arrangement. If we were about to commence operations, we should have a quantity of strong plants of suitable sorts potted up from the ground at once; they should be put in 8-inch pots, and plunged in leaves or other material giving a very gentle heat, and the plants should be protected from rain, but otherwise open to the air. In this position they would make roots without top growth. By the end of January they might be pruned and moved into the forcing house, plunged in a bottom heat not exceeding 80° Fahr., and a top temperature not exceeding 60° for the first three or four weeks; afterwards it may be raised to 70° with abundance of moisture, and in

this way a good crop of blooms might be cut in April, but where plants are already at hand established in pots, they may be had in bloom much sooner. Growing in pots is, however, after all a troublesome affair, and requires skill, patience, and a good stock of plants to draw from in order to keep the pots going. A slower, but surer plan is to

PLANT OUT. Suppose you have a low span-roofed house, say about 15 feet wide with a path down the centre; make up the border on each side with good soil, as for Vines. Plant a row of *Maréchal Niel* in the border for roof training, and in two rows each side plant *Niphetos*, *Lamarque*, *Madame Falcot*, *Gloire de Dijon*, *General Jacqueminot*, *Souvenir de la Malmaison*, *Solfaterra*, and as many more sorts as you have room. Plant them firmly, support them with neat stakes as they grow, give no artificial heat the first year, but plenty of air, plenty of moisture, plenty of manure, and they will grow and astonish you with their vigour. The *Maréchal* will cover the roof with stout rods, the others will fill the beds, and there will be some Roses the first season; but the second season, if the planting has been done well, there will be Roses in March, more in April, and more and more in May—in fact a grand feast of Roses. But it is only from October to June that Roses will pay; it is therefore from June to October that the plants should be made to rest by giving them a sort of artificial winter. If it can be conveniently done, the lights should be removed from the house and the plants exposed to the full sun and air, and no more water given them than they obtain from the rain that falls during the time they are exposed. In September they should be pruned, cleaned, and manured, and soon afterwards the lights should be put on and the process of forcing gently commenced. By this mode of proceeding there will be plenty of buds to cut before Christmas, and the plants will continue to produce them for several months in succession, but to keep up a full supply during the eight or nine months they are required it will be necessary to have two or three houses planted and started into growth at different times—say one in October, one at Christmas, and one in February. In this way, with plants out of doors in beds and trained on walls with various aspects, a supply may be had to send to market every week in the year, and thus a connection would be kept together and the best price obtained at all times. Insects, of course, must be guarded against; the most troublesome to the Rose grower are green and black fly and red spider. Tobacco smoke will make short work of the fly, but the spider is a dreadful pest if it once gets hold; therefore, it must be guarded against by providing plenty of atmospheric moisture and sufficient air. Never allow the plants to become dry at the roots during their growing season, nor the pipes too hot; let the heat be a moderate one, and give the plants time to grow. Having no other plants in the house, the Roses may be kept in the most perfect health, and in that state insects will not trouble them much.

THE PROFITS arising from Rose growing are not so easily got at as in the case of some things; but three houses, each 50 feet long and 15 feet wide, in full bearing should produce 3000 dozen, which at an average price of 1s. 6d. per dozen would be £225. One man would manage the whole well, and also a piece of outside Rose garden besides, from which might be obtained another £10, making £235. Against this we will set for rent and interest on building, £40; labour, £70; fuel, £12, making £122; thus leaving a profit of £113, or nearly cent. for cent.—*Jersey Gardener.*

TEA ROSES.—I have just finished lifting all our Tea Roses from beds in the flower garden, 80 in number. I have had them all potted and put into a cold house, where they will be brought on gradually for forcing in January, February, and March. They have thoroughly enjoyed their summer quarters, carpeted with *Mignonette*. I have just put into a span-roofed house 100 fine young plants, all on their own roots, for flowering

from this time onwards.—RICHARD NISBET, *As-warby Park*.

NOTES.

Flowers of winter.—Sweet Violets, Wall-flowers, and pale Primroses alike nearly girdle the year with their blossoms, but it is now that they are most sure of a welcome. The golden Jasmine flowers bespangle sunny walls and contrast well with glossy-leaved Ivies and with the coral berries of Pyracantha or Cotoneaster, while even a few crimson buds are appearing on the Cydonia, which, however, blossoms best early in April, just when our bed of Horsfield's Daffodil is at its best. This season has favoured open-air Chrysanthemums wonderfully, and spring-sown Anemones, both single and double, are also blooming well. So also the great Christmas Rose (*H. niger altifolius*), flowers of which endure for fully a fortnight if cut in the full-grown bud stage and brought indoors to expand. Contrasted in a large bowl with scarlet and purple Anemone coronaria flowers and Anemone leaves, these Hellebore blossoms give us a pretty indoor picture. But no winter flowers are more welcome than large purple Violets arranged in a saucer of damp Moss with a few sprays of golden Thyme among their own fresh green leaves. Placed in water, Violets soon lose their fragrance. In moist Moss, bedewed now and then with fresh water, they endure fair and sweet much longer.

A bit of Rosemary may well be laid on the newly-turned sod in memory of poor Fleming, of Cliveden, than whom no man was ever more affectionately mindful of the flowers of our northern springtide. In the grounds and woods at Cliveden even such common wild flowers as Bluebells and Primroses were treasured, and a tiny circle of young Grass was sacred to these or to any other pretty flower which had strayed out on to the well-mown lawns; no cruel scythe or mangle-mower touched them; and so it came about that the most natural and most beautiful of spring blossoms (which are even yet too often met with in lines and formal masses), as seen at Cliveden, always reminded one of free and happy children running about at play. Fleming will always be considered as the founder of "spring gardening," by which we do not mean "spring bedding," and that no offer of promotion could tempt him to leave the beautiful Thames-side garden he loved so well, and did his best to make so beautiful, gives us an agreeable little inner peep at his simple, contented nature. Moreover, he was an accomplished gardener and worthy of a spray of Laurel as well as the herb of fragrant memories.

"The wild garden."—"As far as my eye can range it rests only on flowers—on beautiful flowers! I am looking as on a tinted map—an enamelled picture brilliant with every hue of the prism. Yonder is golden yellow, where the Helianthus turns her dial-like face to the sun; yonder scarlet, where the Malva rears its red banner. Here is a parterre of the purple Monarda; there the Euphorbia sheds its silver leaf. Yonder the orange predominates in the showy flower of the Asclepias, and beyond the eye roams over the pink blossoms of the Cleome. The breeze stirs them; millions of corollas are waving their gaudy standards. The tall stalks of the Helianthus bend and rise in long undulations like the amber waves of a cornfield—like billows on a golden sea." When I read Col. Stuart Wortley's description of the wild blossoms around Niagara (see p. 379), the above quotation came to my mind. Really the American "weed prairies" must be a sight to see—vast gardens, or rather Nature's own flower beds, of bright blossoms growing alone in a vast solitude—immense tracts of great beauty, heedless alike of our poor admiration or of our aid.

The "weed prairies" is the commonly accepted name in the West for these enormous tracts of flower-strewn country. The above quotation is from "The Scalp Hunters," by Captain Mayne

Reid, who seems to have been as fond of flowers as of adventure, since he further says: "The flowers are at rest again. The air is filled with odours sweet as the perfumes of Araby or of Ind. Myriads of insects flap their gay wings—flowers of themselves. The bee-birds skirr, glancing like stray sunbeams, or, poised on whirling wings, drink from the nectared cups, and the wild bee, with laden limbs, clings among the honeyed pistils or leaves for his far hive with a song of joy. Who planted these flowers? Who hath woven them into these pictured parterres? Nature! It is her richest mantle, richer in its hues than the scarf of Cashmere. This is the 'weed prairie.' It is misnamed. It is the garden of God!"

Single Chrysanthemums.—A friend sends me a handful of these, and they are very beautiful big, Daisy-like flowers, white, yellow, reddish brown and lake-coloured with golden centres. One dwarf floriferous kind is of a bright pale rose colour, producing its flowers in dense clusters, and another very similar in habit and size of bloom has white florets. For decorative usage indoors they are far more elegant than the heavy globular show flowers. Florists may condemn them, and they may not be awarded the tempting money prizes which call forth the great show blooms, but artists will paint them and ladies will wear them, and the more unprejudiced of gardeners will grow them, not to the exclusion of the double varieties, but in addition thereto. Taste is now-a-days so keen and so cosmopolitan, that all wants must be consulted, and all the natural variations of a beautiful and popular flower, be it single or double, should have a place in our gardens. For yielding a copious supply of bright and long-enduring blossoms for cutting, these single varieties certainly deserve notice.

Love of flowers.—"Perhaps it may be thought if we understood flowers better we might love them less. We do not love them much as it is. Few people care about flowers. Many, indeed, are fond of finding a new shape of blossom, caring for it as a child cares about a kaleidoscope. Many also like a fair service of flowers in the greenhouse as a fair service of plate on the table. Many are scientifically interested in them, though even these in the nomenclature rather than the flowers, and a few enjoy their gardens; but I have never heard of a piece of land which would let well on a building lease remaining unlet because it was a flowery piece. I have never heard of parks being kept for wild Hyacinths, though often of their being kept for wild beasts. And the blossoming time of the year being principally spring, I perceive it to be the mind of most people during that time to stay in towns." Thus far John Ruskin, in "Modern Painters." All, alas, but too true; yet it is very pleasant to think that at Cliveden, Belvoir, and Longleat, among other places, the wild flowers of our own land, as also of other temperate northern climes, find a pleasant home.

Helleborus altifolius.—When I asked at p. 453 for the "native habitat" of this plant, I of course wished to know something more precise and definite than the name of the country, be it Southern Austria or Carniola. It often happens that the "natural habitat" of a plant is extremely small, while the country in which that habitat is situated is extensive. For example, *Pæonia corallina* is a native of Britain, but its real habitat is one little island in the Bristol Channel—the Steep Holme. *Pinguicula alpina* and *Spiranthes Romanzoviana* are both natives of the British Islands, but the topographical position of the plants themselves, that is to say, their habitats are very restricted localities. I am still anxious to hear of the precise native habitat of *H. niger altifolius*.

Iris susiana.—While one of the most singular and interesting of all the species of bulbous Iris, this plant is also, unfortunately, one of the most difficult to cultivate in a really satisfactory way. Its name implies that it is found near Susa, in Persia. Clusius says it came to Vienna and Holland from Constantinople in 1573; and old Gerard tells us that it flourished in his garden, being planted in ground not over wet, and he further tells us that the whole flower is of the

colour of a Guinea hen, a rare and beautiful flower to behold. Parkinson figures it, and yet, old as it is to our gardens, how rarely do we ever see it in a thriving condition. Although hardy in the sense that hard winters do not actually and absolutely kill it, yet it begins to grow so late in the year (even now its leaves spear up through the wet earth), that its growth doubtless becomes checked and its vigour impaired by severe weather. By taking up its roots after the leaves die off in summer and keeping them out of the ground until the worst of winter weather is over is, perhaps, the best way of treating this plant. If any of your readers are usually successful, their course of treatment would be most welcome.

Ipomœa rubro-cœrulea.—I saw this plant the other day in great beauty. Planted out in the back border of a little plant stove, it had clambered up a trellis to the roof, from which its graceful shoots dangled, and when I saw it in the bright sunshine of a crisp December morning it bore at least fifty of its sky-blue trumpets, and was very fair to see. As a garden plant it is far prettier, as I think, than the old *I. Leari*, the flowers being larger and of a more delicate colour. *I. rubro-cœrulea*, or *I. cœrulea*, as it is often called, is really a native of Mexico, whence it was introduced to English gardens in 1831; its flowers are 4 inches across and of a pure sky blue, except that the eye or tube is white. A good figure of this plant will be found in Maunde's "Botanist," vol. ii., plate 2, and I think also in Bot. Mag., t. 3297. Although really a native of Mexico, this plant (and some other species) is now quite naturalised in India, where they thrive well in the open air. *I. Leari* and *I. (Batatas) paniculata* are quite common on the walls, houses, fences, and verandahs at Port Said, but none are more beautiful than our present species, with its profusion of large sky blue blossoms.

Erigeron roseum.—Can any lover of hardy flowers tell me aught of a plant now in bloom under this name? It is like a dwarf Aster in habit, but the ray florets are so narrow that they remind one of a dainty fringe of soft, rosy floss silk as they spread themselves around a golden green disk or eye. After rain, these ray florets hang limp and dripping as those of a syren newly risen from the sea, but fresh flowers soon open, and in sunny weather the plant is very attractive. As a cut flower I consider it most valuable; there is nothing like it except the lilac-flowered *Boltonia*, which is large and coarse by comparison, and fresh buds keep on opening indoors for a week or ten days. The individual blossoms are only about the size of those of the common Daisy, but are borne in trusses of six or seven flowers each. Arranged in a tiny tazza of Bohemian glass, with a spike of white Roman Hyacinth and a spray of Cape Asparagus for company, this little silky-petalled *Erigeron* is most lovely and welcome.

Sweet herbs.—In all old-fashioned gardens of the olden time sweet and fragrant herbs found a place. Mint, Thyme, Rosemary, Bergamot, Lavender, Marjoram, Basil, and a hundred and one other old sweet-smelling things had culture and usage also. Modern chemistry has, in giving us more convenient, if not actually better, scents and flavours, done somewhat towards the forgetfulness of the old-fashioned herbs which our grandmothers took care to grow and preserve so carefully. But even to-day sweet herbs deserve culture if only as yielding fragrant leafage as an accompaniment to more brilliant blossoms which are themselves scentless. The late Miss Hope, who regularly sent flowers from her garden to the blind, was ever mindful that sweet-leaved Verbena, Golden Thyme, Sweet Brier, Rosemary, or sprays of Lavender should accompany the flowers she culled for them. However beautiful the flowers might be, and often were, she was anxious that "sweetness and light," fragrance and brilliant colour, should accompany each other.

Narcissus papyraceus.—Once more our Narcissus season begins with the blossoming of this pure white species from the Mediterranean region. In a warm greenhouse its flowers open

out white and sweet as Hawthorn in May time, and we always welcome it, because it commences for us in December the flowering of our Narcissi, which will continue in beauty more or less abundantly from the present time until next June. It thus becomes possible for us to have some one or other of the Narcissi in flower for six months of the year at least, and perhaps no other flowers are more beautiful or more welcome. Several of the smaller Hooped-petticoat Narcissi (*Corbularias*) are also pushing up their flower-buds indoors, and the broad glaucous leaves of *N. Horsfieldi* and the *Polyanthus* varieties are also spearing through the earth. Of these we always grow a few in pots, so as to obtain a glimpse of their blossoms fresh and fair and earlier than would be possible in the open air. VERONICA.

INDOOR GARDEN.

COSSIGNIA BORBONICA.

THIS is a handsome evergreen hard-wooded shrub from the Mauritius; consequently it requires a brisk heat in which to grow it well. Its beauty principally consists in the leaves, which are pale olive-green, with a handsomely coloured midrib. This plant has been much prized by cultivators of ornamental-foliaged subjects, from the fact of its being a much slower grower than the generality of fine-leaved plants, and on this account not so liable to overgrow the limits of the space allotted to it. When it has attained sufficient strength, it usually branches out freely, forming a good-sized bush, like a large *Croton*. It is a somewhat difficult plant to

PROPAGATE, the cuttings being harder to strike than those of many things, but they may be rooted if the young shoots are taken off with three joints or so when in a three-parts matured condition. Put them singly in small pots in sand, covered with a bell-glass, and set them in an ordinary stove until they have got callused, which will sometimes take several months to effect. They should then be placed in a bottom-heat of 75°, still kept moderately close and shaded; the sand all along must be maintained in a fairly moist condition, but not too wet. A still more certain way is when there is a strong plant to cut some or all of the branches back to where the wood is quite hard in early spring before growth commences, and then to subject it to more warmth, which will cause the back buds to break. These should be grown on gradually under the influence of plenty of light, so as to keep them from being weakly. When the shoots have reached a length of about 5 inches or 6 inches they should be taken off with a heel of the old wood, and put separately in small pots half filled with sandy peat, the surface all sand, kept close enough to prevent flagging, in a bottom-heat of 80° and shaded from the sun, which would injure them. So treated, a good percentage of cuttings may be induced to root, after which they must be gradually inured to bear the full air of the house. When the pots are fairly filled with roots move them into others 5 inches in diameter, giving them good fibrous peat and sand enough to make it porous. The plants, as soon as pretty well established, should be stood near the glass, so that they may not be disposed to get drawn up weakly. This *Cossignia* in its

FIRST STAGES is inclined to be of an erect habit and it is useless attempting to stop it before it has got sufficient strength to enable it to support side branches, which will hardly take place before the second year. A second shift may be required during the summer, but not a large one; one or two sizes bigger pots than those into which the plants were moved from the cutting pots will be large enough. Air must be given through the growing season in the middle of the day, and shade from the sun when full on the glass will be required; syringe daily to keep down insects. A day temperature in the growing season of 75° to 85° should be given, and not lower than 60° in the winter in the night time. In the spring

the leading shoot ought to be reduced two or three joints, as now the plants may be supposed to have strength enough to break and maintain a couple of shoots, which by being tied down when they have grown to the length of 10 in. or 12 in. will again break. Larger pots should be given as required. Managed in this way, the plants keep on growing and attaining a more bushy condition for years; and if in the course of time they get at all bare of leaves about the bottom, the head and side branches may be cut well back in the spring and treated so as to cause them to break out afresh, when they usually make finer, better furnished specimens than when younger.

INSECTS.—As to insects, the daily use of the syringe will generally be sufficient to keep down the least troublesome, such as aphides, thrips, and red spider, and the smooth, leathery nature of the leaves is such that they are easily freed from bugs or scale by sponging, should these latter affect them. T. B.

CULTURE OF LAPAGERIAS IN POTS.

MY only greenhouse—an account of which I once gave in *THE GARDEN*—is about 20 feet long by 10 feet wide, a span roof, in a very open and sunny aspect; in this, which is heated by a flue simply to exclude frost and dry up damp, I manage to grow a number of things, so that I am never without flowers. The shelves are well filled on one side with *Camellias*, *Azaleas*, and other hard-wooded plants, the other with *Cyclamens*, *Pelargoniums*, *Fuchsias*, *Lilies*, and *Chrysanthemums*, according to their season, and my house undergoes in the course of the year as many changes as does the performer in one of those entertainments where in the course of an hour he assumes twenty different disguises. Now I was very desirous of growing in this the two *Lapagerias* without interfering with the other plants. I could not plant them out, nor could I give them an unlimited space to travel over, for I could not allow them to shade the other plants. I therefore determined to plant them in pots, and give them the east side of the house to run over, and also to come over the central path of the house for a certain distance. Three years ago Mr. Howard, of Southgate, the largest grower of *Lapagerias* to be found anywhere, I suppose, and who has brought their propagation to such excellence as was at one time never dreamt of, was good enough to send me two good plants in large 6-inch pots. On looking about for instructions as to how to grow them, I was considerably perplexed, more especially on the subject of sunlight and shade, some writers affirming that sunlight was injurious to them and that they delighted in shade, while it was affirmed, on the other hand, that they rather enjoyed the sunlight. Seeing how very opposite these opinions were, I came to the comfortable conclusion that probably both were right, and that as mine was a very sunny aspect, that they would probably do as well as if they were shaded. I had not the same theoretical difficulty with regard to compost, for it was pretty well agreed upon by the authorities I consulted that equal parts of loam and peat in good-sized pieces with lumps of charcoal was that best suited for them. In this compost I placed them last year when I repotted them into 8-inch pots; they then did well, and I was rewarded with some beautiful blossoms and some vigorous growths. Seeing that this answered well, I repotted them this year in the same compost in 18-inch pots, and placed the pots somewhat on a lower level than the stage, so that the roots at any rate did not get exposed to the scorching sun, and I have this year been rewarded with entire success. They commenced blooming about two months ago, and ever since I have had a succession of beautiful flowers. The other day I counted on them thirty-six expanded blooms, as good and large as I have ever seen, and as the plants have run into one another, the white and red blooms were intermixed. I have them now in clusters of five and six hanging close to one another from the roof, and when one goes into the house on this snowy day (December 8) and sees these blooms, some of a brilliant red, and others

of a whiteness rivalling in purity the snow without, I cannot but feel what an ample return it is for the trouble bestowed on them. They now almost cover the east end of the house, and are running along the rafters—indeed as far as I can well permit them to go. It has been sometimes said that alba is not so easy to grow or so floriferous as *rubra*, but I have not found it so; indeed the growths from the root of the former were more numerous and stronger than the other, while I see no difference in their blooming qualities.

Such is my plain and unvarnished tale with regard to my experience of growing these lovely climbers in pots. As I have said, these remarks may appear too simple and trite to those who are able to grow them on a large scale, but I have, nevertheless, a hope that there are some readers of *THE GARDEN* to whom they may prove useful; and if by what I have written I may encourage some to grow them who have hitherto been deterred by supposed difficulties, I shall not have written in vain. I have only one word to say in conclusion, and that is to be careful as to the peat used, for I am sure that both in the culture of these and of *Disa grandiflora* I owe a good deal of my success to the excellent quality of my selected Orchid peat. The same may be said of the loam also; the more fibre it has the better, and with these essentials secured I cannot but believe that success is certain. DELTA.

CYRTOCERAS REFLEXUM.

THIS is a handsome free-flowering plant of moderate growth, very nearly allied to the *Hoyas*. In some respects, indeed, it closely resembles them, especially in the general appearance of the flowers and in the short spurs on which they are borne. The shoots are of a stout woody character, erect, and comparatively few in number, springing from the collar of the plant, and not inclined to branch; the leaves are thick and leathery and of a bright green colour. This plant is well adapted for cultivation by those who have not the convenience of a large stove, as it is a slow grower, and takes a considerable time before it occupies much space; moreover, it bears cutting in freely when required, breaking up from the bottom if the heading down is performed in the spring. It is indigenous to Manila, and consequently needs to be kept always warm, but when in flower during the summer it can, without injury, be moved to a conservatory, but must not be allowed to remain in a draught; although it does not suffer from the drier atmosphere usually here maintained like many stove subjects, this can be accounted for through the plant never requiring an atmosphere laden with moisture to the extent that many occupants of the stove need; in fact, if the air in which it is grown is too close and damp, it often has the effect of causing the flowers to fall off before they open; neither does it thrive in so much shade as quicker-growing, thinner-leaved plants demand. If in the hottest weather it is slightly protected from the direct rays of the sun, so as to prevent the leaves being scorched, this is sufficient.

PROPAGATION.—It strikes freely in the spring from half-ripened cuttings, especially if these consist of side shoots that can be taken off with a heel. They should be inserted singly in small pots in a mixture of half sand and fine loam placed in a brisk heat and covered with a bell-glass; they will root in four or five weeks, after which inure them to more air, and let them have plenty of light, but not much sun, until they have become more fully established, when they should be removed to 5-inch or 6-inch pots. It will succeed in either peat or loam, but I prefer the latter when it can be had of good quality with plenty of turfy fibre in it. Whilst the plants are small, it should be broken fine; add about one-sixth of sand, according to the nature of the loam, and drain the pots well, as the plant cannot endure stagnant water. This *Cyrtoceras* does not make a large quantity of roots; consequently it must never be overpotted, and care should be taken not to give too much water, especially until the soil has got well filled with roots. As soon as they have started fairly

into growth, the points of the shoots ought to be taken out to cause them to break, as it has a natural tendency, if not checked, to extend without branching sufficiently. During the summer the night temperature should be kept about 70°, giving air in the daytime when the heat rises to 80° with a thin shade; syringing overhead in the afternoons will assist growth. Continue the above treatment until the weather begins to get cooler; then discontinue the use of the syringe, as also shading, giving more air and less water to the soil. Through the winter a night temperature of 60° will be sufficient, keeping the plants in the lightest and driest part of the stove. About the beginning of February give them 5° more heat in the night, with a corresponding increase in the day, but do not repeat until the roots have got well into motion; and as one shift in the season will be quite sufficient, it is well not to move them till April, when they should be put into pots 3 inches larger, now using the soil in a little more lumpy state.

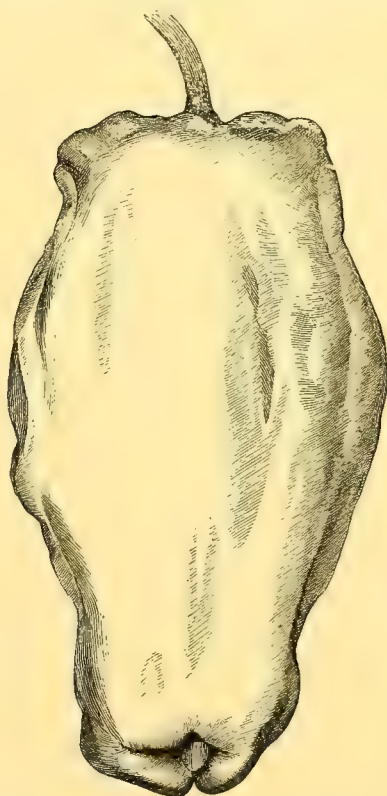
TRAINING.—Tie the branches well out, bending them down close to the rim of the pot; this will have the effect of causing young shoots to push up from the collar; at the same time pinch out the points of those existing. As the weather gets warmer increase the night temperature to 70° and proportionately more in the day, with a little shade, damping overhead when the house is closed. All that will be requisite during the summer will be a continuance of the treatment recommended. Most likely a few flowers will be produced by the strongest shoots, but it will not be advisable to move them out of the stove, as the object will be to get them to make as much growth as possible. In the course of the summer the tops of the strongest shoots may be tied down, which will still further induce them to break back, and at this stage of their growth will be found more effectual than stopping, which latter operation does not always cause this plant to branch out several shoots as in the case of the majority of things. Treat through the autumn and winter as before. Again in spring give more heat as the advancing season demands it, and move into pots 3 inches larger, tying the branches well out so as to leave the plants quite open in the centre, to still further induce the formation of young growth from the base. This *Cyrtoceras* is one amongst a number of subjects that require especial treatment in this respect, for if left to its own course it would spire up to a considerable height and become naked at the bottom; whereas, if the strong shoots are kept well tied out, the position to which they are thus bent causes them annually to produce fresh growth from the bottom that takes the place of any branches that become denuded of leaves at the base and which should be removed. If the progress made is satisfactory, the plants will this summer bloom freely, each shoot producing a number of their epaulette-like bunches of flowers. After the flowers are formed it is better not to syringe overhead, as this sometimes has the effect of causing them to drop off. The

SUBSEQUENT TREATMENT of the plants will require to be similar to that so far advised. When grown to their full size, 13-inch or 14-inch pots are, as a rule, large enough for them. After they are fully developed they should be turned out of the pots each spring, the drainage examined, and such of the upper portion of the soil as is not occupied by roots should be removed and replaced with new. When they have arrived at a size such as we now suppose them to be, they will be much benefited, during the summer, by liquid manure once a week, but in using it to this and similar spare-rooted plants it must never be given either so strong or in such quantities as to naturally robust growers; it is even necessary to be careful never to apply water at all until the soil is somewhat drier than for most stove plants, or destruction of the roots will, sooner or later, be the result, especially during the winter, when no growth is progressing. I may add, that when this plant is thus injured at the roots it has not the power to recuperate itself, like many others.

INSECTS.—The leaves of this *Cyrtoceras* are of too tough and leathery a nature to be much hurt by the attacks of such insects as thrips, aphides, or red spider, unless when these are allowed to get to a considerable head, yet they will live upon it, especially if the atmosphere in which it is grown is kept too dry. If affected with these, the plants should be laid on their sides and freely syringed, when the insects can be easily removed, the smooth surface of the foliage, both on the upper and under sides not affording much harbour for them; the stout substance of the leaves also admits of the water being thus applied without injury. Where scale has made a home upon a plant it will be found necessary to resort to sponging and cleaning thoroughly with soapy water, afterwards giving it a good syringing to cleanse it from all impurities. T. B.

FRUIT OF *PHYSIANTHUS ALBENS*.

FRUITS of this fine climber have been sent to us by Messrs. Froebel, of Zurich, in whose nursery



Fruit of Physianthus albens (natural size), received from Zurich, Nov. 22.

this plant fruits annually. One of the fruits sent is represented natural size in the annexed engraving. They are deeply furrowed, are pale green in colour, and have a silky skin. When fully ripe they split and expose the seeds, which are small and have long, white, silk-like appendages.

CHRYSANTHEMUMS AT LIVERPOOL.

ONE cannot visit a great horticultural exhibition like that held at Liverpool, in St. George's Hall, on November 27, without picking up some useful information. At most exhibitions two classes of Chrysanthemums are exhibited; one the specimen form, and the other plants with tall stems and few flowers. In the first case a plant is taken early in the year and the stems are tied down to the rim of the pot; as growth advances the stems are still tied down, until by the time the plant is in flower it assumes the form of the face of an old-fashioned watch, with the flowers arranged regularly over its surface. Now I do not object to the stems

being tied out in the early stages of the plant's growth; there is nothing unnatural in that; but each flower-stem ought to stand alone, and as they cannot be kept in position without help, a neat stick ought to be placed to each stem. If exhibitors would lift their plants up a little out of their unnatural dumpiness, improvement would be at once apparent. The second type of plant to which I have alluded was not exhibited at Liverpool, but it has been called into existence by prizes being offered for groups of plants. A given space has to be covered, and this is done by placing a great number of plants close together with long bare stems and two or three flowers on the top of each. Short ones are placed in front, tall ones at the back, thus forming an even bank. Such plants as some of these groups contain ought not to appear at public exhibitions.

THE CUT FLOWERS at Liverpool were generally very good. On this occasion the Japanese varieties formed the most interesting portion. They do not require dressing to make them fit for exhibition; all that is required is to see that the colours are well arranged as regards effect, and that the flowers are neatly set up. The dressing of incurred blooms has not reached such perfection at Liverpool as their production. Probably some may say, "better it is so," but it is certain that good culture and good dressing carry off first prizes. Probably it was too late in the season to have the blooms so well up in the centre as they were in Mr. Sanderson's stand of 24 blooms at the Royal Aquarium, Westminster. Mr. Sanderson stands at the head of Chrysanthemum growers, both as a cultivator and a dresser—the "dressing" consisting merely in a better arrangement of the petals. By it a bad flower cannot be made a good one. I have just been turning over the pages of Hogg on the Carnation, sixth edition, and have come to a passage that would apply equally to the Chrysanthemum. "One Christopher Nunn, of Enfield, a noted florist in his day, was eminent for his skill and dexterity in dressing Pinks and Carnations for prize exhibitions; some will even tell you that Kit was the father of the art. Upon such occasions he had as many applications to dress flowers as he had to dress wigs, for he was a barber and *friseur* by trade, and withal a good-natured, facetious, prating barber, and could both shave and lay a Carnation with the greatest nicety. The novices of that day, who, being unacquainted with his secret art, trusted to Dame Nature to open, expand, and perfect their flowers, and were no match for Nunn's, for he began where she left off, and perfected what she had left imperfect. His arrangement and disposition of the petals were admirable." Kit's art of dressing is still an enviable art, and attainable only by a few. J. DOUGLAS.

DEUTZIA GRACILIS FOR FORCING.

THERE is no plant with which I am acquainted comparable with this when loaded with bunches of snow-white flowers, and, with plants sufficient for succession, it may be had in bloom from the end of November until it comes naturally into flower outside, altogether a period of some six months. Cuttings of it should be made of the half-ripened wood towards the end of summer; they should be about 2 inches in length, and should be dibbed closely together in sandy soil, and then covered with hand-lights. After insertion they should have a good soaking with water, and should be kept well shaded from strong sunshine, but in order to avoid this trouble let them be put in behind a north wall. The hand-lights must be kept close until the cuttings are rooted. Another system, and the one we generally adopt, is to root cuttings of this *Deutzia* in heat in spring, tender young growths being selected for the purpose and placed thickly together in pots or pans. These, if watered when inserted and then kept shaded and close, will be well rooted in about a fortnight. As soon as that happens, and before their roots get matted together, they are planted out in boxes about 2 inches apart in old potting soil, liberally intermixed with leaf mould. They are then grown in

an intermediate temperature, and their shoots kept well pinched, so that bushy little plants are formed by the end of May or middle of June, when they are carefully and gradually hardened off, and by the end of the month planted outside in a light, warm, open position. They are placed a foot apart each way in soil made moderately rich; nothing suits them better than old Mushroom bed refuse or leaf-mould in a half decomposed condition. After planting, if the weather proves dry, a few good soakings with water should be given until rooting commences, when they will afterwards take care of themselves. Those rooted under hand-lights in autumn will be ready for planting out earlier, but with us they seldom make such good progress the first season as the spring struck plants. The latter need most attention at first, but all they require afterwards is pruning close to the ground after they have shed their foliage in autumn. In spring they will make vigorous growth, and by the following autumn plants will be produced with from six to twelve shoots.

LIFTING AND POTTING should be done early the second autumn, as soon, in fact, as the wood is ripe and before the foliage falls. This is important, as they will then partially establish themselves in their pots before winter. Early lifting is important; for if done while the foliage is green, and if the plants are kept close in a frame for ten days or a fortnight, they will push forth new roots freely. This is necessary, whether the plants are wanted for forcing or not, because they will then make an early growth the following season and go soon to rest—essential matters before they are introduced into heat. Many lift these plants, pot them, and force them almost immediately, but this is by no means the best or most profitable course to pursue. After the plants have shed their foliage in autumn, they should be pruned close back and wintered in a cold frame. In spring they should be allowed to start naturally into growth, and be afterwards kept in a frame which should be closed early in the afternoon while the sun is upon it, at the same time syringing them well. The growth thus made will be strong and vigorous, and by the end of June, or early in the following month, they should be hardened off and plunged outside in a sunny position to mature their wood. Plants treated as just described in 6-inch and 7-inch pots have now from twelve to twenty shoots well ripened, and when introduced into heat will break readily into flower and be one mass of snowy whiteness. I do not recommend such plants to be used for very early forcing, because for that purpose they have not yet had sufficient rest, but in our case other plants are now in heat that made their growth under the influence of warmth, air, and light, and these can be forced early.

PRUNING should be done after flowering, but in the case of those intended for flowering early the following season we do but little with the knife, merely thinning out the shoots a little. They make short, sturdy growths, which ripen early, and the plants receive in consequence a much longer rest than would be the case if cut close back. Growth made and ripened early, followed with a good season of rest, is the secret of success in the case of the majority of hardy shrubs required for very early flowering. All plants for later work are cut close back and allowed to start away again from the base; they are placed in vineries and Peach houses that are in working order, or being kept close for forcing. Potting when necessary can be done before or after flowering; it matters but little which, but we prefer the latter. I find that *Deutzias* will succeed in the same pots for years, provided they are liberally supplied while growing with stimulants. Many force their plants and then plant them out, but we have found nothing in this system to recommend it, and prefer keeping the whole of our stock in pots, except young stock, for the first two seasons as described. *Deutzias* are free rooting subjects, and in placing them in larger pots the soil employed must be rammed firmly into them, or water when applied may pass through the new

soil and leave the old ball dry. The most suitable soil for *Deutzias* is good loam, mixed with a little well rotted manure and a little coarse sand. Rich top-dressings are given every season in which no potting is done.

RENOVATING EXHAUSTED PLANTS.—Our stock consists of about a third more plants than we really require for forcing. This number of plants is used for very early work until their growth becomes stunted. After flowering their shoots are not cut back, but the plants are turned out of their pots, the old balls are well reduced, and then they are repotted in the same or larger pots, according to their requirements; during summer they are grown with the rest of the stock, but in autumn they are cut close back and given cold frame treatment in spring, the same as that recommended for young plants. Thus managed, it is surprising how they recruit themselves and throw up from the base a good quantity of strong clean growths which ripen moderately early and are again ready for forcing the following spring. While growing, *Deutzias* require liberal supplies of water; in fact, they should never be allowed to suffer in any stage from an insufficient supply. Liberal feeding must also be resorted to while the plants are making their growth, *i.e.*, if the pots are full of roots. MANIFESTO.

SPECIMEN CHRYSANTHEMUMS.

WHEN judging at a Chrysanthemum show the other day the verdict for the best six pot specimens laid between two lots, one of which had not been disbudded very much, while the other had been disbudded to one solitary flower on each stalk. The last set were, all of them, about 6 feet high, including the pots, and some of them 7 feet; the flowers were large, but on the whole six plants there were only about 50 flowers, and on one or two there were only seven or eight. To produce this result about a year's labour had been expended and much attention. As a group, they had not the ghost of a chance with the opposite lot, on one plant of which there were about 200 fresh flowers of fair size, and on the other five a proportionate number. The cultivator in this case had evidently tried to carry out the idea, more than once advocated in *THE GARDEN*, of trying to produce the very greatest number of good undressed flowers the plants could bring to perfection, and at the same time good room or conservatory specimens, and he had succeeded admirably. His group was the most striking exhibit in a room filled with many fine plants of the same kind and others, and elicited many an expression of admiration from visitors who were not too critical, but knew a handsome plant when they saw one. One of the judges was himself a "grower," and contended that the groups should be judged on "florists' principles," and would have given the prize to the rigidly staked and dressed group with the handful of flowers, but was overruled by his coadjutors, and was willing to admit that from an ornamental and useful point of view the first prize lot deserved award.

THE CUT BLOOMS were, however, judged on "florists' principles," with one dissentient. The twenty-four prize blooms were not by any means the largest, the most richly coloured, nor most effective, but they were as perfect as if cast in a mould—all the same size and all licked into shape by the "dresser," whom I learned afterwards was the "most expert" hand at the business in England, and had spent the greater portion of the Sunday previous to the show dressing the flowers in question. I simply state what one of the committee told me, only suppressing names

S. W.

Azalea Pauline Mardner.—Mr. Harris Singleton, Swansea, a good flower forcer, says that this is undoubtedly the best of all *Azaleas* for forcing. Its flowers are very large and of a pleasing light rose colour, many of them being semi-double. Plants of *A. amena*, Fielder's White, Old White, and this one were all started together, but *Pauline Mardner* was in full flower by the time the

others had begun to swell their buds. *Azaleas* in flower are valuable at all times, but one which submits to forcing at this season so readily deserves, I think, to be brought prominently into notice.—CAMBRIAN.

Propagating Eucharises.—The newer kinds of *Eucharis*, viz., *candida* and *Sanderiana*, may be readily propagated by means of seeds, which are freely produced if the flowers are fertilised at the proper time with their own pollen. The large inflated seed-pods of *Sanderiana* are very different from those of *candida* or *amazonica*, but the seeds of all germinate equally well, and, judging by the progress which the young plants make in their earlier stages, they should not be long in forming flowering bulbs.—T.

Linum trigynum.—This is a most useful winter-flowering plant, and one which can be grown without much trouble. Cuttings of it struck early in spring and grown on in a pit or frame all the summer, and put into 6-inch pots about the middle of July, make useful little specimens for flowering in December and January. It is generally classed as a greenhouse plant, but it requires a little more warmth when in flower than an ordinary greenhouse usually affords. Red spider is very partial to it; therefore frequent syringing in summer is necessary to check its progress.—J. C. C.

Setting a saddle boiler.—For many years it was the practice to set saddle boilers down on the fire-bars, but in many cases the boilers are now set on half a brick placed edgewise under each corner. This is a decidedly better plan than letting them rest on the fire-bars. We have three of this form of boiler in use, and before they were put in their places I had some cast-iron blocks made about 6 inches long and the same in width as the waterway of the boiler. These are placed at each corner, and there is every prospect of their remaining securely in their position as long as the boiler lasts. I was led to adopt this plan because I found that the fire bricks previously used soon burnt out, and then the boiler was merely kept in position principally by the flow and return pipes. The block used is in the form of a boot, the foot or flat part being built in the brickwork and the top part level with the fire-bars. It therefore offers no impediment to cleaning out the flue, which runs along the side of the boiler; but whether fire bricks or any other kind of support is used to uphold the boiler, the advantages of this mode of setting are manifest, as every part of the boiler comes into direct contact with the fire. As combustion goes on, the heat surrounds the boiler without losing any of its force before it reaches it. Advocates for placing the boiler on the fire-bars will say that the side of the boiler is heated just as well from the flue which runs along the boiler; but I say that cannot be so, as by placing the boiler on blocks every inch of heating surface is made available, and that in the most direct manner possible.—J. C. C.

SHORT NOTES.—INDOOR.

Erica gracilis and *caffra* strike readily during summer when in a growing condition if the young shoots alone are used for cuttings.—T.

Passiflora vitifolia.—This is a very useful species of Passion-flower, as it flowers freely and thrives well in an ordinary greenhouse temperature both in pots and planted out. In the York Nurseries it is grown as a pot plant, and yields an abundance of flowers. It is sometimes called *Tacsonia*.—R.

Chorozemas.—In order to strike these, select young shoots during the growing season, and insert them in pots of sandy peat, covering when finished with a bell-glass. They will also grow from seeds, which ripen readily; but when raised in this way the progeny often varies to a considerable extent.—H. P.

Antigonum leptopus.—This plant, the flowering of which was lately recorded in *THE GARDEN*, may be struck from cuttings made of the young shoots put in during spring and summer, the principal care required being to guard against damping off. After rooting, the fleshy base will commence to form and, in the case of old plants, assume large proportions.—T.

Hardy Primroses from seed.—I do not find that rabbits are very destructive to Primroses, as "J. C. C." states (p. 479), and I have raised and planted a good many thousands these last few years, my employers being fond of seeing them growing about the grounds. I am surprised also to hear that "J. C. C." finds it needful to sow in a cool house "early in the new year." We have all sorts of Primroses and Polyanthus, including the best and latest highly coloured and bizarre forms, and although we live in the midlands we never sow till April, and then in boxes set on the border and only covered by a few panes of glass. Several thousands of the most select coloured kinds raised in this way this season are now large plants, having twelve, fifteen, and more leaves, many of them 5 inches or 6 inches in length, the plants being 9 inches across, not a few of which have bloomed this autumn. I have also sown them on the open border, and had them all in flower the following spring. We plant out in light rich soil on a warm border as soon as the plants can be handled safely, and transplant to the borders or grass in October or November. There are no spring flowers more worthy of extensive culture, and none more hardy or more easily raised or grown. We have many hundreds of plants just now with heads like Chicory for size, and which last spring—their first year from seed—produced trusses on stalks 9 inches high, with heads like an Auricula.—J. S.

ORCHIDS.

WINTER TREATMENT OF ORCHIDS.

ODONTOGLOSSUMS.—In a recent number of THE GARDEN I referred to the winter treatment of the principal occupants of the cool house. Most of the Odontoglossums cultivated there, coming, as they do, from high latitudes, where the air is moist and the rainfall considerable, require a considerable amount of water. Plants belonging to the same genus that require the temperature of the Mexican house as a rule have, however, to be treated differently as regards moisture. *O. vexillarium*, for instance, may be watered as freely in winter as any of the cool house species. It seems to delight in plenty of moisture at the roots and in the atmosphere all through the winter, for at this season it is making growths and rooting freely; indeed, I question if this species is ever at rest in the sense in which *O. citrosimum* is. *O. vexillarium* begins to grow as soon as it has flowered, or even before that, and it grows freely through the remainder of the summer, autumn, and winter months. Growth is not even completed in spring, when the flower-spikes begin to appear; nor is it more than completed when the flowers open and growth begins for another season. When Orchids require a considerable supply of water all the year round, they require to be repotted oftener than those that have a season of rest. *O. vexillarium* requires repotting once in two years. I have found that repotting may safely be performed as soon as the plants have done flowering, but that is a time when other work is pressing, and time cannot always then be conveniently spared to repot Orchids. Most of ours required to be repotted, and they have now been done; I have repotted them in previous years in November and December, and they have done well. The temperature of the house is at as low a point as possible, and growth being slow the plants do not seem to experience any check. The potting material should be rather more Sphagnum Moss than good fibrous turfy peat, and plenty of charcoal should be mixed with it. The plants ought to be close to the glass and in the lightest part of the house. *O. citrosimum* is now quite at rest, and does not require any water, unless the plants are small and have scarcely any compost about their roots, when water may be given occasionally to prevent them from quite shrinking up. Large specimens may be allowed to get almost dust dry, as the potting material in that case is in considerable bulk, and the plants are not so likely to suffer.

They ought also to be well exposed to the light, and they will require no more attention until it is seen that the new growths are starting. That is a good time to repot them if they require it. The vigorous growing *O. Reichenheimi* has likewise finished its growth, and requires but little water during the winter months. Another Mexican species, *O. Londesboroughianum*, was introduced in quantity some years ago. It does not seem to have been very favourably received, although it flowers during winter; its flowers are not, however, of such conspicuous merit as to claim for it the highest position. Plants of it should be fastened to teak rafts, and as they will now be making fresh roots, these should be aided with just a little water to keep the peat and Sphagnum, in which the rafts are plunged, moderately moist. *O. grande* and its near ally, *O. Insleayi*, seem to grow best with us in the Cattleya house. They require to be kept dry also until they start into growth, which they will do in a month. Even the late species of *Pleione*s have now passed the flowering period, and the whole of them should be potted as they start to make roots, almost before the growths appear. Pot them once in two years and hang them up close to the glass. Another important class of Orchids are the

CYMBIDIUMS. There are few more beautiful Orchids than *C. eburneum*, and now that it has become more common than it used to be, it is placed within the reach of most growers. We repotted our plants of it early in November, but we have potted them later, although the earlier date is best, as in December flower-spikes begin to show themselves in the axils of the leaves, and the roots will have made considerable growth. There seems to be some difference of opinion as to the best potting material for Cymbidiums. Mr. B. S. Williams, one of our best practical cultivators, recommends rough peat and good drainage. But I must say that when we grew our plants in peat and in the East India house temperature the ends of the leaves used to die off. The late Mr. Spyers recommended turfy loam and the Mexican house, and further stated that the ends of the leaves would not die off under that treatment. I found on trying this plan that Mr. Spyers was right; the leaves became darker green, and the plants flowered better and were altogether more healthy, while the ends of the leaves did not die off. Cymbidiums should not be allowed to get very dry at any time. Their appearance would lead one to believe that they grow in marshy ground and that plenty of water at all times is essential to their well-being. Our plants were kept rather dry during the autumn and rather more exposed to the sun than they ought to have been, but with the result that they are showing a greater quantity of flower-spikes than usual. Now we are watering them freely at the roots, and they are growing well. The fibrous loam used in potting decays rather more rapidly than the best fibrous peat, and if the plants are not repotted at least every second year the potting material becomes sour, causing the roots to decay. *C. Mastersi* is next in importance to *C. eburneum*, and as it flowers in winter, it is a rather valuable plant. The flowers are pure white and valuable in a cut state, but they are more useful if allowed to remain on the plants, as they last long in beauty. *C. Lowi* is a different habited plant from either *eburneum* or *Mastersi*, and quite distinct in its manner of flowering. Plants of it are now producing flower-spikes; they look best suspended near the roof in the Cattleya house. They require a good supply of water, and as the flower-spikes develop themselves they should be allowed to hang over the sides of the baskets or pots in which the plants are growing. These three Cymbidiums are the best for general cultivation. Amongst the easiest grown of Orchids are

THE CYPRIPEDIUMS, and their quaint looking flowers are often beautiful, always interesting, and generally draw forth favourable remarks from visitors. We keep them as uniform as we can as regards moisture; in winter they do not, however, of course require to be watered so often as in

summer. We are potting all that require it now; it will be observed that all the best roots are quite close to the surface. The roots of some species like to run quite close to the surface under the live Sphagnum. They interlace with each other, forming quite a network; after which they push down the sides of the pots, clinging so closely that it is difficult to detach them without injurious results. Indeed, a strong plant of *Cypripedium villosum* so occupies its root space, that the compost in two or three years becomes almost absorbed by the mass of roots. I do not refer now to those requiring an East India temperature; we are dealing with the cool stove or Cattleya house at present, and a few of the easiest grown and best Orchids to be found there are the following, viz.: *C. caudatum*; this may safely be placed first. A variety of it sold as *C. caudatum roseum* is the best form. This is not only one of the best Lady's Slippers, but one of the most singular-looking of Orchids. It likes a shady part of the house, and is now growing freely. I have grown this plant well in pure Sphagnum, but we generally add a little turfy peat to the compost and get some live Moss to grow on the surface. *C. barbatum superbum*.—This is a good old easily-grown species, and one whose flowers last so long in good condition, that on that account the plant is doubly valuable. Equally valuable is *C. villosum*, one of the most vigorous of the whole genus. I have had a plant of this in good bloom in March, and exhibited it with the same flowers on it successfully in June. *C. Sedeni*.—This, on account of its distinct character, claims a high place, and now that it can be purchased at a cheap rate it should find its way into every collection. It is free in growth and beautiful in colour. The different forms of *C. insignis* also claim a high place, while *C. Harrisianum*, blooming, as it does, in the winter season, claims attention on that account, as well as for its beautiful flowers and robust habit.

J. DOUGLAS.

BRITISH ORCHIDS IN SOMERSETSHIRE.

POSSIBLY many of your readers have no idea of the variety and beauty of the Orchids to be found in this county. Week after week we read of much that is interesting and instructive concerning exotic Orchids; but, incomparably beautiful as some of them undoubtedly are, still our humbler native Orchids are not without their attractions. Of the well-known *Orchis mascula* I have the ordinary purple variety, and in addition a pure white form. Both delight in strong loam, and the foliage of the former when growing in the open and well exposed to the sun is beautifully marked, but the white form has no leaf markings. In the open fields also established in strong loam I have found *Orchis Morio*, purple, and also rose and white forms of the same variety. *O. latifolia*, purple, and a white form of it I find to thrive in damp loam in which green sand abounds. *O. maculata* under similar conditions also grows more strongly; the markings on the foliage, too, are likewise quite distinct from those on plants found where the green sand is absent. The strongest spikes of this kind frequently measure 14 inches in length, the lip of the flowers being also larger. On similar soil I found an almost white *O. maculata*, the only colour being the spots on the petals; the foliage is also spotted, and this I take to be the true *O. maculata*. In another district where limestone is mixed with loam I found a perfectly white *O. maculata*, the foliage being quite green, and I found another white form growing in peaty soil. The latter is of dwarf habit, the foliage being slightly spotted, while the spike grows about 6 inches high, the lip being much larger than in the flowers of any of the above-mentioned forms.

On the edge of a wood I found what hereabouts is very rare—viz., *Listera Nidus-avis*; this was growing in limestone loam. *Habenaria viridis* is to be found in company with *Orchis Morio*, while *Habenaria bifolia* and *albida* appear to require a peaty soil. *Herminium Monorchis* (one-bulbed), *Neottia spiralis* (Ladies' Tresses), and *Gymnadenia conopsea*, a slightly-scented species, are all to be

found on poor whitish clay, while the rare *Orchis ustulata* (scorched) thrives on chalky loam. *Epipactis grandiflora*, generally supposed to require soil similar to the last-mentioned, I found growing in quantities together with *O. pyramidalis* in loam and fuller's earth. *Ophrys apifera*, so named from the flower's resemblance to a bee, and *Ophrys muscifera*, or fly-bearing, I found growing with *Epipactis grandiflora*. *E. palustris*, a marsh variety, is abundant on green sandy clay. The common Twayblade, or *Listera ovata*, may be found growing everywhere. Most of the above which I have established were transplanted when in a dormant state, all choice kinds especially being treated to a little soil similar to that in which they were found to thrive best. Most of the species and varieties are in bloom during May and June. M. D.

CATTLEYAS.

IN referring to my remarks on Cattleyas, Mr. Douglas (p. 520) says: "I am always cautious in giving advice until I have proved by practical experience that it is good." In this I quite agree with Mr. Douglas, but cannot do so when he says that newly-imported Cattleyas do not want any compost around them until they have started to make root. I pot at once, and have always been very successful. Mr. Douglas unhesitatingly states that every Orchid grown is best potted in winter. But in the case of Cattleyas would it not be best to repot established plants when the greatest bulk of roots is being thrown out from the last made pseudo-bulb? This occurs with every Cattleya with which I am acquainted during the summer and autumn months. Let us take, for example, *Cattleya Mossiæ*; this will throw out the greatest number of roots during March and April, when the spike is still in the sheath. I submit, therefore, that this is the best time to repot, as in the course of a month the new roots will be found on the outside of the pot again, having entirely pierced the new material. Again, the watering-pot at this season may be put even into the hands of a garden boy with little fear that he will over-water, but at other times watering requires all the skill of the experienced cultivator if no mistakes are to be made.

AS regards insects, I must be favoured, if in other gardens thrips have swarmed in the way mentioned by Mr. Douglas. We have certainly had nothing of the kind in our neighbourhood. Mr. Douglas naively asks how we keep the temperature cool when the thermometer registers 70° or 80° in the shade. At this season I never trouble myself how high the Cattleya house temperature may go; with the shadings down it will do no harm. I do not, however, shut up as many do in the afternoon, but let the greater portion of the air which has been on the house during the day remain on during the night also. Mr. Douglas asks what I mean by plenty of air at all times. This, I thought, would be clearly understood to mean day and night the whole year round. Every Orchid house we have has air on either bottom or top from year's end to year's end. This I believe to be the most important factor in keeping down thrips. To keep a house up to 60° without air in cold weather will breed thrips in quantity. Plants subjected to such an ordeal lose their hardness and firmness, and, consequently, become more juicy food for thrips to feed upon. Mr. Douglas says plenty of air will scarcely apply to a greenhouse at this season. I can only say that I would be sorry for plants subjected to fire-heat, and that have to do without air for any lengthened period. I may inform Mr. Douglas that my temperatures at the present time range as nearly 5° as possible lower than those mentioned by him. I do not believe that garden pests, such as thrips, scale, &c., are an unavoidable calamity; for myself I shall never think I have reached the highest limits of success until I can effectually keep them off every Orchid under my care. Should Mr. Douglas think it worth while to give us a call I shall be pleased to show him our plants of every kind after having been subjected to plenty of air, even during the last week of cold wind and frost. A. G. CATT.

Silverdale Lodge, Sydenham.

Ansellia africana.—Of this beautiful old West African Orchid there exist in gardens, as is well known, several forms, some considerably finer than the others. The best with which we are acquainted is that named at Kew *A. africana nilotica*. It is remarkable for the large size of the flower-spike, and particularly so for the very heavy markings on the flowers. The nearest approach to this Nilotic *Ansellia* we have seen is a variety which we saw the other day in the Royal Gardens, Frogmore. The spikes of this form were unusually large, and the transverse markings of the flower likewise much more pronounced than in those of ordinary forms; consequently it is a much more attractive plant, and is found at Frogmore to be a most useful winter-flowering Orchid. It is grown in an intermediate house.

Phalaopsis Sanderiana.—Through Mr. F. Sander, the introducer of this lovely Orchid, we have received a flower from Mr. Pollett's collection at Bickley. It is by far the richest coloured form we have yet seen, the lilac tint being much deeper than that represented by the plate given in THE GARDEN last year and deeper even than the variety shown at South Kensington by Mr. Lee, of Leatherhead, to which a first-class certificate was awarded. It was at one time supposed that the beautiful lilac-pink colour of this *Phalaopsis* would not be developed in winter in this country, but Mr. Pollett's flower entirely refutes this supposition. Without doubt this is one of the most charming Orchids we have in cultivation, and its value is enhanced by its blooming in the dead of winter. It may be best described as a pink-flowered *P. amabilis*, as it greatly resembles that species structurally.

Ocologyne cristata in sun and shade.

—We have two plants of this lovely Orchid, one of them a good specimen in a shallow pan over 1 foot in diameter, the other not so good in a 6-inch pot. The plant in the pan being the best, has had most attention, and throughout the summer occupied a corner in the Pine stove, where it was fairly well off as regards heat, but not much exposed to the sun. On this account it has not shown so many flower-stems as it ought to have done; although the bulbs are well developed, not one in four of them has produced any signs of flowering. The smaller plant has done better. Being rather shabby in appearance, it was placed out of the way on the back shelf in the same stove, where it was fully exposed to the sun, as well as to the action of a good deal of air when the lights were pulled down. The result is that every one of the firmly developed bulbs is showing flower, and some of them even two spikes. To all appearance we will have more flower from the 6-inch pot than from the 12-inch pan. After this I will grow this Orchid in summer in as exposed a place as possible. —J. MUIR, *Margam*.

Gleichenia flabellata fronds.—We have a large specimen of this handsome Fern, from which we occasionally cut a few growths for decorative purposes. It equals, if not surpasses, the *Davallias* in durability. We have some fronds now as fresh as when cut from the plant some ten days back. Well developed fronds of this Fern form successive tiers of growth, each of which is quite a frond in itself. It is not advisable to cut them in their early stages; on the contrary, it is best to wait till several growths are formed on each frond, then the topmost one can be used. Being so distinct from most of the Ferns employed for indoor decoration, this *Gleichenia* is always very attractive. It belongs to the *Mertensia* group and is indigenous to Australia and Tasmania. The true *Gleichenias*, such as *G. Mendeli*, *G. rupestris*, and others, quickly wither when cut, and cannot, therefore, be recommended for use in this way. These latter, we find, do best when kept dry overhead, as one would do in the case of *Gymnogrammas*. The fronds of *G. flabellata*, on the other hand, delight in moisture, and if frequently syringed during active growth, their development is much more perfect. All the *Gleichenias* require abundance of water at the

roots, and they thrive best in a shallow soil with an extra liberal amount of drainage. We grow ours in a house the temperature of which falls in time of sharp frost to below 40°; we prefer, however, to let 50° be the minimum in more favourable weather. The lower temperature does not do any harm to the plants if not exposed to it for an unusual length of time.—J. HUDSON.

GARDEN FLORA.

PLATE 418.

THE CROSSANDRAS.

(WITH A PLATE OF *C. UNDULÆFOLIA*.*)

IN the pretty *Acanthad* herewith figured we have another useful addition to the already large number of cultivated acanthaceous plants, many of which are especially serviceable for the decoration of the stove and conservatory during the winter season. As has proved to be the case with more than one of our recently introduced so-called new plants, *C. undulæfolia* was cultivated in this country almost a century ago, owing its introduction to Dr. Roxburgh, who brought it from the East Indies at the beginning of the present century. It has been known under the names *Ruellia*, *Justicia*, and *C. infundibuliformis*, the latter being the name adopted for it by Mr. Bull, who gave an illustration of it in his catalogue for this year. A glance at the accompanying plate will at once suggest *Aphelandra* as a closely allied genus; and its close resemblance to some of the *Aphelandras*, especially in the characters of its flowers, has led to its being considered by some authorities as but a species of that genus. It differs, however, from the *Aphelandras* in the corolla being one-lipped, whereas in them the corolla is bi-labiate.

THE GENUS *CROSSANDRA* is limited to some half-dozen species, of which three have been introduced to cultivation, viz., *C. flava*, *C. guinensis*, and the subject of the annexed plate.

C. FLAVA is, as the name denotes, a yellow-flowered plant with Dandelion-like foliage, and is of dwarf stature. It owes its introduction to the collector Whitfield, who found it in Sierra Leone and sent it to Chiswick, where it flowered in 1853. I am not aware of the existence of this species in cultivated collections now. Although distinct, *C. flava* is not possessed of a sufficiently ornamental character to warrant its recommendation as a decorative plant.

C. GUINENSIS owes its popularity to its variegated foliage rather than to floral merit. It is a dwarf, herbaceous perennial not more than 6 inches high, and bears about half-a-dozen pairs of oval-shaped leaves, some 5 inches in length, of a deep green colour, beautifully reticulated with a golden nervation similar to what one sees in *Eranthemum aureo-reticulata* and in the *Fittonias*. The flower-spike is pushed up in the middle and resembles a spike of *Fittonia*, bearing small pale lilac flowers and purplish brown bracts. For the introduction of this little gem we are indebted to Mr. Gustave Mann, who found it in Fernando Po and sent it to Messrs. Veitch, by whom it was sent out six years ago.

C. UNDULÆFOLIA.—We owe the re-introduction of this plant to Kew, plants of it having been received from Ceylon last year. It flowered freely both last year and this during the summer months, and owing to the unusual colour of its flowers it was the subject of much admiration. It is a dwarf shrub, never growing more than one foot

* Drawn from a plant in the Royal Gardens, Kew, July 18, 1883.



IMPATIENS BALSAMIFLORA

high, of compact habit, and produces its spikes of salmon-coloured flowers quite freely at the end of almost every shoot. The flowers are of rather delicate texture, notwithstanding which, however, they last in good condition for some time, one plant at Kew being quite bright with flowers for about six weeks together. By growing it on through the summer, and pinching out the flowering points as they appear, this plant may be had in bloom during winter if desirable.

THE CULTIVATION of the Crossandras is exactly what is practised in the case of Aphelandras, Justicias, &c. They all like a light, rich soil, a warm house, and plenty of moisture. Cuttings strike freely at any time of the year. A little liquid manure during the flowering period may be given to intensify the colour of the flowers. If one might say a word here in favour of the many handsome and useful garden plants belonging to the Acanthads, it would be that a considerable proportion, indeed by far the majority, of those that have at some time or other been introduced and re-introduced as worthy of a place among our cultivated plants are now almost forgotten, many of them having disappeared altogether. True, we have one or two *Eranthemums* still, and *Thunbergias*, *Justicias*, *Thyracanthus*, *Libonia*, *Hexacentris*, and one or two others, but the host of plants equally beautiful as any of these, and from which many useful winter flowering plants might be selected, may be seen by turning over some of our old garden books, or the botanical works in which such plants are figured. The butterfly-like flowers of many of these old Acanthads used to be prominent features of warm plant houses during the winter months, and it is to be regretted that we see so little of them now. B.

SEASONABLE WORK.

FLORAL DECORATIONS.

OF plants that flower now and form useful subjects to use in a small state for indoor decoration, *Poinsettia pulcherrima* stands in the first rank. Where intended for indoor purposes a previous course of treatment specially given should be resorted to. They should have been grown as near the glass as possible in an airy house or pit in which the minimum temperature does not fall below 55°. By this somewhat cool method of cultivation the showy scarlet bracts will not, perhaps, be quite so large as if grown under warmer conditions, but they will be found to withstand the change better when transferred to the house. Another useful plant at this season of the year is *Aphelandra aurantiaca* Roezli, the brilliant terminal heads of which are most effective at this dull season of the year. Its silvery foliage, of handsome proportions, likewise greatly enhances its beauty. As a contrast to this variety, *A. nitens*, which has foliage of a dark bronzy hue, should be grown. We used to grow Roezli's *Aphelandra* from seed extensively, and the young plants were most useful for decorative purposes. Grown and flowered in 4-inch pots, and clothed to the soil with foliage, they make first-rate decorative plants. They do not, it is true, last long in beauty, but the display they make when in that state amply compensates for this deficiency. Small standards of the different varieties of *Epiphyllum truncatum* are likewise excellent. Their pleasing shades of colour and the freedom with which they flower render them at all times valuable adjuncts to the decorator. All of these aforementioned plants will be found the best just now amongst flowering subjects for warm or heated rooms. Of plants also grown for the sake of their flowers, and that are useful for cool rooms, entrance halls, staircases, and corridors, the following are among the best, viz., *Cyclamen persicum* (for small

vases), *Erica hyemalis*, *caffra*, and *melanthera*, *Epacris Kinghorni*, *Vesta*, *Magnum Bonum*, and *impressa carnea*, *Bouvardia Hogarthi*, *Vreelandi*, and *Alfred Neuner*, *Libonia floribunda*, *Primulas* in variety, *Roman Hyacinths* (three bulbs in a 4-inch pot), and the *Paper-white Narcissus*. With such as these a frequent change can be made, and that is the essential point to be aimed at, though frequently in many instances overlooked. The plants, instead of being often changed, are allowed to remain till their beauty is over, and thereby sustain injury. Plants of *Arum Lily* with one spathe only will be most effective, choosing a position where they will harmonise with the surroundings.

INDOOR PLANTS.

FORCED FLOWERS.—Where a house or pit is exclusively devoted to the forcing of flowers for winter exists sufficiently roomy to keep pace with the demand, it is one of the most useful structures which a garden can possess, and in large establishments it should be divided to permit of different temperatures being kept up, so as best to answer the degrees of heat which the various plants to be forced will bear; for amongst the hardy kinds of plants generally used for winter forcing there are many, as, for instance, *Dielytras*, *Spiræas*, and some shrubs, that if subjected to a temperature such as required to bring other things on at a reasonable rate, become so much drawn and their flowers so soft, that they have a poor weedy appearance, and flag immediately they are cut. Those who have not had much experience in flower forcing cannot be too often urged to stand all such plants as well up close to the glass as they can possibly be got; when so placed they will bear much more heat without the flowers opening soft and of little use than if the same temperature was applied to them when at a considerable distance from the light. Where a structure or structures such as here indicated are not available, all sorts of shifts have to be made by putting the plants in early vineries, Pine houses, and general plant stoves, where there is usually too much heat or moisture, or both, to force most plants of a hardy nature in a way that makes their condition when in bloom satisfactory. But where by necessity the work has to be done in a temperature that is too high, the best way of meeting the difficulty is to stand the plants at the coolest end of the house, and to use temporary means to get them as near the roof as possible. As a white flower, *Spiræa* (*Hoteia*) *japonica* is one of the most useful. Immense quantities are now brought from abroad in the same way as *Lily of the Valley*; they are to be bought cheap, and the advantage in their case over that of home-grown stock is that they usually come in quicker with less forcing, no doubt consequent on the more sunny climate they have been grown in and their earlier maturity. Where this *Spiræa* is wanted in as soon as it can be got, the plants should be put in heat early, as there is no certainty of their uniformly coming into flower within the same time under similar conditions of heat. *Dielytras* must not be kept too warm, especially at this early season, or the stems become drawn, and the flowers are meagre and washed-out in colour. *Hyacinths*, *Tulips*, *Narcissi*, *Scilla sibirica*, and *Crocuses* should now gradually be put in warmth to succeed the *Roman Hyacinths* and the earliest larger kinds. *Hyacinths* in glasses for rooms, when the Moss or water used has got fairly occupied by roots, should be put in a little warmth. *Lily of the Valley*, sufficient in proportion to the demand, should be started once a fortnight; this plant, if the crowns or clumps have been well prepared, will stand as much heat as almost anything in cultivation.

HARDY SHRUBS FOR FORCING.—Amongst hardy shrubs there are few that are more beautiful, or that can be brought into flower with so little forcing as the *Laurustinus*, its natural season of blooming favouring early development. This year they are unusually full of flower. The best practice with this plant is to grow a sufficient number permanently in pots; standards, dwarf or tall, such as are in favour on the Continent, are both pretty

and useful, admitting as they do of being arranged in greenhouses and conservatories so as to stand up above other plants, thus relieving the prevailing formality. Where plants are not kept permanently for the purpose, small bushy examples from the shrubbery or reserve ground may be used. In all cases where hardy shrubs have to be transferred from the open ground to pots care should be taken to subject the roots to as little interference as possible, otherwise it is liable to affect the bloom. Where its colour is not objectionable, *Azalea amœna* should hold a prominent position in hardy forced shrubs; for freedom of flowering it has few equals. Amongst hardy *Azaleas* the mollis varieties, being early bloomers, are the best suited for forcing, but they must not be subjected to too much heat, as if much hurried the naturally short duration of the flowers causes them to fall in a few days after they open, especially if the plants are put in warmth early. Of sweet-scented flowers that will last well when cut there is nothing better than *Lilac*; if wanted in a white or blanched condition similar to the French productions of this plant, it is needless to say the forcing must be carried out in a darkened place, but where the pure white colour is not an object there is no necessity to resort to this. The natural substance of the flowers of *Lilac*, even when produced in strong heat, is a contradiction to that of most other things, as it is such as to prevent their drooping when cut; consequently, like *Lily of the Valley*, they will bear almost any amount of heat. In selecting *Rhododendrons* for early forcing it is necessary to be careful that the sorts are such as bloom naturally early; any kinds light or dark that have a disposition to open their flowers in the open air before the return of warm weather is such as to admit in ordinary seasons of their escaping frost are the sorts best adapted for the earliest forcing. In the introduction to heat of all such stock as the above judgment should be exercised, so as to regulate the supply in accordance with the demand. Where flowers in the quantities now all but generally required are wanted, the means at command in the shape of room for forcing through the winter months are usually taxed to the utmost; and unless care is taken not to have more in bloom than wanted at any particular time, there is likely to be a comparative scarcity afterwards.

STOVE WINTER BLOOMING PLANTS.—Such portions of the stock of *Poinsettias*, *Euphorbias*, *Begonias*, *Thyracanthus*, *Eranthemums*, and *Sericographis Ghiesbreghtii* as are intended to bloom latest through the winter will now require careful management, so as to draw the line in the matter of warmth between bringing them on to bloom earlier than they are wanted and keeping them too cool, for if the latter happens they will be of little use. A drier condition of the atmosphere, with only sufficient moisture in the soil to keep the leaves from flagging, will be found a suitable medium to subject them to. In the case of the earliest brought on lot of all plants that will produce a second head of flower, such as *Euphorbia jacquiniæflora*, *Plumbago rosea*, &c., I have found it advisable to supply them regularly with manure water during the time the first bloom is being brought on; not only does this benefit the first flowers, but it strengthens and stimulates the plants for the second effort, which must necessarily be in proportion with the strength the plants have left in them.

PELARGONIUMS.—The large-flowered varieties of *Pelargoniums*, like many other plants that make a considerable amount of growth during the winter, are much influenced by such mild weather as we are having this season. Unless they can be accommodated with a thoroughly light house and in addition are sufficiently near the glass, they inevitably become drawn up weakly; and where this occurs it not only spoils their appearance, but correspondingly affects their blooming. To mitigate this where the houses in which they are located are not light enough, the plants should be placed as far apart as the room available will allow, in all cases keeping the soil as dry as the foliage will permit without turning yellow. There is no

kind of plant with which I am acquainted that will bear, or which requires, the soil keeping so dry during the autumn and winter as *Pelargoniums*, both the show and fancy kinds; wherever there is a departure from this treatment, the shoots and leaves become elongated, and if the roots are examined the cause will be apparent in the spare, insufficient quantity existent. They thrive best in soil drier than many things would bear.

LACHENALIAS.—Where a good stock of these exists they may be had in bloom for a considerable time. If some of the strongest are put in an intermediate temperature, their flowering will be accelerated, but it is not advisable to subject them to heat until their foliage is all but fully grown and there are signs of the flower-stems making their appearance. If hurried too early, the amount of bloom forthcoming will be reduced. These along with some other species of plants are influenced considerably in their time of flowering by the way in which they have been treated in previous years. Those that have been forced before will naturally come on with less heat than examples that have bloomed with only the aid of a greenhouse or cold pit.

HYACINTHS, NARCISSUS, TULIPS.—It is not good practice to begin forcing the large varieties of *Hyacinths* too soon, for though when well furnished with roots they will bear a fair amount of heat, yet when started and pushed on so as at all to hurry them, they usually bloom indifferently. Along with the last batch of *Roman* varieties, some of the large flowered kinds should be put in heat, as they take considerably longer to bring into flower than the *Roman*, and if a supply is to be kept up, no time must be lost. Later sorts of *Tulips* should be put in heat to succeed the varieties of *Van Thol*, and the *Paper-white Narcissus* must be regularly started. It is much better to put in heat only as many of the different kinds of these bulbs as will meet the demand than to bring them on in larger numbers, which generally results in more flowers than are wanted at a time, with a corresponding deficiency at other times. Simple as the treatment of these plants is to induce them to flower satisfactorily with stout, short bloom-stems and healthy foliage, yet if at all hurried or stood too far from the glass the flowers will be so deficient in substance as not to last their full length of time.

CYCLAMENS.—Plants of these raised from seed sown late in summer, if not already picked off into pots or pans, must be so treated before they get matted together, or they will receive a check. Keep them in a temperature of about 50° in the night, examining them from time to time to see that they are free from aphides, insects which are much more injurious to *Cyclamens* than to most other plants; concealing themselves on the underside of the leaves, they often do much harm before discovered. Larger plants that are in a condition to flower should have a few degrees more warmth than is required for ordinary greenhouse plants, but on no account must they be kept warm in an insufficiently light house or pit, or their flower stems become drawn and weak, which spoils the effect of the plants, and makes the flowers of little use for cutting.

ACACIAS AND CALLAS.—Most of the *Acacias* bear a moderate amount of forcing, such as the temperature of an intermediate house; *A. armata* and *A. Drummondii*, naturally coming into bloom early, are amongst the best for forcing. There is the additional advantage attached to free growing plants of this description, that if required, they will bear the whole crop of flowers being cut, the shortening back of the shoots being beneficial to the plants rather than otherwise. More *Callas* should be placed in heat, still selecting strong, well-established examples. These *Callas* or *Richardias* are all but water plants, and should have the soil kept wetter than most things; with them also it is an advantage if they can be placed with their leaves almost touching the glass, by which means they will be kept as dwarf as they are generally seen when flowering in summer.

BRUGMANSIAS.—Where these are planted out in conservatories that are kept somewhat warm,

they are liable to get thin of branches and unsightly unless the plants are yearly subjected to a free use of the knife; if required they will bear the shoots shortening moderately close in. If in houses where some heat is kept up through the winter, they should at once be pruned. Where a considerable space has to be covered with their branches, such as a back wall in a large house, the roots ought to have plenty of room. They do best where access is to be had to an outside border, similar to *Vines*; so situated, they will occupy a greater space than most things, and will flower to an extent not possible where the roots are cramped.

LUCULIA GRATISSIMA.—This, like the preceding plant, is never seen to advantage unless where it has room to extend its branches, but it will do with less root space than the *Brugmansias*. Now, when its blooming is about over, all the pruning that it wants should be done, as it begins to grow immediately the flowers fade. Where there is a little more warmth than is kept up in an ordinary greenhouse, if young stock is required, a few of the branches should be allowed to go unpruned, as these will furnish cuttings, which when they have grown 4 inches or 5 inches should be taken off with a heel and put singly in small pots, plunged in bottom heat, kept moist, and covered with a bell-glass. We have found this plant not so easy to strike as some things, as if the cuttings ever flag at all they rarely recover.

FLOWER GARDEN.

ROSES AND SPRING FLOWERS.—We are now having a real taste of winter, and if mulching of these has not yet been done, it should be forthwith. Though mulching of *Roses* is not an imperative necessity, as they winter safely without it nineteen winters out of twenty, yet there can be no doubt of its beneficial effects in ensuring robust growth, and for that reason alone it should be done. For the tender *Tea* and *Noisette* sections, any kind of a mulching is of the utmost value; good farmyard manure, smoothed down with a spade, and over this a couple of inches of *Cocoa* fibre refuse, is the perfection of mulching. By way of protection to spring flowers, a thin covering of fibre is desirable, and also for plants in the reserve garden that are intended to make good losses in the spring garden, or to plant out as summer bedders; such a surface covering, applied to summer bedding plants that are planted out in cold pits will save an immensity of labour in the way of mat protection, for, as a rule, if the frost does not get hold of the roots, the tops of *Violas* and *Pansies*, and even *Calceolarias*, will stand many degrees of frost. *Australian Dracenas*, *Phormiums*, and any plants of a similar nature, as regards liability to injury from severe frost, are readily protected by a covering of fibre, leaf-soil, or cinder ashes applied to the base of the plants, and it may almost be desirable to mat up the tops of some of the finer plants, but this kind of protection should be given in such a manner that they can be quickly undone when there is a probability of mild weather setting in.

BEDDING PLANTS.—Old plants of *Pelargoniums* that were lifted from the beds will now have started into good growth, and should have all decayed portions of stems cut off and bad leaves removed, and if afforded plenty of light and a minimum temperature of 60°, they will produce good cuttings for spring propagation. As to root moisture, till the turn of the year, this should be rather sparingly applied, more particularly in regard to the tricolor section, which are somewhat impatient of too much water at the root at this dull season of the year. Autumn-struck plants will need little or no watering for the next month or so, and to prevent mildew, frequently go over them to remove all decaying leaves; give air freely when the weather is favourable, and if it can be accompanied with a little fire heat, damp will be the more effectually expelled. The tender kinds, such as *Alternantheras* and *Coleus*, are no trouble to winter where

firing is plentiful, but otherwise it is risky work, and those who cannot command a temperature of 65° or 70° had best exclude them altogether. Keep them well up to light and fumigate the moment there is the slightest trace of fly or thrips. *Alternantheras* and *Iresines* are very liable to attacks of these insects, and if the plants are anyways weakly, the more quickly do these pests increase. Finally, let all the kinds of plants be arranged as neatly as if they were intended for conservatory decoration, and this apparently small matter will not only be productive of pleasure, but serve to the better wintering of them, as they are sure to get more attention than they would if stood about anywhere and anyhow. Have plenty of extra covering at hand in readiness for very severe weather, such as *Bracken*, straw, or litter, to cover up cold frames that contain *Calceolarias*, *Echeverias*, and the like, such covering to be left on continuously so long as the frosts last, and not to be removed for at least a couple of days after a thaw has taken place.

GENERAL WORK.—Finish up leaf raking and stacking, sweep and roll walks, and where Moss-grown scrape it off, or else prick up the gravel with a fork, sprinkle over a little fresh gravel, and roll down hard; level turf, and fresh turf bare spots under trees, also dig out old tree stumps, and trench up ground for new trees that are to be planted; choice shrubs and trees should be top-dressed as frequently as circumstances admit of. Young *Conifers*—all sorts—and *Hollies* are much benefited by surface dressings of suitable material; for the latter we use old *Vine* border soil, and for *Conifers* well-decayed manure and light, sandy loam. For the most part the trees that we have to top-dress are on turf; this, therefore, has to be rolled back, the surface soil lightly loosened with a fork, and the dressing is then applied. The turf is then rolled back at once, but not beaten down, only levelled, and thus the trees get the full benefit of all the rain that falls. The clipping of hedges, and trimming into form of evergreen shrubs, clearing out of drains and haw-haws, as also the wheeling of soil and manure, are all of them suitable operations for frosty weather when little else can be done out of doors.

ORCHIDS.

EAST INDIA HOUSE.—Those who have to grow collections of *Orchids* must understand something of the old saying, "Taking time by the forelock." There are, of course, some gardens where collections of *Orchids* are grown the owners of which know it to be their interest to provide a liberal staff of men to do the work; plants are cleaned, attended to, and potted when they require it in season or out of season. In most gardens this is not so, and those in charge have to do their best to make one class of work dovetail into another. This month's work is not usually so pressing as it is next, and if it is yet too soon to begin to repot or surface-dress *Orchids*, it is not too early to prepare for it. Besides getting the potting material ready, viz., clean potsherds, charcoal, *Sphagnum*, peat, clean pots and pans with teak baskets, the plants may also be looked over. If any of them require to be dipped to free them from insect pests, that must be effectually done before repotting them, because it is not possible to dip any of the plants after they have been repotted—not until the fresh potting material has become firmer on the surface. The nodules of charcoal and crocks fall off into the water when the pot or pan is inverted, but in every case it is best to have the plants clean before starting to pot them, and every opportunity should be seized between now and January to get the plants and the house thoroughly cleaned. The small white thrips are most insidious in their attacks, and the mischief done by them is often discernible before they are. In writing last week of the great value of the deciduous winter flowering *Calanthes* at this season, we said nothing of the arrangement of the plants. As they lose their leaves before the flowers open, it is necessary to

place the plants amongst small Ferns or foliage plants. Mr. Swan, of Fallowfield, stated some time ago that by far the best plant for this purpose is *Gesnera zebрина exoniensis*. The spikes of the *Calanthes* have a fine effect rising above the leafage of these foliage plants; just in such a way would the spikes hang droopingly over the wild herbage of their native wilds. It is best to let the spikes grow and drop over the plants without any support; tying them closely up to sticks is clumsy gardening.

CATTLEYA HOUSE.—The same remarks as to making preparations for potting apply here as also for the cool house. Mr. Ward, when head gardener to the late Mr. F. G. Wilkins, of Leyton, a well-known and able cultivator, told us that he usually began to pot his East India Orchids soon after the new year; when that house was done, he went on with those in the *Cattleya* or Mexican house, finishing off with the cool house section. Of course, not anything like the whole are potted, but all are potted or surface-dressed. Besides the Orchids mentioned some time ago as being in flower in this house, there are numerous others easily grown and to be obtained at a cheap rate, and not the least valuable are the *Dendrobiums*. If, as is sometimes desirable, they have been pushed forward in a warmer house, they had better be placed here just as the flowers begin to open. *D. nobile* should be in flower if it had been sufficiently rested. Do not omit to keep up a succession of flowers of this species by placing plants in heat at intervals. Those at rest may be kept in the greenhouse quite dry up to the shrivelling point. *D. Ainsworthi* is even yet too expensive to be much grown, except by those who may be termed Orchid fanciers and have plenty of money; but as it grows freely it may yet become common. It can also be raised from seeds by crossing *D. nobile* and *D. heterocarpum*. This last named species is also in flower at this season; it is a very desirable plant to grow, not so much for its beauty as for its sweet perfume. *D. moniliforme* may also be found in flower at the present time. Yet another *Dendrobe*, and a charming hybrid it is, should be in every collection for flowering now—*D. endocharis*; it has been raised by Mr. Seden in the Exotic Nursery, Chelsea, by crossing *D. japonicum* with *D. heterocarpum*. It has many of the characteristics of the seed parent with the perfume of *D. heterocarpum*. The evergreen *Dendrobes*, such as *D. Farmeri*, *D. thyrsiflorum*, *D. Dalhousianum*, *D. densiflorum*, and others of this type have been with us very late in completing their growth; indeed, it was quite the middle of November before they had done so. Now they should be kept in a much lower temperature, and be comparatively dry at the roots, and there need not be much moisture in the atmosphere. Some of the small-growing *Cattleyas* of the marginata type form pretty objects at this season grown in small pans suspended near the glass. The treatment, as we are now approaching the depth of winter, must be kept at the lowest minimum point. We do not care to have the temperature above 55° at night, and if it falls to 50° on very cold nights, that would be a very good minimum. Higher than that unduly excites the plants. If the pipes require to be only slightly heated to keep up the temperature, then the plants are not likely to be injured by an arid atmosphere, but either way it is better not to have any water in the trough; rather trust to sprinkling the paths and stages.

COOL HOUSE.—That useful Orchid, *Lycaste Skinneri*, although it is sometimes grown in the *Cattleya* house, succeeds well in the cool section. We had some recently imported plants which have now very nearly completed their growth; they are rooting freely, and as they required repotting this was done. This Orchid likes a liberal proportion of good fibrous peat and rather more pot room than some Orchids. It is one of the easiest to grow, and, being obtainable at a cheap rate, is well adapted to the requirements of those who cannot afford expensive houses and who have to grow their own plants. The flowers last long on the plants; they

do well for cutting, and the plants with flowers may be kept for a long time in a sitting-room. *Odontoglossum bictonense*, now in flower, is an easily grown, distinct, and good species. The flowers, being neatly arranged on tall upright spikes, have a characteristic effect amongst most other species which have drooping spikes. This is another species that likes a good share of pot room and treatment very similar to that of *Lycaste Skinneri*. What a beautiful plant, too, at this season is *Sophranitis grandiflora*, and so distinct from the usual run of cool house Orchids! Its glowing red flowers are so freely produced, whether the plants are grown in shallow pans or on blocks. In either case place them near the glass until the flowers open, when the plants can be arranged while in bloom where they are most effective.

PROPAGATING.

GARDENIAS.—These plants are readily increased by means of cuttings taken when the young growth is in a half-ripened state. No more leaves should be removed than is actually necessary for the purposes of insertion, and after putting them in place them in a close case with bottom-heat, at first setting them on the surface, and in about a fortnight when slightly callused plunging them. The extra heat thus given will hasten the formation of roots. When rooted they must be inured to the air by degrees.

HABROTHAMNUSES.—There is no difficulty in striking these at any time, but if put in early in the year they will make good plants by winter, and many of them will flower the first season. Cuttings may be taken and treated the same as one would *Fuchsias* and similar subjects, *i.e.*, they should be placed in a close case in a warm house, but as *Habrothamnuses* are, when in heat, very liable to the attacks of thrips and red spider, they must when rooted be soon removed to cooler quarters. Their near ally, the beautiful *Cestrum aurantiacum*, is also increased in the same way.

HYDRANGEAS.—Those little plants with enormous heads of flower so freely sent into Covent Garden Market during the season are all raised from cuttings, many of which consist of young shoots taken from the flowering specimens before sending them away. They are put singly into small pots kept close till rooted, and when that takes place, exposed as much as possible, the object being to ensure plump, sturdy growth. Another method is to grow large plants in an open spot for the purpose of furnishing cuttings, which should be taken about the early part of August, at which time the embryo flowers will be already formed.

LUCULIA GRATISSIMA.—Many complaints are made of the difficulty experienced in striking cuttings of this fine sweet-scented shrub, but for our own part we have always found it to root freely. Our method is to take the cuttings in the spring, consisting of the tops of the young growth, and insert them singly in small, well-drained pots in a soil composed of a mixture of peat, loam, and sand in equal parts. They should be put in as soon as possible after being severed from the parent plant, as if allowed in any way to flag, it will seriously militate against their chances of success. The after treatment consists simply in watering if necessary, in drying the lights every morning, and in removing decaying leaves.

LASIANDRAS.—These are propagated in the following manner: When they have finished flowering cut them back a little; then start them in heat, when they will break freely. For cuttings select the young growths as soon as they commence to harden, and take them off at a length of about 4 inches. The pots should be well drained; half fill them with broken crocks, and over these place some fibrous peat; then fill up with soil consisting of two-thirds peat and one of loam, with a liberal admixture of sand, and after pressing it down moderately firm, place a layer of sand on the top. The cuttings may then be inserted not too thickly, and when watered thoroughly placed in a close case kept at a stove temperature. The lights

should be kept off for a little time to dry the foliage, otherwise moisture collects on the hairs thereon and speedily induces decay. When necessary to water them at any time, the same rule must be observed of allowing the foliage to dry somewhat before closing the case entirely.

KITCHEN GARDEN.

WE cut our first dish of *Asparagus* last week. We have a capital place in which to force it—an old Pine stove, so that by not covering the roots above an inch deep in soil the light greens the Grass with little trouble. We lift the roots from old beds, and plant young beds yearly containing about the quantity we lift for forcing; therefore, we have always a stock for that purpose. As to Rhubarb, we force Hawk's Champagne—the best variety to our knowledge—in the same pit; but we cover the crowns a foot deep with dry Oak leaves, and the Rhubarb comes up a fine crimson colour. Where Apples are short, Rhubarb will be wanted in large quantities. Seakale we force in the beds in which it grows in the old-fashioned way, covering the crowns with boxes with lids to them. We use leaves only for this crop, with the exception of a bit of long manure over the leaves to keep them in their places. Sharp frost here last night rather caught us napping. To-day we are busily engaged protecting Lettuces and Broccoli of the earlier varieties. We have a large quarter of Broccoli laid on their sides on the principle that small heads are better than none; still, we like covering up with Bracken better, as in that way the size is not diminished, and unless the thermometer falls below zero we are generally safe. We also cover our Spinach with Bracken. It keeps the leaves green. Sharp frosts and sharp nor-easters brown all before them. Outside Mushroom beds are doing well. Keep the beds well covered, and if a mat be placed over all it will be found to be a great assistance. During cold weather we only open them once a fortnight, and gather all non-broilers—cups and buttons. Having a large Mushroom house, the daily supply is well maintained; but these indoor-grown Mushrooms, parasols in miniature, are in no way equal to those grown outside. Keep a good supply of all small salads for use at Christmas-time.

FRUIT.

PINES.—Directions contained in the last paper will still apply to plants in this department, but if any alteration is found necessary it will be on the side of lower temperatures in the succession pits when the weather is dark or unusually severe. Late starters now swelling off fruit, which will be found invaluable in the spring, will require a steady bottom heat of 85° to 90°, and a top-heat ranging from 68° at night to 78° by day, with a rise of a few degrees from sun-heat when bright, clear days succeed frosty nights. If the plants are plunged in near proximity to the hot-water pipes, see that the moisture is not abstracted from the roots by the material becoming too dry, but instead of giving copious supplies of water to the soil partially draw the tan away from the pots and give the bed an occasional watering with diluted liquid at a temperature of 90°. Keep the atmosphere in a moist, growing state by damping all available surfaces when the day temperature begins to rise, and again when the chink of air which it is possible to give is taken off about 1 p.m.; also keep the stem roots moistened with the syringe as often as they show signs of becoming dry. If not already done, get the pit intended for spring fruiters cleared out, scalded, and cleansed ready for use. Meantime prepare the tan or leaves by fermentation and frequent turning to prevent burning; then place it in the pit, and allow the heat to decline to 90° before the plants are introduced. Look well to succession plants and autumn-potted suckers, and give enough water to the roots and plunging material, if over hot-water pipes, to prevent a check from drought followed by premature starting in the spring. Give strong successions which were shifted late the benefit of a light span-

roofed pit if at command. Plunge them with their heads well up to the glass, let the minimum temperature range about 60°, and give sufficient atmospheric moisture to keep them steadily progressing throughout the winter.

PEACHES.—EARLY HOUSE.—When the buds begin to show colour a slight rise by day may be indulged in on bright, fine days; but a gradual fall back to 45° or thereabouts at night will be advisable until the flowers are perfected and begin to unfold, when more air and gentle fire heat will be necessary. Look well to the fermenting leaves on the internal border, as the humid warmth from these is so much better than that obtained from the hot-water pipes, and further, the necessity for constant syringing is greatly reduced, no small advantage in the dark, dull month of December, when complete saturation of the buds is not always desirable. If the roots have the run of an external border, this must be well covered with Fern or litter to keep out the frost, and tarpaulin may be used for throwing off snow and rain; but in these high feeding days an outside border attached to an early house is looked upon as a superfluity, the main points in the management of the roots of Peaches being good drainage, sound calcareous loam, frequently changed, and plenty of water at all times. If Strawberry plants, the forerunners of confusion in forcing houses, must be introduced, let them be well dipped in sulphur water to cleanse them from spider before they are taken in, then clear off the surface soil, ram well, and top-dress with stiff loam and old cow manure. When the most forward trees approach the flowering stage, fumigate the house once or twice with tobacco paper. At this stage it is just possible that no enemy may have appeared in sight; but so destructive is green fly when smoking is omitted, that an operation so simple and inexpensive should never be neglected.

SUCCESSION HOUSE.—Prune, cleanse, and tie in the trees as opportunity offers, and keep the house well ventilated until the time arrives for starting. The first week in January is a good time to close the second house, as the earliest varieties form a close succession to the latest in the early house, and as Peaches cannot be kept for any length of time after they are ripe, a careful selection of kinds that will follow each other in their order of ripening should be made for every house. Assuming that the second house has been stripped and the lights properly repaired and painted, there will be no fear of the buds dropping for want of water; but where the roof is a fixture, copious waterings will be necessary, and immediately after the fall of the leaf will be the best time for internal painting. Keep the latest houses as cool and airy as possible to prevent the buds from getting forward in mild weather, and avoid using them for tender plants which cannot stand a few degrees of frost. When all planting is finished, re-arrange the reserve wall, without which a set of forcing houses cannot be kept going, and fill up all available spaces with young trees from the nursery.

VINES.—Examine inside borders in the early house as soon as the buds are fairly on the move, and, if necessary, give old Vines which cannot be over-stimulated a good soaking with warm diluted liquid; also mulch the roots with rotten manure, renovate the fermenting material, and let the temperature range from 50° to 56° at night, and 65° to 70° by day. As old Vines generally break well, direct syringing may be moderated on dull days, but young ones which have not been forced early will require more careful management, as it not unfrequently happens that the most prominent buds take the lead, and unless timely attention is devoted to bending down and sometimes rubbing out the terminal buds, unsightly blanks will be sure to mar the appearance of the house. When this stage of growth has been reached, strip the outside borders of Fern and shutters, and cover to the depth of 18 inches with fermenting Oak leaves. Make them very firm to keep in the heat, and replace the shutters above, but at the same time clear of the leaves.

LATE HOUSES.—Look over hanging Grapes two or three times a week, as this intensely damp weather is very bad for Alicantes, Gros Colmar, and Muscats, and one neglected berry soon mars the beauty of a bunch. Get rid of the foliage little by little, as it parts freely from the Vine, but do not take off any more laterals, at least where the Grapes are to be bottled, otherwise the wounds will give off moisture and colour when the bunches are taken to the dry atmosphere of the Grape room. Ventilate freely with gentle warmth on fine mornings. Keep the house quite close in foggy weather, and let the temperature range from 55° by day to 45° at night. Make a good selection of eyes from early prunings, and if young planting canes are wanted early in the spring insert in sods or small 3-inch pots before Christmas. Keep them in a cold frame for three weeks, then place them in or over bottom heat. Cut back to the required length or quite down to the pots yearling Vines intended for planting. Dress the cuts with styptic and keep them in a cold house until the time arrives for encouraging growth. If any lifting or border making in late houses is being put off until the Grapes are cut, take advantage of fine days for firing the Grape room and cut as soon as the leaves fall from the Vines; meantime get the compost properly mixed, ready for use, and protect from the weather. Prune mid-season houses, cleanse, paint, and put everything in working order, then throw open the ventilators at all times when the weather is not unusually severe.

KITCHEN GARDEN.

VEGETABLES FOR EXHIBITION.*

No work in the kitchen garden is more interesting than that of cultivating vegetables for exhibition. It is in many respects an unlimited subject, as the quality of the produce can never be too high, or cultivators and exhibitors too numerous, and they may belong to all classes, from the owner of a garden many acres in extent, to a cottager who only rents a small allotment. Where vegetables are exhibited, often extensively and successfully from any garden, it is a pretty sure sign that vegetable culture receives proper attention and that the soil is well tilled. No ground is allowed to remain empty in the garden of one who grows vegetables for exhibition, and everything which can be converted into manure is taken advantage of. Some say that when a cultivator begins to grow for exhibition, crops for every day use are made a secondary consideration, and that except at certain periods there is a deficiency in the supply, but that is a mistake, as crops throughout the year must be of the highest excellence to enable extensive selection to be made for successful competition. For instance, anyone wishing to exhibit a dozen Cauliflowers in June would never think of only growing a dozen plants to secure that number of fine heads, but scores, or even more as the case might be, and, therefore, a surplus of fine heads would be the result; and this would happen in the case of all crops at all seasons. There is, moreover, the desire which every exhibitor possesses of growing only improved varieties of everything, and the best show vegetables are also the best for table use; indeed, they cannot be otherwise. Veitch's Autumn Giant Cauliflower, for instance, is one of the very best for exhibition purposes, and a better Cauliflower for ordinary use could not be. Intermediate Carrot is vastly superior to the Long Sundry for exhibition, and so it is also for the table. The handsome smooth fruit of the Drumlanrig Tomato is better than that of distorted kinds, and Drumhead Cabbages would stand no chance, either in a show room or on a dinner table, with the variety called Redbraes. The only exception to this rule may probably be found in Potatoes, as among these the handsomest looking, such as Interna-

tional Kidney and Porter's Excelsior amongst rounds, are inferior in quality to others less attractive in appearance. Still, many of the newer sorts such as Schoolmaster, Covent Garden Perfection, and others, are not without merit. Before success can be attained the

SOIL must be got into proper condition. Few crops can be brought to any great degree of perfection in poor shallow soil; richness and deepness in the way of tilth are necessary in order to secure perfect development. A deeply-dug and well-manured soil will always produce good vegetables, but a soil which may produce fine Cabbages, Cauliflowers, Brussels Sprouts, and similar crops may not be capable of growing beautiful, clean Carrots, Parsnips, Beetroots, &c., as while the former delight to feed on fresh lumps of manure, and abundance of it, the latter can only be had clean and perfect where the ground can be penetrated freely without causing the roots to emit prongs and rootlets, which they are apt to do in newly manured soil. All such crops should be grown in soil which was well manured the previous year. Heavy land may always be made suitable for roots by adding sand, road scrapings, or leaf soil, and insects, which are so injurious to some crops, especially Carrots, may be prevented from doing much harm by the judicious application of soot, lime, or salt. Potatoes can only be had of the largest size by the aid of plenty of manure. Peas, too, delight in abundance of this stimulant, and so do Onions, Leeks, Broad Beans, and Celery. Leeks for show cannot be too large, and the more blanched the stem is the better. Onions can never be too large, provided they are good in shape and perfectly solid. In spring and early summer autumn-sown Onions are best for exhibition, but after the month of August spring-sown ones, if well grown, are generally the best. Celery, when strong, spotless, and well blanched, is an excellent vegetable for exhibition, and a good dish of it always commands attention. An ordinary amount of manure will grow Celery more firm and crisp than a superabundance of it. Of water it can scarcely have too much, and the soil with which it is earthed up should always be quite free from grubs, as it is these which disfigure the stems. Soil which will produce clean Carrots will always grow perfect Celery, and with these two crops are never grown far apart. Undue crowding must be strictly avoided in growing vegetables for exhibition, but at the same time it is quite unnecessary to allow more space between the rows or plants than is really wanted. Onions, for instance, grown 6 inches apart should just be as fine as any which could be produced at 12 inches apart. Timely attention in the way of sowing, planting, and thinning are important points, and good results are not so much a question of space as of system and order. Unsuccessful exhibitors who have never given their vegetable crops due attention often think and say, when they see some high-class vegetables shown, that more means than can be commonly employed have been taken to produce them, but in the majority of cases that is not so; there is, indeed, no secret whatever in the matter of growing good vegetables; all they want is sound cultivation, care, and attention. Some crops may be stimulated by strong manures, and these may be the means of forcing certain things into prominence, but to depend on stimulants to produce all kinds of vegetables fit for exhibition is a great mistake. Artificial manures are deficient in sustaining powers, and therefore both crops and soil would ultimately suffer were no other manures used. Fertilisers, in the shape of top-dressings or manure water, may be employed with advantage at certain times during the season, especially in over-dry or poor soils, but I would never recommend anyone to grow show vegetables in such a, if I may be allowed to use the term, spasmodic way. The mainspring of success does not rest on such fits and starts, but on the general high condition of the soil—the result of good cultivation. Quality must be the sole characteristic of vegetables for exhibition, and this can only be obtained by steady, persistent growth.

* A paper written by Mr. J. Muir, Margam Park, Taibach, S. Wales, and read before the Scotch Horticultural Association Edinburgh, December 4

IN SELECTING VEGETABLES for exhibition, preference should be given to those varieties that require most skill in cultivation. In unlimited collections specimens of everything may be shown, but where prizes are offered for collections of six, nine, or twelve sorts only the choicest should be taken. A good collection of six kinds should consist of Peas, Kidney Beans, Cauliflowers, Tomatoes, Potatoes, and Carrots. In the case of nine dishes I would add Cucumbers, Celery, and Vegetable Marrows, and in that of twelve Turnips, Globe Artichokes and Leeks or Onions. Larger collections should include Broad Beans, Runner Beans, Asparagus, Beetroot, Cabbage, Brussels Sprouts, Parsnips, Salsafy, Savoys, Lettuces, &c. Rhubarb is sometimes shown as a vegetable, but it is not distinct enough to make a good dish. In single dishes a number of Cabbages or Savoys would stand no chance of being placed before good Tomatoes, Celery, Carrots, Cauliflowers, Potatoes, and similar produce, and in order to exhibit successfully attention must be paid to these matters. Over-grown vegetables or those past their best are not suitable for exhibition; they should be just on the eve of their prime, and it must never be forgotten that quantity can never make up for want of quality. In a really first-class collection of vegetables every dish should be good enough to win were it placed in the single classes, and unless that is so disappointment is sure to be the result. One of the best collections of vegetables I ever exhibited was shown at Gloucester in 1880, when four Cauliflowers beat twenty-four, and six Onions weighing 24 ounces each were preferred to heaps of two dozen. These are instances of quality being of more importance than quantity. A plan often resorted to is to show collections with one or two good specimens in each dish and the remainder inferior—an unprofitable mode of exhibiting. In preparing vegetables for exhibition, all superfluous matter in the form of loose leaves should be trimmed off and only the useful parts left. Roots should be washed clean, but any kind of polishing should never be attempted. In dishing up and arranging, no particular plan need be followed, but everything should be shown off to advantage. All kinds of salad plants may be included, but, with the exception of Cucumbers, none of them can be shown to win against good vegetables of the ordinary types. At many shows, however, there are salad classes. Cucumbers, Lettuces, Endive, Radishes, Mustard and Cress, Beetroot, and Celery are amongst the chief subjects which come under this heading. Cucumbers should never be too old when shown; young and tender specimens alone merit a prize. Fruits from 12 inches to 20 inches in length are generally preferred to yard long ones. Lettuces should be crisp and firm and always well blanched in the centre. The Batavian Endive is the best, but this is chiefly used as a winter salad. Radishes may consist of both the long and short-rooted varieties, and they may be red or white in colour, but they must be clean skinned and firm at the core. Apart from Celery being a first-rate vegetable, it must be included as a salad, and when well grown carries great weight in any exhibition. The

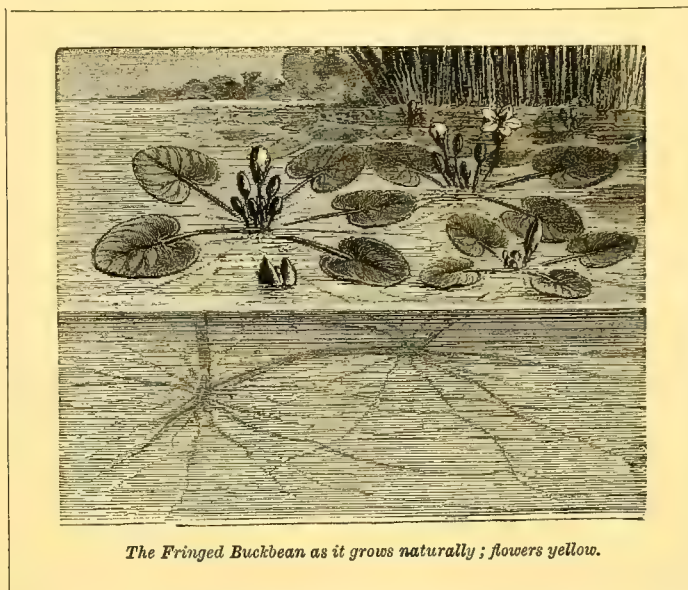
IMPORTATION of vegetables into this country is very considerable, and the only way to lessen it with advantage is to improve and extend vegetable cultivation. At exhibitions, as a rule, vegetables are not fairly dealt with. I have often seen more money offered for half-a-dozen Pelargoniums than for a dozen dishes of the best and choicest vegetables. Let us hope, however, that improvement in this direction will soon be forthcoming, and that ere long awards for good productions in the way of vegetables will not be left to be wholly made by our leading seedsmen.

Bliss's Abundance Pea.—A dried specimen of this Pea, thickly covered with pods, has been shown to us by Messrs. Howcroft & Watkins, Covent Garden. It seems to belong to the same class as the American Wonder, and is evidently equally prolific. It is a dwarf Pea—a cross, it is said, between Little Gem and Champion of England.

Autumn Cauliflower.—"J. S." (p. 436) is perfectly right as to Veitch's Autumn Cauliflower being one of the best of vegetables and distinct. "W. I." (p. 495) has evidently not grown the true variety of Eclipse, otherwise he would not assert that it is an exact counterpart of Autumn Giant, and yet he contradicts himself by saying that Dickson's Eclipse is fit for use two or three weeks in advance of the other. How, therefore, can they be counterparts? We maintain that our Eclipse is perfectly distinct in foliage, being much more self-protecting, dwarfer in growth, growing almost close to the ground, facts which have been proved by gardeners who have grown the two varieties side by side for years. We do not detract from Autumn Giant its legitimate value; both varieties have their distinctive qualifications and good properties.—DICKSON, BROWN, & TAIT, Manchester.

THE FRINGED BUCKBEAN.

LIMNANTHEMUM NYMPHÆOIDES, known more commonly as *Villarsia nymphæoides*, is one of the loveliest of British water plants. It merits



The Fringed Buckbean as it grows naturally; flowers yellow.

introduction to our ornamental waters, in which its cultivation is so easy that no attention is required after it has become established. It is a creeping perennial, the flowering-stems of which float far and wide, and bear leaves like those of a Water Lily, but smaller. They are prettily dappled with red-brown, or are even almost entirely of that colour, instead of green, and amid these sparkling spots on the water the flowers appear during July and August. They are funnel-shaped, about an inch across, bright yellow, and fringed. It grows from Norfolk and Gloucester to Sussex, and is naturalised elsewhere, but it is rather rare in England. In Holland it is much more common. There large tracts of canal are covered with its beautiful leaves and flowers. It is not at all like the Buckbean, as its popular name would indicate, but it does belong to the same Order, though few would think it a Gentianwort. The plant which it most resembles in general appearance is *Limncharis Humboldtii*, a lovely aquatic, which may be seen every year in the Victoria tank at Kew, but they are not related, as the *Limncharis* belongs to the *Alismaceæ*, the same tribe to which the flowering Rush or *Butomus* belongs.

R. I. L.

Goat moth (*Cossus ligniperda*).—The larvae of this insect are found in many of the Oak trees in this neighbourhood. Their whereabouts can easily be detected by the powerful odour and moisture exuded from their burrows. From an Oak here 2 feet of rind fell off the trunk, which

is full of holes as large as one's finger made by these larvae. On examining these holes I found about a dozen of the larvae half their natural size. The part of the tree in which they are deposited is sure to decay; only Oaks are affected here as yet.—W. RICHARDSON, *Bessborough, Piltown.*

FRUIT GARDEN.

OUTSIDE V. INSIDE VINE BORDERS.

I HAD hoped that the article on this subject by Mr. Clayton in *THE GARDEN* (p. 217) would have led to a thorough discussion of this matter, but apparently everybody is contented with his own practice. I said everybody, but I do not mean that to include myself, else I should not be writing this record of my experience in regard to both sides of the question, that is, "outside and inside." And, first, I must ask to be allowed to shirk the *Phylloxera* part of the subject, and that for the best of reasons, namely, that I have hitherto been fortunate enough not to have had a visitation of that

pest, but, by the general scare there is about it, perhaps it will be best not to boast too loudly. I will, however, venture to say this much, that the idea of its prevalence is, I believe, really a scare, and nervous mortals would do well not to be too precipitate when told that the cause of their vines looking sickly is the *Phylloxera*. Do not believe it till you have a lively faith by a sight of the live insect. But now as to borders, outside or inside, which are best? Well, neither, but both are alike good, with this qualification, that season be studied—that is, as to what time of year the Grapes are to be ripe—when their different positions are determined. For early and late houses I unhesitatingly vote in favour of the borders being entirely inside, my reasons being that with regard to early houses no covering of borders is needed, either with the view of imparting heat to the roots, or of throwing off rain or snow; moreover, warmth, by watering with warm water when needed, can be imparted and retained far more effectually than were it applied to an outside border, not to mention the being able to do it just at the time when it would be likely to afford the Vines most benefit, this obviously could not be the case with outside borders that might be already unduly saturated by heavy rains. Apply the same rules to late houses, more particularly as to their immunity from over-saturation or the chilling effects of a heavy snowfall, together with the non-need of border protection, and the advantages of inside borders must be apparent. I say nothing in reference to additional labour as to watering, &c.,

that inside borders entail; that is a fact patent to all; but I place in the balance against this labour the decided gain of dispensing with outside protection, the greater equability of temperature of the roots and tops of the Vines, and the being able to give stimulants at the right time. If the difficulty as to

AERATION, by exposure to the atmosphere at certain seasons, of inside borders could be satisfactorily solved, one might safely predict their general adoption, but how to do this other than by the cumbersome way of removing all the sashes it is difficult to tell; besides, such a plan is not always practicable, as vineries are often needed for plants when the Vines are at rest. To in some degree make up for the lack of aëration by exposure to the atmosphere, we always put an extra depth of drainage and use abundance of old mortar rubble and charcoal in the soil, and every year as soon as the Grapes are cut the mulching is removed and the border surface pointed and top-dressed with the same porous soil. I think that if Mr. Clayton, whom I know to be a good cultivator, had been more generous in the matter of drainage for inside borders, this would have enabled him to feed proportionately well, and he would not then have had to complain that the roots of his Vines manifested a preference for the outside; this at least is my experience. For the production of

MID-SEASON GRAPES there can be no question that outside borders are best, and here I would emphasise outside, not half-and-half, but wholly so. I am, and always have been, quite unable to find out why it is proper to have borders half in and half out. To me the plan has always appeared objectionable, because unreasonable—one portion of the roots wet and plump, the other portion most probably dry and shrivelled. What wonder, therefore, that under the circumstances they prefer to get outside; the wonder would be if they did not. Mr. Clayton's remarks as to the "saving of labour in the case of outside borders" I willingly endorse if restricted to borders of mid-season houses, but only in this connection, for, as I have just shown, early or late houses that have their borders outside must have additional labour as regards protection and warmth; hence there is virtually no more saving of labour than if the borders were inside. As to the Vines being "much longer lived," I do not venture an opinion on that matter, because I have not tested the point; but having examples of both, I at present discern no more sign of decrepitude in one than in the other. The subject is such an interesting one, that I trust others may be inclined to give their experience and opinions respecting it.

W. W. H.

CRACKING IN FRUITS.

Grapes.—It is about seven years since I wrote as follows in a contemporary on this subject and of the Madresfield Court Grape in particular: "We have two Vines growing in the same house and entirely in an inside border. One Vine is in the middle of the house, and the other is at the west end where it has the most light. The Vine at the end has been allowed to extend a foot or two, but otherwise it has been treated like the other; and with this exception the breadth of foliage developed on each every year and weight of crop has been as nearly as possible the same. The fruit cracks less or more on both Vines, but the end Vine is always much the worst. This season there was not a bunch on it that did not crack, some very badly; whereas on the Vine in the middle of the house there was not a single bad berry, so far as I am aware, and the last bunch is still hanging on the Vine dead ripe and partially shrivelled; and yet this Vine is just the one that should have cracked berries. It is the strongest Vine, has the most succulent foliage, the sap cannot go anywhere else but into the lateral shoots and those which bear the bunches, and no attempt has been made to check the growth. Besides, this Vine gets considerably the most water at the roots, for it has to take its chance with the others, chiefly Alicante and Lady Downes, and we water as copiously as most people. Contrary to what it

ought to do, too, the Vine at the end begins generally to crack on the bottom limb first, though it is the weakest, the sap turning by preference into the top limb in its ascent.

"Leaving the problem here propounded for your correspondent to solve, I ask why cracking should always be supposed to be produced by the force of the sap from within? Neither in the case of the Madresfield Court nor the Chasselas Musqué Grape does any sap flow out when bursting occurs. Before the berry cracked by distension one would expect the sap to ooze through the pores of the skin, as it does in the case of the Lady Downes Grape when the fruit is allowed to hang on the Vine till the sap begins rising in the spring, but it does not. To me the cracking has always appeared to be just the same as that which appears on chapped hands and on the lips of human beings, and which is caused by external cold and exposure. It is a curious fact that in the case of the Vine at the end of the house, to which I have already referred, the sun shines directly on the bunches for a long while every afternoon; whereas on the other Vine where there is so little cracking, the bunches are much shaded, as the Vines are trained only 2 feet asunder and the foliage covers the roof entirely in every part." To this I may add the information that the Vine that did crack worst was close to the wall at the end, and was much the best drained and driest, owing to hot-water pipes passing under on one side of the roots. It was these remarks I referred to lately as having anticipated Mr. Wildsmith changed convictions, in favour of the idea that the cause of cracking was not too much moisture at the root, but something in the air, or above ground at least. My words "almost" referred not to this point, but to the suggestion of Mr. Wildsmith's concerning "atmospheric moisture," and to which the word still applies. What he "supported" me in was his transferring the cause from the roots to the tops, and I may mention that by the time his last note appeared he was in possession of the article he "never read or heard of" from two sources. It was in a paper I understood he now and then not only read himself, but occasionally posted extensively to his friends. With me the best examples have always cracked worst, and by best examples I mean the best coloured and firmest fleshed. Mr. Wildsmith's conclusions on this point in regard to the Madresfield Court Grape are inconclusive, because, as he tells us, he has "never yet been able to get either large bunches or berries of good colour," and therefore could not institute a comparison. On the other hand, I have had it both good and bad, and had the Grape occasionally as deeply coloured and perfectly bloomed as any Grape I ever saw, as well as solid-fleshed, and on these occasions it certainly cracked worse. The berries never were black nor much cracked on the Vine in the moist position, but have always cracked on the other that finished best, except this season, when they neither coloured nor cracked. It is a curious fact, too, that just before starting the vinery in spring, the hot-water pipes, before mentioned, as passing under the border near the roots were cut out. For about thirteen years these pipes have kept the border warm and dry where the Madresfield Court is planted, and during all these years the berries on that Vine have cracked, but now the pipes have been removed the cracking has ceased; but future experience will determine whether the results are permanent or not. We cut out the other Madresfield some three years since, and kept the one at the end. It was the circumstances connected with this Vine that were in my mind when I spoke of good examples cracking worst. But Grapes are not the only fruits which crack and split, and a consideration of the conditions under which other fruits crack may help to solve the question of cracked Grapes. For example,

Cherries are very liable to crack, as all dealers in fruits know, for the cracked fruits are the main cause of the decay which takes place in the hampers of fruit sent to market. Cracked Cherries were very prevalent last summer in shop Cherries from the south, and on our walls here

some of the large Whiteheart kinds and others were many of them gashed in all directions. The cracking occurred principally towards the close of the ripening process. In the Cherry, too, the cracking resembles cracking in Grapes. It is a curious fact, also, that when our Cherries were ripening we had the heaviest summer rainfall—nearly 8 inches in two months; but it would be wrong to conclude from this that it was the moisture from the root which burst the fruit. It rather corroborates Mr. Wildsmith's atmospheric moisture idea. Again,

Pears of all the tender sorts, that seldom or never ripen in our cold climate, crack and rend towards autumn in the most extraordinary manner. The cracks are deep and traverse the fruits—mostly small, hard, and unripe—in every direction, and are just like the bark of a tree that has been slit by the knife. The sorts that do ripen do not crack, and the cracking in those varieties subject to it always begins towards the end of the season. I have had trees this year bearing hundreds of imperfectly ripened fruit, many still on the trees at this date (December 7), not one of which but was cracked all over, and deeply, while a close examination revealed the skin rent into smaller cracks on every part of its surface. I admit, therefore, that it is not the best examples of Pears that crack.

Melons, again, crack just in the same way, but good fruits crack as well as inferior ones, and some seasons cracking is worse than in others. It has not been bad with us this year, but when it is bad the Colston Basset cracks much worse than Dell's Hybrid. With cracked Melons it is a good plan to paste a bit of paper over the wound at the beginning to exclude the air and prevent mouldiness and rotting. Drought at the root does not seem to arrest cracking in Melons, but fruits ripened on plants with good foliage do not crack badly. Moral: Take care of the leaves. The

Victoria Nectarine is a cracker or splitter when grown in cold late houses, as I perceive by the crops of a neighbour of mine; whereas in our early house it never cracks in any way worth mentioning. From what I have seen, however, I would not recommend it for very late work, and I say this advisedly, for I have often recommended this Nectarine. Some varieties of

Plums crack as badly as any fruit can do just when approaching maturity, and these the wasps soon destroy. On a thin and dry wall border here several sorts of Plums crack as badly as any fruits we ever saw, and do so every year. The skin of the fruit seems to crack and give way just as the skin on people's hands do under exposure, and the least little rent soon widens into a big one, from which the flesh protrudes, affording a ready temptation to wasps and bluebottles. In short, the subject of the cracking of fruits is a wide one, by no means confined to Grapes alone, and just as little understood as yet.

J. S. W.

CULTURE OF BANANAS.

5092.—In order to succeed really well in the culture of Bananas, they should be planted out in a prepared border in a sufficiently spacious and light house. Fairly good fruit has been grown where the roots were confined to pots or tubs, but naturally nothing like that obtained from plants whose roots can work freely in a good body of suitable compost. The method of culture will in a great measure determine the amount of space required. I have seen plants bearing fruit not more than 4 feet in height, and which had been continually growing in pots, whereas under the most liberal treatment at least 12 feet will have to be allowed from the ground. The finest plantation of Bananas I ever saw under glass was at Byfleet Lodge, in the late Mr. Hinds' time. They were grown in a lofty span-roofed house in a central bed provided with bottom-heat. From these plants were cut clusters of fruit weighing 90 lbs., about the highest development attained by the Banana in this country, and I should doubt if a much greater weight of fruit is produced by a

single plant in its native land. When Bananas are grown in this manner they yield luscious fruit very different indeed from the half-ripe samples imported, and, seeing how distinct in appearance and flavour they are, one wonders that special provision is not oftener made in large gardens at least for furnishing a supply of them. A house devoted mainly to Bananas is always interesting. It is probable, too, that the expense of culture would be as well repaid as in the case of other fruits commonly grown under glass.

THE BEST PLAN in making a place for the plants is to form a brick pit for the soil, so that the roots may be above the ground level, as thus situated they more readily enjoy the general temperature of the house, but if there is not sufficient head room for so doing the soil may be excavated to the necessary depth. Bananas are gross feeders, and the more good soil they can have the greater will be the chance of obtaining strong growth. They should have 2 feet in depth of soil at least, and in a large house from 3 feet to 4 feet will be none too much. But this must in all cases rest upon good drainage, which may consist of some 6 inches of brick rubble, laying whole turves thereon to keep it open. Good fibrous loam, with a little leaf-mould and lumpy peat, forms a good compost, adding more or less of the two latter ingredients as the former is light or heavy. Strong heat with much atmospheric moisture and plenty of water at the roots whilst growing are indispensable; and although some shade is necessary in hot summer weather, only as much as will prevent scorching should be used, plenty of light being one great essential. During spring a day temperature of quite 65° must be maintained, with 60° at night, increasing these temperatures by 5° or 10° in bright weather. In summer give air freely in warm, genial weather, shutting up early in the afternoon, the great point being to encourage a free, strong development.

J. C. B.

PEACH TREE INSECTS.

WINTER DRESSINGS.—The insect pests which most infest Peach and Nectarine trees are a large brown scale, black aphid, and red spider. The two former especially if left till the trees are in full leaf are very difficult to eradicate without injuring the crops as well. Both scale and aphid increase at an extraordinary rate, the former soon covering the whole of the young wood and completely blackening the foliage and fruit with the excrement; while the aphid, if once allowed to become established, soon takes possession of and ruins the points of the growing shoots. Nothing short of dipping the points in a strong solution of soft soap and Quassia chips or Tobacco water will destroy the aphid, fumigating or insecticides applied with an engine or a syringe being completely ineffective, owing to the curling of the young leaves. The present is the best time to destroy both the scale and the fly, and nothing I have tried proves so cheap, effective, and safe as

PARAFFIN. To paint or dress the trees with any mixture is, in my opinion, simply a waste of time. We use the paraffin at the rate of 6 ounces to 3 gallons of water, and mix it in this way: The 6 ounces or three wineglassfuls are poured into a gallon of heated soft water in which a lump of soft-soap about the size of an hen's egg has been previously dissolved. It is then well stirred up with a syringe and another two gallons of heated water added, so as to make the whole at a temperature of about 120°. It may be made still hotter than this, but at that temperature we find the mixture both safe and very effective. It is imperative that the paraffin be kept from floating on the surface, as it is very liable to do, and in this state may easily be made destructive. The common practice with it is to have two syringes at work, one constantly forcibly discharging the mixture back into the vessel containing it, and the other kept distributing it over the tree; or if one syringe only be available, it should have the contents discharged alternately over the tree and back into the vessel. The trees should be thoroughly wetted with the paraffin mixture, and

those at all nervous as to its ability to injure the buds may give the trees another syringing with clear water in the course of half an hour. We now seldom syringe it off and our trees never fail to bloom abundantly. The trees should have been pruned prior to this operation, and it is also advisable to clear off all the loose soil and rubbish that may have accumulated on the surface of the border; the mixture may then reach the eggs of the aphid or fly that may be deposited about it. The woodwork and walls should be thoroughly wetted with the mixture, the former and the glass being also washed while yet wet and the walls whitewashed. The trees can then be trained and tied, and in time it will be found that but few of either scale or aphid have escaped, and these few should be destroyed before they have restocked the trees. I might also have included mealy bug with the foregoing pests, as this is sometimes found on Peach and Nectarine trees, and may also be exterminated with the paraffin mixture. I do not find any winter dressing to affect

RED SPIDER, the spread or otherwise of which depends upon the state of the trees and their treatment during the growing season. Trees well rooted, that get abundance of water and liquid manure and frequent syringings, and that are not over-cropped, are seldom injured by red spider. On the other hand, neglected, over-cropped trees are almost certain to be smothered by it, and this will not be prevented by any winter dressings. Flowers of sulphur is the best preventive. This, at the rate of a large handful to a gallon of water, working it through a piece of muslin, may now be syringed over the trees, and when thoroughly coated after two or more occasional applications may check red spider, and is certain to check or destroy mildew. Peach trees when in full leaf and infested with red spider should have a little soft soap and a pinch of sulphur frequently added to the syringing water, and when the fruit is off may be heavily coated with the latter.

W. I. M.

The Duke of Buccleuch Grape prize.

—It will be remembered that in January last prizes of £5 and £2 10s. for the two best bunches of this Grape, of the weights of 4½ pounds or 3 pounds each respectively, were offered in THE GARDEN, subject to the conditions that the bunches should be ripe a month previous to the show, the exhibitor to be at liberty to compete at London, Edinburgh, Glasgow, Liverpool, Manchester, or York, in order to afford every chance to the hundreds of gardeners who were said to grow the Duke to a heavier weight, and to keep it much longer than the conditions of the prize demanded. This Grape has been in cultivation at least ten years, and if it possessed all the good qualities attributed to it, it was to be expected that 3-pound examples at least would be forthcoming, but the subscribers have now to state that not one entry has been received for the prizes during the season, and they conclude the reason is that neither the advocates of the Grape nor growers generally could fulfil the above reasonable conditions, and that the Grape has been much overrated.—J.

Good and bad Grapes.—Much diversity of opinion exists as to the value of the different Grapes now in cultivation. This will always be so, tastes being so variable. One correspondent says that none of the Sweetwater Grapes are good. Now that is a mere matter of opinion, as there are some who prefer the Sweetwater to the Black Hamburgh, and *vice versa*; but why split hairs on such matters? So far as my own taste goes, I should never grow any other than Black Hamburgh and the Muscat of Alexandria. I am not, however, going to condemn such useful Grapes as Foster's Seedling and Lady Downes. Both are useful in their seasons, and in some cases indispensable, especially Lady Downes, than which we have no other variety that keeps so well and is of such good quality. We have kept it sometimes in bottles plump and fresh until the middle of April; in fact, we rely on it as our best and latest keeper. There is, however, another variety which runs it very close in this respect, and that is Mrs. Pince's

Muscat. Some seasons we find the latter keeps quite as well on to the spring as Lady Downes, and then it beats that variety in flavour. It does not always carry so much bloom as some other sorts, a point in some cases against it. Here again tastes differ, some preferring large showy sorts, though of indifferent flavour to those less striking in appearance, but better in quality. Such varieties as Gros Colmar and Alicante, which produce both large bunches and berries, but with an indifferent flavour, are in some cases more highly thought of. Respecting the merits of early white Grapes, it is plain we have gained nothing by recent introductions, and in all probability we shall be glad to go back to the Early Smyrna Frontignan for our early supplies of that class of Grapes.—J. C. C.

5101.—Select Peaches and Nectarines.

—By planting the following kinds, "T. R. S." will have a succession of Peaches extending over a period of two months, and Nectarines one month. They are named in the order in which they ripen and are all good constitutioned varieties, viz., Peaches—Hale's Early, Dymond, Royal George, Barrington, Prince of Wales, and Walburton Admirable. Nectarines—Stanwick Elruge and Humboldt. It will be best to plant one-year trained trees, especially as a few fruits are desired the second year.—B.

—"T. R. S." (p. 497) will find the following kinds free bearers, excellent in flavour, and very suitable for planting in a cool house. In ripening they succeed each other in the order here given: Peaches—1, Hale's Early; 2, Dr. Hogg; 3, Stirling Castle; 4, Noblesse; 5, Barrington; 6, Walburton Admirable. Nectarines—1, Elruge; 2, Pine-apple. Trained trees will give the quickest result. Select medium-sized ones with well-ripened wood. Prune out all the main shoots except three on either side. Do not head these back except to cut off any unripe wood at the extremities. Allow them to grow unchecked the first season unless one shows signs of out-growing the rest, when its point may be pinched off, as well as a small quantity of the foliage at regular intervals on the branch. By these means such evenly-balanced and well-furnished trees will be obtained as will bear a moderate crop the second year after planting.—W. C. T.

—"T. R. S." may safely plant the following: Royal George, Noblesse, Stirling Castle, Grosse Mignonne, Barrington, and Bellegarde Peaches and Stanwick Elruge and Violette Hâtive Nectarines. There are many other sorts, some of them larger and said to be superior, but it is well-nigh impossible to conceive of more rich and luscious fruits than those of the above old and well-proved varieties well grown and properly ripened. The vexed question of trained trees or maidens may be answered thus: If "T. R. S." is anxious for as much fruit in as short a time as possible, and can depend upon getting young healthy, well-rooted trained trees, he may choose half of his trees trained. They will, however, cost about three times as much, and very often, through severe checks and other causes, prove less satisfactory, and little or at all earlier in fruiting than maidens. If "T. R. S." plants maidens at once, and gives them careful culture through the summer, he may gather a dozen or more fruits from each tree the second season. Those most conversant and successful with the culture of Peaches and Nectarines under glass will agree that is a moderate estimate of the powers of maiden Peach and Nectarine trees under skilful and stimulating culture.—D. T. F.

SHORT NOTES.—FRUIT.

Vine leaves (Cambrion).—We have carefully examined the Vine leaves sent, and can find no fungus on them. We cannot from the evidence before us say what ails them.

Peach wood (G. W.).—There is no disease on the wood sent. The appearances are caused by the cells of the cuticle being shrivelled in an unaccountable way.

Phylloxera (J. S.).—I can find no trace of Phylloxera on the Vine roots sent. If there are any on your Vines they would probably be on the living roots, which they would leave if they ceased to supply them with nourishment.—G. S. S.

Coal tar and Vines.—I have seen anything but satisfactory results from the use of coal tar in vineries. When applied to the pipes, in one case it caused all the plants in the house to drop their leaves; in another case, though cautioned to take care, after allowing the tar to remain on the pipes as an experiment, the same mishap was again the result. Though the pipes were scraped clean and afterwards painted with ordinary black paint, when the vinery was started they emitted such an amount of nauseous odour as to give the Vine leaves the appearance of having been scorched. As an exterminator of mealy bug and scale, I have found Murray's Vine composition a sure remedy. When I came here twelve months ago the Vines in three houses were covered with bug and scale, and that so badly that the Grapes in the early house were unfit for use, although my predecessor had applied various dressings, including Gishurst compound, in such a strong state that it killed some of the spurs. Nevertheless, it failed to exterminate the pests in question. I painted the Vines once all over with Murray's composition, and the result is that they are now perfectly clean, broke strongly and healthily, and have borne a good crop.—G. M., *West Ashby Manor, Horncastle.*

FLOWER GARDEN.

HELLEBORUS NIGER ALTIFOLIUS.

WRITING (p. 501) of a Hellebore (called at Glasnevin *H. niger major*), Mr. Burbidge mentions the fact that its styles are, like those of *altifolius*, tinged with pink, and from this he draws the inference "that this character can no longer be taken as absolutely belonging to *H. n. altifolius*." I do not say that he is wrong; but is not this rather jumping at a conclusion, unless it can also be shown that the Glasnevin plant is a distinct species, and not either a natural or garden variety of *altifolius*? No competent authority has, I believe, pronounced positively whether *H. n. altifolius* is a species or merely a natural variety. Difference in soil and situation, and consequent difference in vigour and health, are sufficient to produce the original of Mrs. Duffield's picture, of which I could often send the counterpart; and these accidents are sufficient also to produce the pure white flowers which I enclose for your satisfaction—pure white flowers which, *pace* Mr. Burbidge, are grown in the open border without any protection whatever, and which were last night exposed to 11° of frost. Luxuriance of growth tends to purity of flowers, and even for the nonce to the obliteration of the pink on the style. I am far from pretending to any exclusive knowledge of this tribe, but I cannot help thinking there is an inclination abroad to multiply species without authority and to classify varieties without reason. I own the differences are so great that there is much temptation to do this, and it may be that we are misled by plants sent to us. If we raise the seedlings ourselves, we know their value, but we cannot be certain of those raised by others. As an instance of the former, I enclose a flower of one of my seedlings in bloom for the first time. I have long had a similar flower upon a plant with non-persistent leaves, but by cross-fertilisation it now appears upon a plant of the persistent-leaved group. Where is this to end, unless we are more careful to distinguish between wild specimens and garden seedlings, whether pure or crossed? I have seedlings raised from *H. niger* (typical) without crossing. In some of these the flowers are green at the base, and in some they are pink or purple at the base; one is green stalked, others blotched; some have entire leaves, some leaves deeply serrated, and not one is exactly like the parent plant.

In describing one of my *H. niger* seedlings in THE GARDEN (p. 478), I am made to describe its leaf-stalk "lip erect, of pale green." No doubt my writing was at fault; my intention was "less erect, of pale green." This was the plant considered by Mr. Burbidge as somewhat resembling

St. Brigid's. Mr. Burbidge has since kindly sent me a leaf of the latter, and I find my plant to have similar unspotted stems. My leaves, however, are darker, more shining, and deeply serrated, and in these respects unlike the Irish variety.

South Devon.

T. H. ARCHER HIND.

* * The flowers sent along with this communication were uncommonly large and fine; they measured nearly 4 inches in diameter, and were of snowy whiteness both outside and inside. The other flower alluded to was purple and small in size.—ED.

CAMPANULA GARGANICA.

THE following description and annexed woodcut have been sent to us by Messrs. Haage and Schmidt:



Campanula garganica; flowers light blue.

"This charming miniature Bellflower, with heart-shaped toothed foliage, forms small tufts only about 2 inches in height. The pretty, light blue, erect flowers, half an inch across, appear on the trailing branches, each about 1½ inches to 2 inches in length, in great profusion. It is a very fine plant for hanging baskets and for pot culture; it flowers the first year when sown early."

Corn Marigolds in November.—A large field here was until lately (Nov. 25) a blaze of colour with the Corn Marigold and the white *Matricaria*. It had a most cheerful appearance, and was suggestive of the value of Corn Marigolds as late autumn flowers. Their blossoms in a cut state are much in request. A good breadth of this should be sown about the first week in July. This will give abundance of blooms from October onwards. It is curious how very popular this yellow flower has become of late amongst all classes, whereas only some few years ago not a bloom of it was ever gathered.—J. C. B.

Schizostylis coccinea.—This deserves all that has been said in its favour. It is so easily grown, and flowers so freely at a time when outdoor flowers are scarce, that it should have a place in every garden. Two years ago next March we planted out a good number of clumps of it in a snug corner of the kitchen garden, and from these we have been cutting a large number of spikes of flowers for the last six weeks. Although, too, we had as many as 7° of frost on November 14, and the same amount again on December 6, they are still producing a plentiful supply of flowers.—J. C. C.

Marvel of Peru.—Had Mr. Muir (see GARDEN, Nov. 3, p. 397) seen such plants of Marvel of Peru as we have here (South Italy), he would scarcely term them "not showy from a distance." Large, well-formed bushes 2 feet high and 2½ feet or 3 feet in diameter, covered evening after evening for weeks with hundreds of pale yellow, pink, dark crimson, white, and variegated funnel-shaped blooms 1½ inches across, thrown into prominence by the wealth of green leaves from which they rise, have a grand appearance. When the flower

has faded the calyx still remains to guard the seed, which in its turn becomes an ornament, as it assumes a jet-black hue. When even Petunias and Portulacas are showing the effects of heat and drought, the Marvel of Peru is always fresh and cheery. Its scent is its least qualification, but its honey stores must be abundant as no plant is so much sought after by the humming-bird moths. Its great merit is that it flourishes in a poor soil propagates itself freely from seed and tubers, requires little moisture, and blooms in the height of summer when most other flowers are burnt out.—ALPHA BETA.

Narcissus incomparabilis seeding.

Writing to us from Verrières, M. Henri Vilmoren says: "Narcissus incomparabilis is seeding here, and pretty largely too. I have received from Mr. Peter Barr a large collection of Narcissi, amongst which are about twenty forms of *incomparabilis* (single, besides three or four double), and out of these, *N. incomparabilis albus Milneri*, *N. i. Leedsi*, and several others have borne seed which have been sown, and grew perfectly. I do not expect to see the seedlings bloom for two or three years. Next spring I shall keep a note of all the *incomparabilis* that set seed."

Gladiolus culture.—As one who grows the Gladiolus pretty largely and tries to get the best varieties to be had, and who has so frequently through the gardening journals tried to interest a greater number in doing so, permit me to welcome "J. C. C.'s" observations on this subject (p. 477), which are none too soon. I have so frequently occupied your space on the matter, that I will now merely ask to be allowed to say that I differ from him on three points; two at least are of primary importance. 1. "Autumn manuring." Owing to the winter rains carrying the most valuable ingredients beyond the reach of the feeding roots, I prefer manuring in February or March. 2. He says, he prefers "deep planting" where the soil is fine. I never plant beyond 3 inches at first, but mulch or top dress afterwards. There is no proper maturation with deep planting. 3. A layer of "sand" above and below the corm, to give the necessary silicates and stamina in growth, I consider indispensable if you mean to perpetuate your stock the following year.—W. J. MURPHY, *Clonmel.*

AQUILEGIA SKINNERI FL.-PL.

THIS double Columbine is described by Messrs. Haage and Schmidt, Erfurt, who are distributing seeds of it, as a "new double-flowering hybrid of



Aquilegia Skinneri fl.-pl.; flowers white and yellow.

the beautiful *A. Skinneri*. The flowers, partly with double yellow, partly with double white corollas, may be best described by comparing them to double-flowered Fuchsias, as they resemble the flowers of the latter in form and beauty exactly. The plants are of the same free growth

and hardness, and also just as free-flowering as the single-flowered species. Eighty per cent. of the seedlings have come true and perfectly double." If this plant answers to the preceding description it will without doubt prove a welcome addition to hardy flowers.

Impatiens Sultan as a summer bedder.—In reply to "S. D.'s" query (p. 506) as to the value of this beautiful Balsam as a summer out-of-door bedder, I may say that towards the end of June of this year I edged one of my large Begonia beds with some twenty-two well-rooted cuttings of this plant, but during the eight or nine weeks they were left out only one or two of them bloomed feebly, and they hardly grew at all, and in fact were useless till they were replaced in the warm house. Save in exceptionally dry and warm summers, I should say it can only be considered as a cool stove plant.—W. E. G.

Blue Lobelias.—These are indispensable in the summer flower garden, but to have them really effective they must be strong bushy plants when put out, and the only way by which this can be effected is to make an early start. If their propagation is left until spring there is not time to get plants bushy enough to make much show. A good plan is to save a quantity of old plants, which, if cut down early in autumn, will now be furnished with healthy growing shoots. These plants, pulled into pieces, will yield several dozens of rooted divisions, which, if dibbled into shallow boxes, will soon strike root freely. The points of the shoots must be kept pinched out, and as soon as they begin to form side-shoots they should be potted off in 3-inch pots and placed in light airy pits or frames near the glass. Keep them dipped down close until finally planted out, when they will be dense tufts, ready to make a brilliant display. Lobelias succeed best under cool treatment; in fact, I find them to do well in frames along with Calceolarias, Gazanias, and similar plants where the frost is kept out by external coverings. The less fire heat they get the better. Although seedlings or spring struck cuttings may be pushed on to make fine plants by May in heated structures, they have not the stamina of plants wintered in cold frames, and make but a brief display.—J. GROOM, Gosport.

SHORT NOTES.—FLOWER.

Best Chrysanthemum at the Aquarium.—It is stated in THE GARDEN (p. 497) that Queen of England was the best Chrysanthemum bloom at the Aquarium. This is a mistake. The best bloom in the show was Empress of India, in Messrs. Dixon's stand. Queen of England was never placed in competition with it, but Empress of India and Golden Empress were.—J. DOUGLAS.

Cotoneaster frigidus.—The large bunches of bright scarlet fruit borne by this Cotoneaster make it very conspicuous, but unfortunately birds are so fond of the berries, that in the event of severe weather setting in its beauty is but short-lived. It is a native of the Himalayas, and of such free growth that it soon reaches a height of 10 feet to 12 feet. Its habit is, however, that of a large open bush rather than a tree.—ALPHA.

The Strawberry tree (*Arbutus Unedo*).—The winters of three or four years ago made sad havoc with this shrub in many places, but where it was not killed outright it is recovering rapidly, and, in common with those which in favoured spots were unharmed, it is in many places now in bloom, its drooping clusters of white flowers or later on large rugose fruits being alike pretty. As regards beauty of flowers, however, the common kind is surpassed by the variety called rubra, which when in flower is a grand object.—ALPHA.

Salvia Pitcheri.—Is Mr. Mayne (p. 479) sure that his *Salvia* is *S. Pitcheri*, which I doubt? If it is the true *S. Pitcheri*, many readers of THE GARDEN, myself included, will, I know, be pleased to learn how Mr. Mayne treats it. Six stems are as much as a 6-inch pot could contain, and then the pot must be supported to keep it from overbalancing. Will Mr. Mayne kindly send a spray of his plant to THE GARDEN Office for determination?—F. BEDFORD, Stratford.

5100.—**Dianthus Atkinsoni**.—"Beta" asks for information respecting this mule Pink. Mr. Atkinson, of Bacton, Norfolk, was the raiser of it, and it was sent out under the name of *Dianthus Atkinsoni*. He gave a plant of it to Mr. Walton, the then gardener at Gunton Hall, and I remember there was a large border of it at Gunton about forty years ago. I should like to have a pinch of seed of it now if it is at all plentiful; I consider it to be one of the most beautiful of old-fashioned Pinks.—E. SENDALL, Oak Lodge, Thorpe Hamlet, Norwich.

RECENT PLANT PORTRAITS.

CODLEUM (CROTON) VAN OOSTERZEEI (*Illustration Horticole*, plate 502).—A pretty narrow-leaved variety of this family of handsome foliage stove shrubs with dark green leaves, profusely spotted with different sized blotches of clear pale yellow. Introduced from the Botanical Garden of Batavia, and named after the zoological director of that establishment.

FUCHSIA FRITZ, MATHILDE, AND JULIETTE (*Illustration Horticole*, plate 503).—Three pretty varieties of this useful and highly decorative and free-blooming family of greenhouse shrubs; the first and third are double flowered, the second single and prettily striped on corolla. They were raised by Mons. J. Malon, Belgian Minister of State.

BOMAREA KALBREYERI (*Revue Horticole* for November 16).—A charming and apparently free-blooming cool house trailer, with bunches of medium sized orange and yellow tubular flowers. Introduced in 1881 by M. E. André from New Grenada, and bloomed by him last year at Eacroix for the first time in Europe. It is said to possess the advantage found in but few members of this family of blooming when in quite a small state. It will be sent out shortly by M. Godefroy-Lebeuf, of Argenteuil.

PRIVA LÆVIS (Regel's *Gartenflora*, plate 1131).—A pretty soft-wooded plant belonging to the family of the Verbenas with spikes of medium sized rosy lilac flowers, one of the many novelties introduced by the well-known firm of Haage and Schmidt, of Erfurt, with whom it first bloomed in August, 1881.

STENANTHIUM OCCIDENTALE, PRIMULA LONGISCAPA.—(Regel's *Gartenflora*, plate 1132).—The first named of the two plants figured on this plate is a rather insignificant and dull pink and green-flowered bulb, of but small importance from an ornamental point of view. It is described at length by Mr. Baker in the Journal of the Linnean Society, vol. xvii., page 485. The second named plant is a pretty Primrose with bunches of bright pink flowers, of rather small size, borne on tall smooth foot-stalks.

LÆLIA MAJALIS (*Revue de l'Horticulture Belge* for November).—One of the best known (by name, at all events) of this lovely family of Orchids, as it was introduced so far back as 1838, but, being exceedingly difficult to get to flower, it is but very seldom seen in bloom.

ANTHURIUM FERRIERENSE (*Revue Horticole* for December 1).—This is an interesting and apparently free-blooming hybrid Aroid raised by M. Bergman, gardener to Baron Rothschild, at Ferrières, near Paris, between the well-known and beautiful *A. Andreanum* and the less known white-flowered species, *A. ornatum*. The spathe is of larger size than those of either parent, and are of a dull shade of pale red, somewhat overdone in plate, which makes it rose colour.

EREMURUS ROBUSTUS (*Botanical Magazine*, plate 6726).—A fine double plate of this truly noble hardy Asphodel, which is a native of Central Asia and the mountains of Turkestan up to height of 10,000 feet above the sea level. The drawing is taken from a specimen which flowered in the garden of Professor M. Foster at Cambridge. This species is unmistakably the finest of the twenty that are known, and its flower-stems attain a height of between 7 feet and 8 feet. It is perfectly hardy, only requiring protection from long-continued rains, as when the water lodges amongst the stout leaves it usually causes the young bloom-spike to rot or damp away.

GENTIANA MOORCROFTIANA (*Botanical Magazine*, plate 6727).—A pretty little annual Gentian, with small purple flowers, resembling those of some of the Campanulæ. A native of the Western Himalayas, Kashmir, and Thibet.

AERIDES EMERICI (*Botanical Magazine*, plate 6728).—A pretty Orchid, with spikes of purplish lilac flowers, closely allied to *A. virens*. A native of the Andaman Islands.

PAPAVER HOOKERI (*Botanical Magazine*, plate 6729).—A handsome Poppy with large scarlet and rose-coloured flowers extensively grown in Indian gardens, but whose native country is as yet unknown. It is perfectly hardy and of extremely robust and vigorous habit of growth, forming a bushy herb of 4 feet high and upwards, and flowering continuously into the late autumn.

MEDINILLA CURTISI (*Botanical Magazine*, plate 6730).—A slender growing stove shrub from the western coast of the island of Sumatra, whence it was sent to Messrs. Veitch by their collector, Mr. Curtis. It is an extremely graceful and beautiful plant bearing pendulous racemes of pure white flowers, borne on bright red foot-stalks, and should be a decided acquisition to all collections of stove plants. The volume of the *Botanical Magazine* for the current year, being the 109th of the entire work is dedicated by Sir Joseph D. Hooker to that well-known botanist and introducer of new plants, Herr Max Leichtlin, of Baden-Baden.

W. E. G.

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 503.)

LITOBROCHIA.—This genus, which is closely connected with that of *Pteris*, but from which its species are easily recognised by their reticulated or netted veins, comprises some highly decorative plants, mostly of strong-growing habit, as, for instance, *L. podophylla*, which sometimes reaches 7 feet or 8 feet in height. They are nearly all good ornamental plants, particularly well adapted for decorative purposes. When planted out in the fernery they have a bold appearance, and their handsome fronds possess the great advantage of lasting a long time in good condition when cut. Although nearly all possess robust constitutions, they nevertheless require thorough drainage, as all of them demand a good supply of water at the roots during their season of growth. They succeed best in a mixture consisting of equal parts of peat, loam, and sand, and derive great benefit from the frequent use of the syringe during hot weather, when care should be taken to have them well shaded from the direct rays of the sun.

L. AURITA (*Pteris vespertilionis*).—This beautiful and distinct evergreen species, found abundantly in the East Indies, Australia, Ceylon, and New Zealand, where it covers decayed Tree Ferns, produces from a slender creeping rhizome very elegant bipinnate fronds of a soft texture, rarely attaining more than 30 inches in length. They are borne on somewhat long stalks, and produced at long intervals; they are of a broadly triangular shape, the lower pinnae being fully 8 inches in length; the pinnules, which are numerous, are all sessile and obtusely lobed, the two next the rachis only being auriculate or wing-shaped. The colour of the upper side of the fronds, being of a bright shining green, offers a striking contrast with that of the underside, which is of a very glaucous hue, relieved and ornamented by marginal sori of a bright red colour. It is one of the best of the genus as regards yielding fronds for cutting, and succeeds equally well in a cool or warm house. It is also known under the name of *Pteris incisa*.

L. DENTICULATA.—An evergreen species from Brazil, and one that only attains medium dimensions, rarely exceeding 20 inches in height, with pinnate fronds of a very bright green colour. The pinnae, which are deeply serrated or denticulated at their extremities, are decurrent throughout the frond, although the lower ones are usually bifid. It is a most interesting species, which succeeds admirably in a Fern case which can be kept in a warm room. Stove.

L. GHIESBREGHTII.—This is an exceedingly handsome species from South America, with a look and habit of its own; it differs from every other member of the genus by its succulent underground rhizomes, densely covered with short whitish scales, and produces some handsome pinnate and gracefully arching fronds about 30 inches high of a very pale green colour; these are borne on

stout fleshy stalks, about one foot high, and also covered with short scales. The pinnae, about 8 inches in length and $1\frac{1}{2}$ inches in breadth, are opposite, and have their margins deeply toothed. The whole of the fronds on both surfaces are densely covered with short white hairs. It is one of the few kinds comprised in the genus which have a strong dislike to being watered overhead at any time. Stove.

L. GRANDIFOLIA.—This is a very strong-growing South American species, producing a splendid effect when planted out in the stove fernery and allowed plenty of space to develop its magnificent pinnate fronds, from 4 feet to 6 feet high, with pinnae about 12 inches long and more than an inch in width. It is of a membranaceous texture and of a very bright green colour. As a pot plant it generally makes poor specimens on account of its requiring very substantial food and plenty of pot room. Stove.

L. LEPTOPHYLLA (*Pteris leptophylla*).—A Brazilian species, and one of the most distinct and elegant of the whole genus. On account of its comparatively dwarf habit and good constitution, it is particularly adapted, and can be confidently recommended for indoor Fern cases, where it thrives uncommonly well. The handsome fronds, which are produced from a rather fleshy crown, triangular in shape, seldom grow to more than 10 inches high; they are bi or tripinnate, with very narrow segments, and of a greyish green, which colour contrasts singularly with the bright red tint of its ornamental marginal sori. Greenhouse.

L. LUDENS (*Pteris Wallichii*).—This exceedingly interesting species, from Burmah and Moumein, is still very scarce in cultivation, although it has been introduced many years ago. Yet the two totally different sorts of fronds, borne on ebony-black stalks, short in the case of barren fronds, and, on the contrary, very long in the fertile ones, contrast admirably with any other Ferns by which they may be surrounded. The general look of the plant somewhat resembles that of the several kinds of *Doryopteris*, inasmuch as the sterile fronds, of a leathery texture, are of a sometimes cordate and sometimes hastate shape; whereas the fertile ones, as in the genus above-mentioned, instead of being undivided are deeply trilobed, with the terminal lobe again pinnatifid, and the segments acuminate. It is, however, a perfectly distinct species from the peculiar way in which both kinds of fronds are produced from a long, slender, creeping rhizome covered with woolly fibrous roots, which is totally wanting in the genus *Doryopteris*. The whole plant is of a pleasing bright green with well marked venation. Stove.

L. MACILENTA.—One of the most distinct of the whole genus, and one which, although an old inhabitant of our gardens, and notwithstanding its excellent qualities, is seldom met with in ordinary collections. It is not one of the strong-growing kinds, as it seldom exceeds 15 inches in height, and on that account is particularly well adapted for growing in Fern cases in a room, the more so as being a native of New Zealand, the temperature of a dwelling room suits it exactly. It also makes a very pretty pot plant and does equally well planted out in the rockwork of a cool fernery, where its elegant bi or tripinnate fronds, all rising from a succulent crown and furnished with beautifully serrated pinnules, produce a charming effect. The fronds of this species are also very valuable for cutting and mixing with flowers, as they last a long time in water. The only reason which keeps it so rare in good collections is that it is generally grown in heat, and always with disastrous results, as it will only succeed under cool treatment.

L. PEDATA.—This is another species with palmate or fasciculate fronds, bearing a great resemblance to those of *Doryopteris*. It is very widely distributed, being found in the West Indies, in Brazil, New Grenada, &c. Its pedate fronds, singular in form and of a leathery texture, are very robust, borne on long, wiry stalks, and produced from a short, thick, and slightly inclined caudex, differing essentially on that point at least from *L. ludens*. Their base is pinnatifid on both sides,

and their segments have generally entire lobes, which in the sterile fronds are crenulated on their margin, whereas in the fertile ones it is perfectly smooth, and covered with a continuous line of sori. Stove.

L. PODOPHYLLA.—A native of the West Indies, and undoubtedly the most gigantic species of the whole genus, thriving apace when planted out in the stove fernery, which, however, should be of sufficient dimensions to allow for the full development of its highly ornamental, large, tripartite fronds, which in size are equal to most of those belonging to arborescent kinds, for they are borne on stalks as thick as an ordinary walking-stick, and fully 5 feet in height. These highly decorative fronds, whose segments are pinnatifid and of a most intense green, have also the advantage of remaining a very long time on the plant. It is, besides, a thoroughly evergreen species. Stove.

L. SPINULIFERA.—This truly magnificent West African species, also evergreen, although of more modest dimensions than the preceding one, makes a most ornamental plant for the warm rockery. Its beautiful pinnate fronds, of a bright shining green colour, are borne on wiry stalks, densely covered with short spines on their entire length. They rarely exceed 30 inches in height, the pinnules being in their turn pinnatifid and from 5 inches to 7 inches long by about 3 inches broad.

L. TRIPARTITA (*Pteris longipes*).—An East Indian species, of noble dimensions and beautiful habit. Its ample tripartite fronds, of a coriaceous texture, sometimes measure 3 feet in height, with pinnae 2 feet long, spreading, and pinnules 6 inches long, deeply pinnatifid, the extremity of which is lengthened into a tail. They are of a very bright green hue, and borne on smooth, shining stalks of a reddish brown colour. PELLSEA.

ORNAMENTAL GOURDS.

TRAINED on walls, or on any temporary vacant spaces between fruit trees, some of the best of the miniature Gourds have quite a unique appearance, especially when furnished with odd-looking, and sometimes even brilliant fruits. A few bits of bright wall ornamentation here and there give kitchen gardens interest. On the score of utility, the cardinal point, I imagine, in this department, Roses and Tomatoes have certainly a prior claim to such positions, but room might also be spared for a few Gourds, and if no wall space is available, other places could be found for them, such as a rustic arch over a walk, a not too closely lopped Larch pole, on fences, and on arbours. We sometimes grow numbers of them on walls and on mounds, and through insect agency we get plenty of variety, seedlings raised from them being frequently very unlike their parent either in form or colour. Some of these are beautifully striped and mottled with pale and dark green, white, and clear yellow. Others, again, are large, and partake of the character of the Marrow Gourd, with which they were associated. They are gross feeders, and respond quickly to generous treatment. Strong plants forwarded in heat, gradually hardened off, and put out in the end of May will, with the help of half a barrowful of manure under each, make early, rapid, and extensive growth, and will bear and ripen great numbers of fruits. They must be fastened as they grow to the wall with strong shreds, capable of bearing the weight of fruit, and they also need a little regulating or stopping, according to the space they may cover. When the opposite side of the wall against which they are planted happens to be empty, we turn them over the top of it, letting them hang down the other side, and grow there as they like. A pad of Moss is placed between the stem and the corners of the coping-stone to pre-

vent the weight from bruising it. The thorough exposure to sun and air to which the fruits are thus subjected so ripens and hardens them, that they may be kept for years in a dry room.

In addition to their value as ornaments where they grow, they are also useful for various decorative purposes indoors. A week or two ago we dressed a good sized dinner table with a mixed collection of them, laying them on the cloth in little groups, on a ground-work consisting of bronzy crimson *Berberis* leaves, to which were added small sprays of Ivy, and encircling the dessert dishes a few brightly-tinted leaves of hardy Azaleas, the whole forming an arrangement which was pronounced to be uncommonly pretty. It had at least the merit of being uncommon. Gourds may also be used very effectively in decorations, at harvest, or Christmas-time in churches, or rooms; in fact we find them to be much liked for room ornaments, placed singly on mantelpieces, or disposed in careless little groups. Egg-shaped kinds cut in half, with the ends shaved off level to stand on and all the pulp gouged out, make, when dried, handsome little receptacles for small pot plants for tables or brackets, and the larger sizes with both ends cut off can be turned into elegant coverings for the pots of plants used in the drawing-room.—ARTHUR MOORE, *Cranmore*.

Norfolk Island Pine.—Several handsome specimens of this beautiful tree are now growing in the pavilion of the Buxton Gardens where they have attained a height of nearly 25 feet, and are clothed to the ground with luxuriant foliage. They were received from the gardens at Chatsworth about ten years ago, and were then in a rather weak condition. Soon after their arrival here, however, the curator of the gardens had large pits dug under the floor of the pavilion and filled with good nutritious soil. The trees were then removed from the wooden tubs in which they had been growing and planted in these pits. The effect on their health and growth was immediate and marvellous, and they have, as the saying is, "never looked behind" since, notwithstanding that gas is the medium for lighting the building every evening. They are greatly admired by the visitors; and any of your readers who love healthy and well-grown trees, should they be passing this way, cannot do better than have a look at them. There is also a very fine specimen of *Araucaria Bidwilli*, from Moreton Bay. It is of a gracefully drooping habit, making vigorous and rich growths.—THORNCLEFFE, *Buxton*.

Chrysanthemum shows.—May I be allowed to make a suggestion to the committees of the various Chrysanthemum shows which are now so popular. In the cut-bloom classes, have a class for blooms and foliage, the height not to be under 7 inches or over 12 inches from the top of the box in which they are set up. Say there are twenty-four blooms in the box, arranged in four rows, the front row would be the shortest, and the back the tallest, and the foliage would set off the blooms to far greater advantage than is the case at present with rows of flowers on a plain board. The cost of the one class staged in this way would not be much, and some little break in the wearisome monotony of the cut-flower part of the show would be afforded. Roses are shown with their foliage, and why not Chrysanthemums? Another useful class would be one for Pompones in pots, not exceeding $4\frac{1}{2}$ inches in diameter (48's); such plants are very useful in a multiplicity of places where large specimens cannot be used. I know that, as a rule, the majority of show committees copy one another, but let one or two good

shows have classes for the above-mentioned forms of exhibiting, and the result would be that those classes would soon become general.—WALTER J. MAY, *Walton-on-Thames*.

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 11.

FIRST-CLASS certificates were awarded on this occasion to the following plants:—

CYPRIPEDIUM SCHROEDERÆ.—An extremely handsome Lady's Slipper, the result of intercrossing *C. caudatum* and *C. Sedeni*. The flowers are larger than those of either parent, but while the pouch is much larger than in *C. caudatum* the sepals are considerably shorter, being only about 6 inches in length. These are twisted in a peculiar manner, and, like the rest of the flower, are of a beautiful rosy pink colour. It is an attractive and at the same time a distinct colour among *Cypripediums*. Exhibited by Mr. Ballantine, gardener to Baron Schroeder, The Dell, Egham. The plant is, we believe, unique.

CARNATION MRS. KEEN.—A most beautiful variety of the tree section, remarkable for the large size, fullness, and perfect shape of its blossoms, as well as for its peculiarly rich colour, which is a deep maroon-crimson. It is unquestionably one of the finest of its race. Shown by Messrs. Veitch & Sons, Chelsea.

PELARGONIUM ERL KING.—A double-flowered variety of the zonal race. The flower trusses are large, the blossoms very double, and the colour is a bright salmon-pink, with a tinge of scarlet. The habit of growth is good; in short, it is in every respect a first-rate sort. Shown by the raiser, Mr. J. King (florist), Rowsham, Aylesbury.

PRIMULA SWANLEY PURPLE.—A variety of *P. sinensis* having very large flowers of the richest carmine-purple imaginable. As regards floriferousness, habit of growth, and other essential points of a good Chinese *Primula*, it lacks nothing. Shown by the raisers, Messrs. Cannell & Sons, Swanley.

CYPRIPEDIUM CARDINALE.—In the way of the well-known *C. Sedeni*, but much brighter in the colour of the flowers; indeed, it is the highest coloured hybrid Lady's Slipper that has been raised. The sepals and petals are almost pure white, while the pouch is of a deep rosy carmine. No flower that we know so much resembles the North American *Moccasin* flower (*C. spectabile*). It is a cross between *C. Sedeni* and *C. Schlimi* album. Shown by Messrs. Veitch.

CYPRIPEDIUM CALURUM.—A hybrid Lady's Slipper, also in the way of *C. Sedeni*, which was one of its parents, the other being *C. longifolium*. The flowers are larger than those of *C. Sedeni* and the colour is brighter, but not nearly so rich as that of *C. cardinale*. In habit both this and *C. cardinale* resemble *C. Sedeni*. Shown by Messrs. Veitch, in whose nursery both it and *C. cardinale* were raised by Mr. Seden.

PRIMULA QUEEN OF THE WHITES.—A Chinese *Primrose* of the Fern-leaved section, and one of the finest white flowered sorts yet shown. The flowers are very large, exquisitely frilled at the edges, and of snowy whiteness. In habit of growth and floriferousness it is all that can be desired. Shown by Messrs. Cannell.

PRIMULA JULIA LEE.—One of the richest coloured varieties of the Chinese *Primrose* that we have yet seen, it being of a glowing magenta, inclined to pink. The flowers are large, beautifully fringed, and borne profusely even on small plants. Exhibited by Messrs. Charles Lee & Son, Vineyard Nursery, Hammersmith.

ILEX LAURIFOLIA AUREO-MARGINATA.—A very handsomely variegated form of the Laurel-leaved Holly. The leaves are a deep shining green, broadly edged with a rich golden yellow, rendering the shrub most effective. It is said to possess all the good qualities of the original. Shown by Mr. Anthony Waterer, Knap Hill, Woking.

CYATHEA MICROPHYLLA.—A dwarf Tree Fern with large finely divided fronds which spread widely in a graceful head. It is a very distinct species, and as it comes from the Andes of Peru, it may not require stove temperature. Shown by Messrs. Veitch.

NEW PLANTS shown by Messrs. Veitch included a lovely hybrid *Cattleya* named *Amesiana*, the result of a cross between *Lælia crispata* and *C. maxima*. It much resembles the beautiful *C. exoniensis*, though the flowers are somewhat different in form. The sepals are pure white, while the frilled lip is of a deep crimson-purple. Another new plant shown by Messrs. Veitch was a *Begonia* named *Autumn Rose*, a cross between *B. insignis* and the new *B. socotrana*. It is a pretty plant and promises to become a useful winter flowerer. A bronze Banksian medal was awarded to the same exhibitors for a large and uncommonly fine group of Persian *Cyclamens*, all of which were admirably grown, and represented a great diversity of colours, from snow white to a deep crimson. This fine group was, as may be imagined, the centre of attraction.

Mr. B. S. Williams exhibited a neat little variety of *Adiantum cuneatum*, appropriately named *compactum*. It does not seem to grow more than from 4 inches to 6 inches high, and has the pinnæ densely arranged on the short yet broad bronds. It will be found useful for floral decoration as well as for cutting. Another Maiden-hair Fern in the way of *A. venustum* was also shown by Mr. Williams. A cultural commendation was accorded to Mr. Bridgeman, Thames Bank, Marlow, for some uncommonly fine trusses of *Luculia gratissima*, cut from a bush upwards of 40 years of age. Equally deserving of a cultural commendation was a gathering of the giant *Hellebore* (*Helleborus niger altifolius*) sent by Mr. Tallack, Prideaux Place, Cornwall. The flowers represented the true plant unmistakably, the spotted flower-stems being in some instances as much as 18 inches in height, bearing flowers over 4 inches across.

From Pendell Court, Blethingley, Mr. Green, Sir George Macleay's gardener, sent wreaths of the beautiful *Bignonia venusta* to which we have frequently alluded of late. The slender branches, some quite a yard long, were completely hung with clusters of bright orange blossoms. Mr. Green also sent some fine stems of *Dahlia imperialis*, a plant he grows very successfully in a cool house, and flower-spikes and foliage of *Aralia papyrifera*. One of the leaves of this plant measured fully a yard across. Mr. G. F. Wilson, Heatherbank, Weybridge, exhibited a plant of *Odontoglossum crispum* having a long branching spike carrying no fewer than 50 blossoms—a remarkable example of skilful culture. Mr. Wilson also showed a flower-stem some 8 feet in height of *Eryngium pandanifolium*, one of the South American species which thrive so well in an open position in his wild garden at Wisley, planted near a pond in a moist soil. M. Brunt exhibited a fine specimen of the new *Bromeliad*, described and illustrated in THE GARDEN last week.

Messrs. Cannell, as usual, contributed a bright and charming display of the winter flowering plants they grow so well in their nursery at Swanley. On this occasion it consisted of cut flowers of double and single zonal *Pelargoniums*, about two dozen sorts of each, the pick of an extensive collection, and representing, even at this season, nearly all the colours to be found among zonal varieties. A collection of Chinese *Primulas* in pots was also a fine feature, as they included some striking new sorts, such as the lovely *Princess of Wales* (pale pink), *Princess Beatrice* (delicate mauve), *Swanley Red*, *Carminata*, and *The Queen*, the latter remarkable for the very large size of its flowers, their beautifully crimped petals, and their delicate blush pink colour. Messrs. Cannell again showed a selection of cut blooms of single *Chrysanthemums*, to which they seem to be devoting a good deal of attention. The present collection included some pretty sorts, the best of which were named *Miss Cannell* (white), *Mrs. Langtry* (blush), *H. Irving* (lilac), *A. Harris* (deep primrose), *W. Beckwith* (deep

lilac), *Brunette* (cinnamon-red), and *Yellow Gem*. No doubt that these single *Chrysanthemums* will find as much favour with the flower-loving public as the single *Dahlias*, notwithstanding the popularity of the doublesorts. A bronze Banksian medal was awarded to Messrs. Cannell for their attractive display. A bronze Banksian medal was awarded to Mr. Wiggins, gardener to Mr. Clay, Elm Villa, Kingston, for a very fine group of Chinese *Primulas* and *Cyclamens*, admirably grown and profusely flowered. Among the latter was an uncommonly fine dark one named *Break o' Day*, one of the best we have seen, the flowers being large, white with carmine throat. A very deep variety of *Primula* named *Victory* was also remarkable. Mr. King, florist, Rowsham, sent a superb single zonal *Pelargonium*, named *Rowsham Model*. It was certainly the perfection of a scarlet *Pelargonium* in every respect. Some admirable groups of winter flowers from the Society's gardens at Chiswick contributed much to the display.

CUT CHRYSANTHEMUMS, chiefly Japanese sorts, were shown by Mr. Turner, Royal Nurseries, Slough. These were all good late kinds, among them being *Madame Clemence Audiguer*, *Fair Maid of Guernsey*, *Grandiflorum*, *Duchess of Albany*, *Fanny Boncharlet*, *Baronne de Prailly*, *Ethel*, *Prince Leopold*, *Meg Merrilies*, *Etoile de Toulouse*, *Mons. Lemoine*, and *Cry Kang*. Besides these Japanese sorts were a dozen first-rate blooms of the beautiful incurved variety *Princess Teck*. A yellow sport of the Japanese variety *Parasol* was shown by Mrs. Greville Palmer's gardener, Egham. It appears to be of excellent quality.

Mr. Anthony Waterer exhibited plants of four North American Conifers in order to show that the names *Abies Parryana*, *Parryana glauca*, *Engelmanni*, and *Engelmanni glauca* represent distinct kinds. The two first names are given to the species now named *Abies pungens*, and *Parryana glauca* is a glaucous leaved variety of it. *Abies Engelmanni*, as shown by Mr. Waterer, is a shorter-leaved, denser-growing plant, and not nearly so ornamental as *A. pungens*. It is, moreover, less hardy on account of its liability to start into growth too early.

FRUIT AND VEGETABLES.—The most important among these were four grand fruits of *Smooth Cayenne* Pine-apple sent by Mr. David Thomson from the Duke of Buccleuch's garden at Drumlanrig Castle, N.B. These fruits weighed respectively 8 lbs. 6 oz., 8 lbs., 7 lbs. 8 oz., and 7 lb. 2 oz., and were altogether fine examples of skilful Pine culture. There were numerous Apples exhibited, some seedlings, others merely for names. The Cranston Nursery and Seed Company, Hereford, sent a good assortment, which included the *Tyler's Kernel* (certificated a short time since), *Ashmead's Kernel*, *Parker's Pearmain*, *Home's Nonsuch*, *Golden Spire* and *Plum Apple*. From the Society's garden, Chiswick, was shown a collection of some fifteen sorts of Celery, among which were the following selected from those sent for trial: *Matchless Red*, *Williams' Red*, *Big Ben Red*, *Winchester Red*, *Sulham Prize Pink*, *Leicester Red*, *Vincent's Red*, *New Early Rose*, *Carter's No. 1*, *Dwarf White* and *Sandringham*.

MESSRS. CARTER'S PRIZES.—On this occasion the annual competition took place for the prizes offered by Messrs. Carter for collections of vegetables. The collections were restricted to twelve dishes, three of which were to consist of new Onions which have recently been distributed by this firm, viz., *Silver Queen*, *Golden Ball*, and *Golden Globe*. Some excellent collections were shown; the best was exhibited by Mr. E. Beckett, gardener to Mr. J. P. Currie, Sandown House, Esher. It consisted of admirable examples of the following kinds: *Carenton Leek*, *Carter's Maltese Parsnip*, *Magnum Bonum Potato*, *Veitch's Autumn Giant Cauliflower*, *Leicester Red Celery*, *Aigburth Brussels Sprouts*, *Snowball Turnip*, *Long Red Surrey Carrot*, and *Carter's Perfection Beet*. Scarcely inferior to the first prize collection, and certainly better in some points, was the second, which was shown by Mr. R. Phillips, gardener to Dr. Baker, The Deodars, Meopham, Kent. It included *Musselburgh Leek*, *Snowball Turnip*,

Student Parsnip, Carter's Perfection Beet, Intermediate Carrot, Autumn Giant Cauliflower, Myatt's Prolific Potato, Carter's Incomparable Celery, Perfection Brussels Sprouts, and the three specified new sorts of Onions, all excellent dishes.

The third prize was taken by Mr. H. Marriott, Skirbeck, Boston. His dishes of Red Celery, Maltese Parsnip, Autumn Giant Cauliflower, Perfection Beet, Musselburgh Leek, Schoolmaster Potato were the most noteworthy. A good collection was also shown by Mr. W. C. Leach, gardener to Mr. E. P. Monckton, Fineshade Abbey, but as it contained no many sorts, it could not enter into the competition.

Lecture.—The Rev. G. Henslow, in drawing attention to some of the plants exhibited, first noticed a fine specimen of *Fatsia* (*Aralia*) *papyrifera*, exhibited by Mr. G. Green. The leaves are described as being 1 foot across, but this specimen by cultivation had leaves 3 feet in diameter. It is the plant the pith of which forms the well-known "rice paper" of Japan and China, first discovered to be from this plant by Sir W. Hooker, in 1852, who described it in the *Journal of Botany* (vol. iv., 347). Mr. Green also exhibited a fine spray of *Bignonia venusta*, first figured in the Bot. Reg. for 1817, and received from Brazil. He next drew attention to a plant called *Caraguata sanguinea*, discovered by M. André in the Cordilleras of New Grenada. It is a Bromeliad, with red and green leaves. It appears to be the custom to use it as a decorative plant with Tree Ferns in its native home when any spot is signalled by some remarkable event. A curious *Eryngium pandanifolium*, sent by Mr. G. F. Wilson, showed how one plant may in its foliage or otherwise imitate others. The British species, common on the seashore, is called "Sea Holly" from its prickly foliage, and has heads of flowers resembling a composite. As other cases of mimicry the lecturer alluded to the genera *Euphorbia* and *Poinsettia*, whose coloured involucre or leaves mimicked or were a substitute for coloured flowers, wherewith to attract insects to fertilise the small inconspicuous flowers in the centre. He next drew attention to a fine cut specimen brought by Mr. Green of *Dahlia imperialis* from Mexico, a species which attained a height of from 12 feet to 20 feet or more. He remarked upon the present taste of reverting to single Dahlias in preference to the common double form, a reversion which Mr. Cannell had attempted in his display of fine single Chrysanthemums; but the many beautiful double forms of this genus are scarcely yet likely to be ousted by their revived progenitors. As instances of skill in cross-fertilisation, there were several specimens of the genus *Cypripedium* and its allied form *Selenipedium*, recognisable generally by the long tails to the petals. There was a difference also in the ovary, in that it is one-celled and not three-celled, as in all other Orchids. Hence the first result from *C. Schlimi* (if a true species) and *C. longifolium* (if a true species) was *C. Sedeni*. This crossed with *C. longifolium* gave rise to *C. calurum*; while *C. Schroderæ* was the offspring of crossing *C. caudatum* and *C. Sedeni*. Gardeners do not distinguish between the two original genera, however, but call them all *Cypripediums*.

Scientific Committee.—Mr. G. F. Wilson in the chair.

Scleroids in Potato leaves.—A communication from Mr. A. S. Wilson was read in which he raises the question whether the oxalate of lime, of which Mr. Murray found them to consist, was not mixed with protoplasmic plasmodium from the mycelium. Mr. Murray negatived the idea, as after treating them with dilute nitric acid for half-an-hour no trace of any such substance remained.

Protecting tubers by high moulding.—A communication was read from Mr. Plowright, of Lynn, upon experiments carried out this season, in which he again maintains the efficacy of high moulding over low moulding, or not earthing up at all. Mr. Murray observed that there would be required fuller details of the experiments before the conclusion could be arrived at which Mr. Plowright adopted. He admitted that spores could penetrate

the Potatoes through the eyes, but not the skin, but that he had no doubt the main, if not sole, cause of impregnation in the tubers was by the mycelium descending the stem.

Cephalotaxus Fortunei (?).—Dr. Masters reported on the plant exhibited by Sir J. D. Hooker at the last meeting, and after a careful examination of the fruit and foliage he is inclined to think it an undescribed form of the female of some species.

Picea pungens.—Several young Fir trees were sent by Mr. Waterer, viz., *P. pungens*, called by gardeners *Parryana glauca*, and the green and glaucous varieties of *Picea Engelmanni*.

Cunninghamia lanceolata (*proliferans*).—Dr. Masters showed specimens with the branch protruding through the cone. He had examined it and found the so-called carpellary scale which carries the naked ovules in this instance to be cellular outgrowths from the bract, and not a separate foliar organ.

Cordiceps purpurea.—Mr. G. Murray exhibited specimens of ergot which he had cultivated, and which had borne the so-called claviceps or cordiceps, i.e., the ascigerous condition of the fungus.

Caraguata sanguinea.—This plant was sent by M. Brunt; it was discovered by M. André in the Cordilleras of New Grenada. It received the Parisian gold medal, but a botanical certificate from the scientific committee only.

Hypertrophied root of Plum.—The secretary exhibited a large tuberous root with rugged corky back from a Winesour Plum. It was found 10 inches or 12 inches below the surface. The tree had grown with vigour, but bore a scanty crop of fruit. It came from the garden of Mr. Nelson, Hanger Hill, Ealing.

NOTES OF THE WEEK.

New Palm house for Glasnevin.—We are glad to be able to mention that the Treasury have decided on expending £4300 on the erection of a new Palm house in the Glasnevin Botanical Garden to replace the existing building, which was so much damaged by the late storms. Judging by the plans accepted, the new Palm house will be a very handsome structure, and admirably suited for the purpose for which it is intended.

Strawberries all the year round.—I herewith send you a sample of Strawberries which we are now gathering from plants layered in the latter end of June last. If the plants are repotted as soon as the fruit is all gathered, hardened off in a cool house, and in summer put in a shady place, keeping the flowers picked off, and paying attention to watering, another good crop can be got after the outside fruit is finished, each succeeding batch being treated in the same way. A supply can thus be kept up the whole year round, but in order to do so plenty of accommodation and hands are necessary, and these are what few gardeners are provided with.—D. M. A.

* * * The fruit, though in a tin box, got smashed in coming through the post.—E.D.

Jasminum hirsutum.—Someone states in THE GARDEN that this plant is not altogether to be despised—a poor compliment to one of the finest winter flowering plants in cultivation. That its usefulness is unrecognised generally is true, but, nevertheless, when properly treated, its merits are of a very high order. In a Birmingham nursery last November twelvemonths I saw a houseful of this Jasmine, which for beauty would have borne comparison with the finest grown *Bouvardias*. They were in 6-inch pots, about 18 inches or 2 feet in height, almost a foot wide, and covered with dark green foliage as healthy as that of little Privet bushes. And the flowers! Not a poor blossom or two here and there, but bunches like those of *J. gracilimum*. I was told that this Jasmine was in large demand for market purposes. The cultivation which had produced such charming plants was simple enough. Cuttings were struck in spring, and after rooting were grown on in a saturated stove temperature and manured

liberally. This treatment induced quick, strong growth, which was stopped now and then until a good foundation of shoots was laid, and then they were allowed to grow on until midsummer, the shoots being supported by one stake, as market *Bouvardias* are. When the growth becomes long enough the temperature is lowered, less atmospheric moisture is given, and finally the plants are exposed to the sun and outdoor air for a month or so. This treatment ripens the growth. When cold weather sets in the plants were again housed, given a little warmth, and the result was a fine display of flowers in November. This is but a common case of what may be effected by means of common-sense treatment. We are too apt to condemn plants as "not good enough," when, perhaps, like the boy with the oyster, we don't know how to get the goodness out of them.—B.

Royal Horticultural Society of Ireland.—At the last council meeting of this society (Sir George Hudson, Bart., in the chair) the attention of those present was directed to a stand of some dozen varieties of *Pernettya*, forwarded by Lord James Butler. These exquisite berry-laden sprays were taken from plants growing in the garden attached to his lordship's town residence, Palace Row, Rutland Square, and which he had from Mr. Davis, of the Hillsborough Nurseries, County Down, with whom these and many other equally beautiful varieties originated, all being much appreciated by lovers of hardy ornamental evergreen shrubs. The varieties exhibited showed strikingly their marvellous wealth of berries and the equally noteworthy variety of colour, from darkest maroon and brightest crimson to pearly whiteness. The exhibit was regarded with much interest, and was considered by the council to be worthy of the very highest commendation.

Tree Fern stems for Orchids.—Some time ago it was suggested in THE GARDEN that Tree Fern stems were in every way preferable to blocks of wood for epiphytall Orchids. I therefore decided to try them for some of those choicer little Orchids which die in pots or baskets and are only kept in moderate health when grown upon blocks of wood. The results are most satisfactory, and we are now using Fern stems for many Orchids, even those usually grown in peat and Sphagnum being now planted in small pieces of Fern stem and Moss. It is surprising how the roots of such Orchids as *Pescatorea*, *Odontoglossum vexillarium*, *Cattleyas*, *Bolbophyllums*, *Burlingtonias*, and *Dendrobiums* penetrate a piece of soft Fern stem. Of course there are many Tree Ferns whose stems are as smooth and hard as glass, and which are therefore unfitted for Orchid culture, but the *Dicksonias*, whose stems are composed chiefly of soft, spongy roots, yield excellent material for Orchid-growing purposes, a slice of their stem being much better than the best peat fibre procurable now-a-days.—B.

Bananas.—Instead of "fruited in 10-inch pots" (p. 518) read "18-inch pots."—W. J. SIMPSON.

MR. JAMES GARNIER, head gardener for the past seventeen years to Mitchell Henry, Esq., M.P., Kylesmore Castle, Galway, has, we hear, commenced business as garden architect and landscape gardener, &c., at 17, Rathgar Road, Dublin.

Sussex names.—In the dialect of West Sussex, "haps" is commonly used instead of hasp—the fastening of a door, &c.; when applied to trees it is merely a corruption of *Aspen*. Nonesuch is the small yellow-flowered plant called *Black Medick*, largely grown throughout the down district for sheep feed, and better known by the local name in question than by its botanical appellation of *Medicago lupulina*. There is also a well-known variety of Apple called *Nonesuch*, and often found in the orchards of the locality of which I speak.—QUONDAM CICESTRENSIS.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—*Tridmarsh*.—Wild Service Tree (*Pyrus torminalis*).—*Brooklands*.—Lucombe Oak (*Quercus Cerris* Lucombeana).—*R. G. Brown*.—1. *Alcacia metaltica*; 2, cannot name the *Croton* without fuller material; 3, *Centropogon Lucyanus*; 4, *Adiantum tenerum*.—*J. Carter & Co.*—Next week. *T. G.*—1, *Microlepis hirta*; 2, *Cypripedium venustum*; 3, *Adiantum cardiolanum*; 4, *Davallia canariensis*.—*J. C.*—1, *Asplenium lucidum*; 2, *A. Nidus-avis*; 3, *A. Fabianum*; 4, *Pteris tremula*.—*J. H.*—Next week.

No. 631. SATURDAY, Dec. 22, 1883. Vol XXIV.

This is an Art

Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—Shakespeare.

CHRISTMAS DECORATIONS.

ROSES—yes—doubtless—for what flower, after all, can vie with the Rose in beauty, fragrance, and sentiment? The latter is, or ought to be, a powerful constituent in all flowers used for clothing or adornment of the altar or the hearth at Christmas. Hitherto the scarcity of Roses at this season has to a great extent limited or wholly prevented their use; but that scarcity is not likely to prove prohibitory in the future. Possibly the expense of their production will always give considerable value to Roses at Christmas; and if it should become the fashion to use them extensively for Christmas decorations, the growing and ever-widening demand will also tend to keep up or even enhance their prices. But this ought to prove an additional motive for their use. When anxious to express gratitude to our benefactors, we present them with our most costly offerings; and it is poor devotion that contents itself with cheap and common flowers when others are well within reach. The introduction of Roses for Christmas decorations would marvellously improve them. Nearly all decorations are spoilt through complexity and superfluity. There are too many flowers, and they are far too much mixed. Quantities of common things are heaped up on our tables and on our altars, as if this mere mass would atone for the lack of quality and the absence of taste in their disposition and arrangement. Limit the decorations as far as may be to one species of flower, even though that be one of such almost innumerable varieties as the Rose, and we lay the basis of simplicity and choiceness in our decorative arrangements. What, for example, amid all the prodigal profusion of decorative material, ranging from the most fragrant Valley Lily to the most gorgeous Orchids, could equal in chasteness, fitness, and sweetness an arrangement formed wholly of

NIPHETOS ROSE on a base of Holly leaves and coral berries? The latter are so essential to Christmas that it is by no means needful to dispense with them, even in Rose decorations. Rose leaves and sprigs go well with Roses, and the one need not supersede the other. Niphetos is likely to prove the great Christmas Rose of the near future. Its spotless whiteness, especially when grown under glass or forced out of season, specially fit it for this purpose. I may be wrong, and it may seem a daring proposition to advance, but probably the time is not far distant when all coloured flowers will be rejected for the Christmas decorations of churches. Niphetos has also marvellous staying powers and great beauty when in a half-developed state; hence it has been called with much truth and vividness of description the Magnolia Rose. Its mode of growth and of blooming will also enable it to be grown to time and in quantity with more ease than perhaps any other Rose. In light warm houses trained up walls or near the roof Niphetos can be had in plenty even at Christmas. Probably the next best Rose for this purpose may prove to be that very old Noisette,

LAMARQUE. This flowers freely in clusters from breaks on wood of the current year, and though

described in catalogues as of a pale lemon colour, it is really under glass in winter white as driven snow. Boule de Neige is another Rose, though classed among Perpetuals, that I have great hope of for this purpose. And could we only get a white La France, that would probably form a rival of Niphetos itself, as the natural habit of La France seems to be to bloom and grow, and grow and bloom in perpetuity. Among

TEAS we have few pure whites except Innocente Pirola, which assumes a good white colour under glass, but has a dash of pink in it in the open air. Madame Willermoz, Souvenir d'Elise, Rubens, and Souvenir de Paul Neron are also almost pure white under glass. Some of the pale yellows or skin-coloured Roses, such as Solfaterre, Marie Van Houtte, Madame Caroline Kuster, Céline Forestier, and Triomphe de Rennes are also so pale when grown out of season under glass as to give much of the effect of white in decorations under artificial light. Those who do not limit themselves to whites or pale yellows, could find abundant material in the fuller coloured Maréchal Niel, President, Gloire de Dijon, Souvenir d'Elise, Souvenir d'un Ami, Madame Falcot, Homère, Isabella Sprunt, Souvenir de la Malmaison (that comes nearly white under glass, and should have been included in the foregoing), Devoniensis, Catherine Mermet, Bougère, Bourbon Queen, &c.

HYBRID PERPETUALS.—Doubtless, too, many of these of all colours, sorts, and sizes could be pruned, trained, treated, and timed to bloom at Christmas so soon as a sufficiently brisk demand is created for them. Such very satisfactory white Perpetuals, for instance, as those of the Baroness Rothschild type, the White Baroness, Mabel Morrison, and Merveille de Lyon under glass and timed to bloom at Christmas, would prove among the best and most striking of all Roses for adorning our altars and homes at this festive season. But enough has been said to draw attention to this new field of usefulness and popularity for the Rose in the decorative arrangements of the future. The great want at present is more free growing surer blooming white Roses of the general habit and character of Niphetos, Boule de Neige, and La France. Careful observers will hardly fail to note that each of these stand out distinct in the classes in which they are placed. Niphetos is like no other Tea Rose in character and constitution; neither are Boule de Neige and La France like any other Hybrid Perpetuals. It is, therefore, to be hoped that M. Bruant or some other of our Rose hybridists will make these or other Roses the parents of new families, that will render Christmas Rose decorations more common as well as more easy. They are possible now; in the near future they will possibly become as common at Christmas as are Arums, Stephanotis, Lilacs, Azaleas, Poinsettias, Camellias, Heaths, Primulas, and many kinds of bulbous plants.

D. T. FISH.

Muscari pallens.—For some time past we have watched with regret the gradual falling off of our border flowers, until now we have very few indeed. Most noticeable amongst those now in bloom is Muscari pallens, a small bulbous plant from the Crimea, which produces its pretty pale blue flowers in racemes about 4 inches high. These rise from tufts of Grass-like foliage and are quite numerous if the bulbs remain undisturbed a year or two. Ours are growing on the sunny side of a rocky bed close to the Grass, a position in which they do well. They come into flower at this season and continue to do so for weeks at a time,

They are well worth a place in the front of the herbaceous border, or near stepping-stones in the rock garden.—T. JENNINGS, *Bickley*.

NOTES FROM HECKFIELD.

Top-dressing fruit tree borders.—With even the most superficial thinkers it can scarcely need a moment's consideration to decide on the desirability of keeping the roots of fruit trees on the surface of the border, or rather as near the surface as is consistent with safety from injurious effects by drought or frost. Some may ask, but why on the surface? why should not the entire border be occupied? To which I reply, by all means; and the best way of ensuring this is to constantly encourage the roots upwards, for, in spite of every effort to the contrary, a certain percentage in course of time will inevitably strike downwards, but these are invariably the roots that are of least consequence, and can the more willingly be disregarded when it is considered that even if these thick roots were near the surface they could not be appreciably benefited by air and sunheat—certainly not in anything like the proportion that smaller roots would be by the same natural means. But now, as to how the roots are to be kept near the surface; I only know of one way, and that is by the regular annual, at least, application of fresh soil or manure, or of both in combination as may be required by the varying kinds of fruits that are to be operated on. Vines, Peaches, and Figs, outdoors and in, most relish a top-dressing of good fresh turf, half-inch bones, and old or decomposed cow manure, and old mortar rubble, or, failing this, chalk. Half a bushel of bones, a couple of bushels of mortar scraps, or chalk, a cartload of cow manure, and three cartloads of fresh loam, thoroughly incorporated, are about the proportions we use, and this mixture is applied directly to the roots, all loose and inert top soil being previously removed, and to make certain of gaining the fullest benefit of the dressing, a slight mulching of droppings is placed over the new top dressing; this helps to keep the new soil in a moist condition, a state which most favours renewed root action. All our fruit borders have such a dressing at this season of the year, and in addition have one, and sometimes two good mulchings of manure in the height of the growing season. Apricots, Pears, and favourite kinds of Apples and Plums also come in for a share of such dressings, but they are not so fastidious as to materials; therefore for the most part the refuse soil from Vine borders is given to them, but a larger amount of manure by way of mulching. I may add that Peaches and Apricots cannot have the soil too firm. I constantly note that where the soil of the borders has been the most trampled, there the roots are in greatest quantity, not the thickest, but most fibred or lateralled and succulent.

A new way of root pruning.—A large proportion of our Pear trees are growing on borders, that of necessity, owing to restricted space, have to be cropped with sundry other plants. At one time I was disposed to consider such a state of things as an unmixed evil, but after long experience I have come to the conclusion that so far from its being a positive disadvantage, the system has its meritorious features. Our soil is a light, deep loam, resting on gravel, and the roots of all fruit trees, if left to themselves, soon disappear, and bore their way into the depths of the gravel, and when this happens, fruiting becomes either all but nil or worthless through scab and rust. Our remedy used to be root-pruning in the strictest sense of that term; now we have no need to practice such severe measures. The trenching and feeding needed for Roses, herbaceous plants, and vegetables doubly benefit the fruit trees also, first by disturbing the roots and drawing them up to the surface when trenching; and secondly, surface rooting is induced by the manure required for the other plants, and that the plan answers the always heavy crops of clean fruit is abundant evidence. As showing my own faith in this mode of culture for Apples and Pears, a quantity are now being

planted and the borders filled with herbaceous perennials, which will be lifted every alternate year for the purpose of trenching and manuring the ground.

Double cropping of vegetable quarters.—Greediness led to a trial of this mode of culture on the vegetable quarters, and we have had to pay very dearly for the experiment. Asparagus planted in rows 4 feet asunder seemed such a waste of ground that we must needs plant Cauliflowers and Early Potatoes between the rows. The result was just what might have been expected had we exercised a reasonable amount of thought about it, but then we did not. Potatoes and Cauliflowers were wanted, and so was Asparagus, too, for the matter of that, but then this, we knew, could not be had for a couple of years, and in the meantime we would be clever, and have a crop of some other vegetable, which we got; but the Asparagus, well, it was so injured by the growth and gathering of the other crops that it might as well not have been planted. But, after all, the planting of the Asparagus, if a failure in itself, has yielded a crop of wisdom, for the lesson will not be forgotten.

Plants that bear crowding.—Whilst on the above subject, however, it may be interesting to note how singularly different it is with some kinds of plants—plants that really seem to do best when thickly planted. Take Rhododendrons, for instance; they grow away with so much more freedom when thick on the ground than, with a view of quick furnishing, it really is worth while to plant thickly and thin out as soon as they are likely to get over-crowded. Hardy Ferns are another notable example, for the more the roots get matted together with one another the greater the vigour of the plants. Hardy Heaths and the Irish Heaths (*Menziesias*) are the same, and even of some vegetables a greater aggregate weight can be had when left thick than if carefully thinned. Onions are, perhaps, the best example, for at least double the weight of produce can be had from non-thinned beds than from carefully thinned ones. Of course I say nothing about size—a point that it is not necessary to consider when pickles are wanted. Early Horn Carrots are also a most striking exception to the general rule of improvement of produce by thinning; these should never be thinned, but, as a matter of course, it would be unreasonable to sow very thickly. I am sorry not to be able to add what would probably be the most profitable bit of information on this subject, namely, the why of this divergence in plants that otherwise are so closely allied. W. WILDSMITH.

PLANTS IN FLOWER.

Achimenes coccinea.—I send you a few sprays of this *Achimenes* to show how bright and showy they are just now in the stove mixed with various indoor winter-blooming plants.—J. C.

The Glastonbury Thorn.—I send you some blooms of this Thorn gathered in this park to-day. Although frequently in bloom about Christmas, we have seldom observed it so early as this.—J. M. OSTLER, *Royal Victoria Park, Bath.*

***Erica caffra nana*.**—Amongst winter-blooming Heaths this is one of the best. It is exceptionally dwarf and compact in growth, and when well grown becomes smothered with small white flowers. It is one of the Cape Heaths, which may be grown with as little trouble as a *Cytisus* or an *Azalea*, and the time of year at which it flowers renders it valuable for those who have to keep up a supply of flowering plants all the year round.—J. C. B.

***Bouvardia Roezli*.**—This pretty *Bouvardia*, which was sent out by Messrs. Henderson some half-dozen years ago, appears to have now almost dropped out of cultivation, though there is a sturdy little specimen of it in flower at the present time in the T range at Kew. The blossoms, which seem generally arranged in a trifoliate manner, are hairy and firmer in texture than those of most of the other kinds of *Bouvardias*. They are, too, of unusual substance and deep pink in colour, with

the interior of the throat and centre paler in hue. They resemble in colour the garden variety called Maiden's Blush, but they are shorter in the tube and of greater substance than those of that kind, which is also without the light centre. Some hybrids have been sent out between this *Bouvardia* and, it is said, *B. flava*, but though pretty and distinct they are not much grown. They are named *conspicua*, *unique*, and *vivicans*, all of which have the hairy foliage of *Roezli*. They are all very subject to the attacks of red spider, which greatly disfigures the leaves, and to this fact no doubt must be ascribed their want of popularity.—H. P.

***Hakea laurina*.**—I send you a flowering branch of what is called here the crimson Eucalyptus; it is now blooming freely in the nursery of Mons. Martichon, of this place. The blossoms sent are from a large shrub-like tree about 15 feet high; but, curious and attractive as they are, on close inspection they do not make the show one would imagine they would on the tree; nevertheless, they are extremely interesting.—J. L., *Cannes.*

* * The name of the shrub sent is *Hakea laurina*, a native of Australia. The leaves are lance shaped, blunt pointed, of leathery texture, and of a glaucous grey tint. The flowers are borne in clusters from the leaf axils; they consist of a crowd of crimson stamens, which turn yellow on expansion. It is a strikingly pretty shrub, and one that has not yet been figured.—ED.

***Grevillea alpina*.**—A handsome addition to cultivated *Grevilleas* is now in flower at Kew under this name. It is not unlike *G. elegans* in habit and flowers but differs from that species in having longer leaves, and, as far as one can judge by the plant at Kew, in being much more floriferous. We were informed that *G. alpina* was received from the Adelaide Botanic Gardens under the name of *G. dallachiana*. The *Grevilleas* are beautiful greenhouse plants, which grow into handsome little bushes in a short time, and produce an abundance of eardrop-like flowers nearly the whole year round.

***Discaria longispina*.**—This is nearly related to the *Colletias*, and, like them, is a very spiny shrub, in which the leaves are frequently scarcely developed, while in others they are more numerous. It is a native of South America, and is rather tender in the neighbourhood of London, unless protected by a wall or afforded a slight amount of shelter in some way or other. As generally seen, it has by no means a taking appearance, but on a dwarf wall outside of the T range at Kew it is in a very thriving condition, and at the present time studded with small white Lily-of-the-Valley-like flowers, though its usual time of flowering is late in the spring. It is more interesting than beautiful, yet the paucity of outdoor flowers at this time of the year enhances its value.—ALPHA.

Aphelandra Chamissoniana is a handsome yellow-flowered species of this useful winter-blooming genus, sometimes met with under the name *A. punctata*, by which it was known when distributed by Mr. Bull last year, who introduced it from S. America. The flowers are produced on a quadrangular spike, and are bright sulphur-yellow in colour with a tinge of green at the tips. Along with each flower a long toothed bract is produced of the same colour as the flowers. The leaves, which are variegated, have an irregular band of white running along the principal nerves. As is the case with the rest of the cultivated *Aphelandras*, *A. Chamissoniana* is easily propagated and grown, and flowers when only 1 foot in height, so that it is likely to prove a useful addition to our winter-blooming stove plants.

Primulas and Cyclamens at Reading.—The houses in Messrs. Sutton's grounds, at Reading, are at present entirely filled with flowering plants of *Primulas* and *Cyclamens*, and the display is fully equal to that of any previous year. None of the plants are grown for sale, all being reserved for seeding purposes, and experience has shown that the higher and more perfect the culture, the

more robust and better the seeds, and *vice versa*. Of *Primulas* the variety is very great, crosses and recrosses with good kinds having resulted in unexpected breaks, particularly as regards colour, there being amongst them a veritable true blue, a deep crimson, an intense scarlet, pure yellow, with rosy tinted edge, and many others. A pure white variety which has been named *Snowdrift*, the seed of which is to be put in commerce this year, is a perfect model, both as to habit, handsome foliage, and floriferousness. *Cyclamens* are just as good as the *Primulas*; the variety is much less, but this is an advantage rather than otherwise. Pure whites, and whites with a rosy tint, purples and crimsons, are the predominating colours, and all the flowers are remarkable for great width of petal, size, and substance, in this latter respect partaking of the character of the foliage, whilst the system of culture no doubt has something to do with the excellence of both flowers and foliage.—W. W. H.

***Drosera Whittakeri*.**—This is a rare little Australian Sundew, not, unlike *D. spatulata*, which comes from the same country. Its leaves, which are rosulate and pale green, have their margins incurved, tongue-shaped, and covered with the glandular hairs common to the genus, but distinct in being white instead of red-tipped. The flowers, which are pure white, are about the size of a Buttercup, and are borne singly on the end of a 3-inch flower-stalk, which is pushed up from the centre of the rosette of leaves. *D. Whittakeri* belongs to that section of the genus characterised by a small pea-like tuber which forms at the base of the root-stock. In the dry season the whole of the plant perishes with the exception of this little tuber, which reappears during the rainy or winter season. There is a pan of this species among the insectivorous plants at Kew, where we have been acquainted with it for some years. One of the plants is now bearing a flower. Australia is peculiarly rich in species of *Drosera*, over forty being described, as natives of that country. Of these, *D. Whittakeri*, *D. spatulata*, *D. binata*, and *D. auriculata* are the only species known to be in cultivation in this country.

Goat moth caterpillar.—I should recommend Mr. W. Richardson (p. 535) to try and destroy the goat moth caterpillars by passing a sharp pointed wire into the hole, and trying to reach the insect with it if this does not succeed put a piece of cyanide of potassium, about the size of a Hazel nut, into the end of a piece of clay rolled up into the form of a finger. Thrust this as far up the hole as possible, and close the entrance as tightly as possible with clay. Cyanide of potassium is a very deadly poison, and should be handled with every care; its smell is very destructive to insect life in a confined place.—G. S. S.

Construction of glasshouses.—In THE GARDEN of December 1 "*J. S. W.*" in writing on the above subject, suggests that "the future glass roof will have to cover all in, and leave neither woodwork nor putty exposed to the weather." May I inform him that roofs constructed in the way he thinks so desirable are by no means novel, as I have seen several of them in different parts of the country where there is no woodwork at all exposed to the weather except the two ends, whilst they are acknowledged to be water and wind-tight, giving the maximum of light and dispensing with the cost of the annual painting? If your correspondent lives near London and will visit the Zoological Gardens in Regent's Park, he will there see a roof constructed on this plan, and he will at the same time be able to ask any questions as to its adaptability for horticultural purposes. I may mention that this week I saw a similar house that stood the full fury of the recent storm without a fracture, whilst a few yards from it hoardings, chimney-pots, &c., were blown about in all directions, and the roofs of three other greenhouses were almost destroyed.—W. M.

Oiled calico.—A correspondent a couple of weeks ago asked where he could procure this. As no one has answered his query, I may say that there is no occasion to buy it at all; let him stretch his calico on the frames required, then size it, and afterwards give it a coat of boiled linseed oil, and he will find it all that he requires.—DELTA.

GARDEN IN THE HOUSE.

DIPLADENIAS FOR DECORATIVE USES.

FOR the embellishment of epergnes and small specimen glasses on the dinner table, the blossoms of all the cultivated species of *Dipladenia* are most valuable, usually lasting several days when placed in water or damp Moss. All of the various shades of colour to be found in *Dipla-*

denia opportunity offers. The most useful *Dipladenia* in bouquets and similar arrangements is perhaps the Bolivian one just alluded to, and this should also be grown by all who have not yet got it in conjunction with the variety under notice.

Gunnersbury House.

JAMES HUDSON.

***Clerodendron fallax*.**—Like "H." (p 508), I have also grown this *Clerodendron* in small pots

the wonder is that some at least of this large family should not have found favour as market plants in this country. One of the most interesting things I ever saw in Paris market gardens was the culture of *Vriesia psittacina* on a large scale. There were thousands of them all planted out in the way Paris market gardeners grow so many of their plants—in light frames. In this way they quickly made nice little specimens suitable for decorative purposes. The kinds most favoured by M. Duval, who grows them by the thousand for this purpose, are *Vriesia splendens*, *Caraguata lingulata*, *Nidularium splendens* and *Innocenti*.—J. C. B.

NOTES FROM FRANCE.

New esculents.—In addition to the species of Potato which was recently described in THE GARDEN, the French have taken in hand two other esculents hitherto not known to European cultivators, and from which good results are expected. As some of your readers may be aware, the Society of Acclimation offers a prize of 500 francs for the introduction of an esculent which can be used as human food. This prize has lately been awarded to M. Paillieux for *Canna edulis*, or Capucho, as it is called in its native country. It has been grown for years by M. Paillieux, and, having been tasted by competent judges, has been pronounced worthy of taking rank with the vegetables commonly grown in gardens at the present time. M. Paillieux does not appear, however, to have furnished any cultural details respecting this edible *Canna*, and it would be interesting to know whether it has been grown in the northern parts of France or in one of the warmer districts of that country. Of the Gobo, or edible Burdock, we have more detailed information, and seeing that no doubt exists of its being but a variety of our own wild Burdock (*Lappa major*), its suitability for northern climates cannot be questioned. This Burdock is a native of Japan, and, although introduced years ago by Von Siebold, has never had a fair trial until taken in hand by M. Dybowski, of the Agricultural School of Grignon, who was fortunate in obtaining seeds of the true variety direct from Japan. Briefly stated, this edible Burdock is of very easy culture, thriving in almost any soil, but naturally preferring good, well-cultivated ground. Deep cultivation is, however, imperative, owing to the edible portion running down about a foot into the earth. It may be cooked and prepared in the same manner as Salsafy, which it much resembles in flavour. Sown in March and not transplanted, it is ready for use in three months, but if pricked out it will be in good condition in autumn and during the winter.

New type of Celery.—Under the name of *Celeri Blanc*, or *Celeri Chemin*, the Paris market gardeners are growing a kind of Celery which appears likely to effect a complete revolution in the culture of this vegetable as generally practised. This will be readily understood when I say that the leaf-stalks of this Celery come naturally white and tender, and therefore in its case no earthing up is required. The importance of this fact will be realised by those who annually grow large breadths of this esculent, and more especially by those who grow for profit, for if the labour which blanching involves can be dispensed with, Celery may be grown almost as cheaply and with as little trouble as Cabbages. Curiously enough, although this Celery was raised in 1875, it seems not to have been heard of until quite recently outside of the market gardens and markets of Paris. The raiser simply contented himself with growing it largely himself and distributing it among neighbouring growers, but so quickly did the Paris market gardeners recognise its merit that at the present time scarcely any other kind is brought into the Halles Centrales. We may therefore safely assume that the merits of this Celery have been thoroughly proved, for Paris market growers, like their English brethren, are slow to welcome novelties, and never grow anything largely until they have abundant proof of its worth. The quality of this Celery is said to be first rate, being tender and of fine appearance.



DIPLADENIA AMÆNA
GUNNERSBURY HOUSE NOV 7 1883.

denia flowers have a telling effect under artificial light; each flower can also be used without sacrificing half-developed buds. Under cultivation, too, but little room is required in which to grow *Dipladenias*, i.e., if trained on wires near the glass, the space underneath being left available for shade-loving subjects. We grow them in this manner, and when in bloom they are very effective, the flower-trusses being allowed to hang a little below the wires. *Dipladenia amœna* here represented is, I think, one of the most chaste and beautiful of the whole genus. It is invariably admired, and may sometimes be seen painted on dessert dishes and fire screens. In the case of the high-coloured varieties, such as *D. insignis* and *D. Brearleyana*, the colour deepens with age, but in that of *D. amœna* it fades off to a lovely pale pink or flesh colour. With the exception of *D. boliviensis*, it is perhaps the latest in bloom in the late autumn, when each flower is valuable in some way or other. Those who do not grow this kind should do so when an

for decorative purposes, and have found it to be very useful late in the autumn. Ours were struck from cuttings and flowered in 4-inch pots. Unfortunately, however, in this locality the fogs from which we suffer in the autumn are so destructive, that in two or three days every flower and bud nearly developed were lying on the surface of the pot and on the floor of the house, and this, too, when they were in full bloom. I mean to try them again, however, and will contrive to get them into flower during August and September, instead of two months later. By this earlier flowering, we hope to avoid the deleterious effects of London fogs.—J. HUDSON.

Bromeliads as decorative plants.—These are much more in favour in France than with us, and some of them are largely grown for decorative purposes by the Paris market growers and nurserymen. Considering how well they bear the close dry atmosphere of apartments, and how suitable many of them are for growing in small

It is also a vigorous grower and rather early. Nothing is said, however, respecting its hardiness, and one cannot but think that it would be apt to share the fate of green vegetables generally in severe winters; but against this defect must be placed the advantage of entire immunity from the destructive rot which often plays havoc with Celery as commonly grown. Perhaps, too, being grown in full exposure to light, air, and sun, it may acquire sufficient hardiness to be proof against hard frosts. M. Chemin lately exhibited it at a meeting of the French National Horticultural Society, where it obtained a first-class certificate.

Perpetual fruiting Strawberries.—Considering the importance that the French attach to maintaining a supply of Strawberries through the summer and autumn, and how fully the value of the little alpine is recognised for that purpose, one wonders that a greater improvement should not have been effected in this Strawberry. As a fact the typical form is that still most largely grown, a fact the more to be wondered at, as a practice exists of largely raising it from seed, and it would naturally be supposed that by selection alone a very much improved race would have been obtained. Then, again, one would think that with the number of large-fruited kinds in cultivation, some of them might have been made the instruments of working a great change in the size and flavour of perpetual bearing Strawberries. There are, however, signs of progress in this direction, for it is stated that two varieties lately obtained are real gains in these respects. One of them named *Genereuse d'Ablon* has, I am informed, been distinguished by a first-class certificate at a meeting of the French National Horticultural Society. The other, exhibited by M. Béraud-Massard, nurseryman at Monceau-les-Mines (Saône-et-Loire), is stated to be a cross between a variety of the alpine and a large-fruited kind. The raiser states that it fruits the season through, which will, if correct, render it a most valuable gain. In addition to these two kinds, there is one named *Pelissier*, which, although properly belonging to the large-fruited kinds, has attracted a considerable amount of attention of late on account of its showing a very marked disposition to continue bearing through the summer.

Double-flowered Nægelia.—M. Valerand, the well-known raiser of spotted *Gloxinias*, *Achimenes*, and *Tydeas*, has obtained a first-class certificate from the French National Horticultural Society for a double-flowered variety of *Nægelia* which he names *Madame Heine*. It is stated to be a fine addition to this tribe of plants, being all that could be desired in point of habit and floriferousness. J. C. B.

CHRYSANTHEMUMS AT HOLMBURY.

THE gardens at Holmbury, the seat of the Hon. F. Leveson Gower, M.P., were thrown open to the public during the past fortnight, in order that people might inspect the collection of Chrysanthemums grown there this year. It consists of about sixty varieties and some 600 plants, three of which are generally contained in one pot, and include some of the best in cultivation. These were arranged in three houses in such a manner as to be most effective, the *coup d'œil* reminding one of that at the Temple. The plants exhibited showed signs of careful culture, the foliage being clean, robust, and good in colour. The flowers were large and well formed. I may enumerate the following as especially worthy of notice, viz.: *Madame C. Audiguier*, *La Charmeuse*, *Antonelli*, *Chevalier Damage*, a bright gold variety and very effective; *Countess of Granville*, *Empress of India*, *Jardin des Plantes*, *Julie Lagravère*, *Lady Talfour*, a very neat variety; Mr. Gladstone; *Pink Perfection*; *Refulgence*, rich purple-maroon, one of the most attractive kinds in the exhibition; *Baronne de Prailly*, a late sort; *Bismarck*, in excellent condition, flowers 6 inches in diameter; *Elaine*; *Ethel*; *Fair Maid of Guernsey*, a distinct kind; *Gloire de Toulouse*; *Meg Merrilies*, a late variety; *Meteor*, an excellent kind for furnishing cut flowers; *The Cosack*; *Christmas Number*, one of the best

whites; *Soleil Levant*, a fine yellow variety; *Marabout*; *The Sultan*; *Prince Alfred*, of which there were some fine examples; *Golden Dragon*, a rambling kind with large flowers having curiously twisted petals; *Golden Queen*; *Temple of Solomon*, a most desirable flower; *Alma*, good and showy; *Chromatella*, one of the best as regards form; and an unnamed variety which originated at Joldwynds. This last deserves especial attention; it somewhat resembles *Elaine* in form, flowers somewhat larger, tinted rose, some of which I measured being 7 inches in diameter. It is a most profuse bloomer; on a not very large plant I counted sixty fully expanded flowers, forming quite a nosegay. It will be seen by the above list that incurred, reflexed, and Japanese kinds were well represented.

In addition to the Chrysanthemums visitors were also shown a houseful of *Eucharis amazonica* just coming into bloom, and what interested many in the same house was a fruiting Pine, grown from a crown taken from a fruit presented to the Right Hon. W. E. Gladstone by the Queen. The stove was also interesting as regards colour, though the plants are not large, being used principally for indoor and table decoration; they are in an exceedingly clean and healthy condition and consist of some of the best varieties of *Crotons*, *Dracænas*, *Alocasias*, *Begonias*, *Marantas*, &c. A plant of *Rivina humilis* was especially beautiful laden with its scarlet berries; this is most useful as a decorative plant.

The conservatory is a house of large dimensions; one end of it is occupied by ornamental rockwork and basins, and growing upon the rockwork are Ferns, *Selaginellas*, *Begonias*, and *Caladium esculentum*. I cannot help thinking that the example of thus opening gardens to the public is a good one when anything of interest is to be seen. Mr. Gower expressed the pleasure he felt at seeing his neighbours take such an interest in his plants and flowers, to which no damage of any kind was done. C. D.

FERNS.

BRITISH FERNS IN WINTER.

THE first mistake generally made at this time of year and during the next three or four months is that of giving hardy Ferns rather too much rest. Many more plants are lost through the four or five winter months than during the rest of the year, however hot and dry the summer may have been. The reason is that out of every ten would-be Fern growers, eight allow their plants to get thoroughly dry at the roots, a condition from which they never completely recover. This principally applies to British Ferns kept during winter under cover out-of-doors; exotic kinds, being under glass, are not so likely to be allowed to become too dry, more especially as most of the kinds, if not all, belonging to this latter class are evergreen; whereas the majority of British species are either deciduous or partly so, and it is on account of that deciduous character that irreparable harm is generally done. Being in what appears to be a dormant state, many unwisely treat them year after year like bulbs or tubers. Such treatment causes the crowns to grow annually weaker and weaker, and accounts for their getting thoroughly exhausted instead of increasing in size and vigour. Instead of our native Ferns being dried up in winter, it is just the time of year during which they are provided naturally with a greater abundance of water at the roots than at any other. Many of them, such as *Osundas*, *Scolopendriums*, and some *Lastreas*, growing wild in low-lying districts, are for weeks, even for months, kept totally under water through the annual overflow of some river or an excessive quantity of rain. Again, in the case of those growing on hill-sides, amongst underwood, by the roadside, &c., such as *Polypodiums*, *Blechnums*, *Athyriums*, *Asplenium Adiantum nigrum*, and others, the rain, which during winter is much more plentiful than in summer, reaches them also more easily and in much greater abundance, as the trees which during summer over-shade

them are then deprived of their foliage, and consequently do not offer any obstacle to the ground under them being completely saturated for about five months of the year with water. It will therefore be seen how pernicious the dry resting of hardy Ferns in winter must be, and what fatal consequences must be expected from its repeated practice.

COVERING WHEN RESTING is another source of evil. If the plants are growing in the open ground, they will take care of themselves and give but little trouble. A small quantity of dead leaves spread over them for protection in case of a hard and snowless winter is all that is required. The difficulty of winter management lies with plants in pots—choice varieties or pet kinds that one does not care to trust to open border culture, although that would be safest. If Ferns in pots are to be kept outside, they must have a certain amount of covering—more for the pots, which during severe frost are apt to crack, than for the plants. For that purpose either Cocoa-nut fibre or old tan is resorted to, and that generally with most unsatisfactory results, for if a thin layer only is used, the protection proves insufficient for the pots, and if, on the other hand, a thick covering is employed, then the closeness of the material is such that any small growing kinds, such as the *Cystopteris*, *Aspleniums*, and *Woodsias*, invariably perish through the moisture remaining stagnant, and being essentially different from that which under natural circumstances is so highly beneficial to them during winter.

THE MOST SUCCESSFUL WAY by which hardy Ferns may be kept through the resting period when grown in pots is to have them put in a cold frame and liberally treated with water at the roots, so as not to allow the crowns to become shrivelled in the least, taking care to be more liberal still towards species and varieties not thoroughly deciduous, such as *Polystichum*, *Blechnum*, *Scolopendrium*, *Polypodium*, &c., whose roots are always active all through the year. I have seen, only a couple of years ago, a striking illustration of the benefit to be derived from the treatment here recommended. Two window boxes had in spring to be filled with hardy Ferns, which after growing luxuriantly during the summer and autumn months gradually lost their foliage and went to rest; these were mostly dwarf crested forms of *Athyrium Filix-foemina*, and also of *Lastrea Filix-mas*, sorts entirely deciduous. Having no foliage whatever left on them, one box was allowed to get very dry without being noticed, which, doubtless, they would have been had the boxes contained any *Scolopendriums* or *Polypodiums*. The other box would undoubtedly have suffered the same fate but for a leak in the gutter above, which all through the winter allowed a quantity of rain water to penetrate to the dormant crowns which remained firm and plump, whereas those in the first box were discovered in spring to be shrivelled up and nearly exhausted; their next growth was weak, whereas that of those contained in the box kept constantly moist was luxuriant and healthy. PELLÆA.

5086.—**Teak for hothouse building.**—For "R. I. L.'s" information, perhaps I cannot do better than point to several of the tropical houses at Kew—notably the Victoria house and the large tropical fernery, the rafters in which are made of Teak wood, and have stood for nearly four years without being affected by the heat and excessive moisture in these houses in any way. I believe that at Kew the use of Teak for hothouses is proving so very satisfactory, that it is intended to use it as much as possible for replacing the decayed Pine wood. There can be no doubt as to the superiority of this wood over every other that has been employed for plant houses, and although the cost of Teak is much higher than that of say red Pine, the extra expense is more than compensated for by the greater durability of the Teak. It is merely a question of first cost; the fact of its being used so largely for building purposes in India and other tropical countries where heat and moisture are far more trying to timber than such

conditions can be in our most tropical stoves speaks volumes in its favour for its use in the construction of plant houses. In Gamble's "Manual of Indian Timbers" it is stated that "Teak wood does not split, crack, warp, or alter its shape when once seasoned; it does not suffer when in contact with iron, and is rarely, if ever, attacked by white ants. Its durability is probably due to the aromatic oil contained in the wood. "R. I. L.'s" objection to Teak on the ground of its unsightliness in tropical houses, owing to its favouring a kind of debased jelly-like growth, seems to be the outcome of the objectionable appearance of Teak when stained, as it is in the new range in the Glasgow Botanic Gardens. There is nothing of the kind, however, at Kew, where the Teak wood is painted in the same way and with the same paint as in the case of Pine wood. Teak takes paint as well as most woods. I question whether the red Pine favoured by "R. I. L." would be less unsightly than Teak if stained and not painted. Finally, I would say that, leaving out of the question the wide difference between the cost of Pine and Teak, there can be no doubt as to the superiority of the latter for hothouse building.—B.

INDOOR GARDEN.

MUSSÆNDA FRONDOSA.

THIS singular, yet beautiful, plant belongs to a somewhat restricted family of evergreen shrubs mostly from hot countries, in both the Old and New Worlds. This species is much the handsomest of the genus, and is not like any other plant in cultivation. It produces bright yellow flowers, borne in bunches, in form not unlike the well-known *Pentas carnea*, but individually smaller; yet it is not in the flowers alone in which its beauty consists, but also in the large floral bracts or pair of floral leaves, pure white, that are produced immediately at the base of each bunch of bloom. In size and shape they are similar to the ordinary leaves borne by the plant, but are not persistent longer than the flowers, which will last three weeks in perfection. The plant is easily managed, and does not require a great deal of room, a large specimen rarely attaining more than from 2 feet to 2½ feet in diameter. Its disposition to bloom is remarkably free, as even small examples consisting of a shoot or two will flower. The singular combination in colour produced by the pale green of the leaves and the white bracts, which, on a well-grown example, cover half the surface, and the bright yellow flowers rising immediately above them, is at once beautiful and wholly distinct from everything else—so much so as to create surprise that the plant is not more generally cultivated, either by those whose heated glass accommodation is limited, for which the little room it occupies adapts it, or by those who have large stoves or warm conservatories, where a few moderate-sized examples dotted about would offer a perfect contrast to the other occupants.

PROPAGATION.—It is as readily struck as a *Pelargonium*; cuttings made of the green, half-ripened shoots taken off with about three joints, removing the bottom pair of leaves, will root in a few weeks, inserted singly in small pots, drained and filled with a mixture of half-sifted loam, to which an equal quantity of sand has been added, and a thin layer of sand on the surface, covered with a bell-glass, kept moist and slightly shaded with or without bottom heat, in a night temperature of 65° or 70° and a proportionate rise in the day. This heat there will be no difficulty in maintaining about the time (April), when cuttings in the condition above described will be obtainable. As soon as they are found to have formed roots give air, gradually dispensing with the glasses, so as to inure the plants to the air of the house. When they have made two pairs more leaves pinch out the points of the shoots, to induce the lower eyes to break, for although the plant is naturally inclined to assume a bushy form, yet to produce specimens that will branch out and hide the surface of the pots (in which

way this and subjects of similar habit always look best), it is necessary to stop the young plants in their first stages. Directly they have again fairly broken into growth they will have made roots enough to require a shift; pots 2 inches or 3 inches larger will be big enough; drain sufficiently. It will succeed in either peat or loam, but I prefer the latter, as in it the growth is more robust, affording an ability when in flower during the summer to bear removal to a lower temperature than where it has been grown, a condition that I have invariably found existing to a greater extent in loam-grown, heat-requiring plants than in such as are cultivated in peat. The loam should be of a good ordinary description, containing a fair amount of turfy matter not broken too fine, and with enough sand added to admit of the water passing quickly through it. Pot moderately firm and keep the plants where they will be exposed to the full light, with a slight shade in the middle of the day.

TEMPERATURE.—This *Mussænda* being found in the hot parts of India requires a brisk heat to grow it freely. Admit a moderate quantity of air during the middle of the day, shutting up so as to enclose a considerable amount of sun-heat, syringing overhead, and at the same time maintaining a genial atmosphere. It must never be allowed to want for water in the soil, for, although not a delicate-rooted subject, and a hard condition being assumed by the old wood, yet the young shoots are always comparatively soft, and allowing it to flag through an insufficiency of moisture has a stunting effect, which limits the growth and in the same proportion its ability to flower. As growth progresses, tie the shoots to neat sticks inserted just within the rims of the pots, again pinching out the points about the end of July; then shift into pots 3 inches larger, after which time continue to treat as before until the beginning of September; then dispense with the shading, and by the end of the month cease syringing, giving more air so as to gradually bring about a state of rest, to still further induce which reduce the temperature; keep through the winter at about 60° in the night, with a little more by day, giving just as much water as will maintain the soil in a semi-moist condition. By the end of February raise the temperature 5° day and night, and as soon as growth has fairly commenced shift into pots 2 inches larger, using enough sticks to keep the shoots evenly balanced, and again commence syringing overhead. The points must not now be pinched out, as it would delay the flowering; give proportionately more heat as the days lengthen with a little shade when the sun is powerful. Towards the end of April the plants will show bloom, which will be indicated by the appearance of the white bracts, that will go on developing until the flowers expand. If kept in the stove they will bloom a second time towards the end of summer; consequently I should not advise their being moved at this first flowering to cooler quarters. When done blooming do not shorten the shoots, but simply pick off the decayed bracts and flowers, at the same time giving them a good syringing. They will now bear as much heat as is given to the generality of stove plants, and will recommence growth immediately. When two or three pairs of leaves have been made, they will again show flowers, which may be expected to arrive at maturity by the latter end of summer, at which time they can be moved to the warmest part of the conservatory; but whilst here, like most other stove subjects, they should not be placed where they will be under the influence of external air admitted directly in contact with them. When they are in cooler quarters give no more water than is sufficient to keep them from flagging. After the blooming is over shorten the shoots back to about one-half the length that has been made during the season, and at once return the plants to the stove, where they will again break into growth, although not much progress will be made till spring. Winter as before, and give a 2-inch or 3-inch shift as soon as the plants are fairly in motion in spring. Treat as in the previous season. When the first flowering is over they will be con-

siderably benefited by the application of manure water once a week. Let the autumn and winter management be similar to that previously advised, and when the time for potting in spring comes, shake out a portion of the old soil, returning the plants to the same pots, which will be large enough for all ordinary purposes, replacing the old soil with new. As soon as the roots have got fairly hold of the new material, supply manure water regularly through the growing season, by which means the plants may be kept for years in a healthy condition with simply replacing a portion of the old soil by new each spring.

INSECTS.—Most of those which attack stove plants will live on this *Mussænda*, although they do not appear so partial to it as some things. The leaves are somewhat thin in texture, and are soon injured by the presence of red spider, but if in the syringing advised the water is got well to the undersides of the leaves they will never gain a footing. Thrips and green fly are thus in like manner held in check, but should they make their appearance, fumigate or dip in tobacco water. Brown scale and mealy bug where present must during the growing season be removed by brushing and sponging, and when the plants are cut in after the second flowering, they should be dipped in or well syringed with a moderately strong solution of insecticide. T. BAINES.

MIGNONETTE IN POTS.

MIGNONETTE expected to be in good condition in April and May next should have been put into the pots in which it is to flower two or three months ago. If it is to survive the winter in a satisfactory state, it should be kept as free from excitement as possible from November until the middle of February. The best position for it during this time is a plant house in which fire-heat is only used to keep out frost or a light brick pit in which there is ample room for air and light to play between the plants. All points considered, no doubt *Mignonette* is best on the front shelves or in a light position on the stage of a span-roofed house, but it is absolutely necessary that it be kept secure from frost, and nothing more in the way of heat should be given it than just what will do that. *Mignonette* also requires very careful watering in winter, as any excess of moisture at the roots soon turns the leaves yellow and ultimately renders the plants useless. Clear water only should be given it while resting. Plants intended to make large specimens should be carefully tied out if not already done. If well furnished with growths, they may be trained to any desired shape, but for ordinary uses the bush form is as good as any, as it is the most natural. Crowding must also be avoided; no plant should touch its neighbour, and those trained flat should stand on inverted pots. When I had a fancy for growing large examples of *Mignonette*, I used, as soon as the sun gained power in March, to drop the pots in which the plants were growing inside other pots. By this means the roots were kept in a more uniform condition as to heat and moisture than they otherwise could have been. Not unfrequently the roots of *Mignonette* are injured by the sun striking upon the pots and burning them. Towards the end of February the plants will begin to grow with increased vigour, but they must not be hurried by keeping the house in which they are growing close or by the aid of artificial heat, and primary conditions as regards success are light and judicious ventilation. At this stage shoots showing flower should have their points picked off, and from this time forward something stimulating may be given to the roots. Probably any concentrated manure will answer for this purpose, but we use *Florvita*, which seems to be very suitable for *Mignonette*, being hardly so forcing in character as some of the others. If given according to the directions once a fortnight that will be often enough. After the middle of April shade from continuous bright sunshine must be afforded, but it should be movable, and only applied during very bright weather; if constantly used the growth

will be weakened. Plants to flower in winter must be sown earlier than those wanted to flower in spring, and must receive earlier attention in every way. J. C. C.

ORNAMENTAL-LEAVED BEGONIAS.

WHEN the first fine-leaved Begonias made their appearance they were much prized. Many of the noble variegated plants since introduced were then unknown, and therefore these Begonias for a time engaged everybody's attention. Several of the most effective kinds are hybrids. The different species cross freely, and seedlings are easily raised. The species and varieties that come under the head of the fine-leaved section are mostly from warm latitudes, and consequently require artificial heat in which to grow them well; yet several will succeed in a lower temperature than that in which they are often tried; B. Rex, for instance, in itself a handsome plant, has been the progenitor of several others both fine and distinct. It comes from Assam, and will do well with less heat than it is frequently supposed to require; this and several others of similar character will succeed in an intermediate fernery, where their broad distinct silvery-looking leaves contrast effectively with those of the more elegant growing Ferns.

THE PROPAGATION of most of the kinds is as easy as their after management; they strike freely from cuttings made of the shoots, or from portions of the leaves—the latter the more usual way of treating them, as likewise the means by which much the greatest number can be raised from a single plant, as every bit of leaf an inch or so square that contains a portion of the ribs or nerves will strike root and form a plant. The leaves for this purpose should be taken off about May or June, when such as have been formed early in the spring will have been sufficiently solidified to prevent damping off. Take 5-inch or 6-inch pots drained and partially filled with a mixture of sand and fine peat, the surface made up with sand; in these insert the portions of leaf so that they are one-third below the surface; give as much water as will just keep the sand damp, but not too wet, or they will be liable to rot; keep them in an ordinary stove temperature, but not covered with a bell-glass, or closely confined in a propagating frame, neither must they be too much shaded, or they will decay. In a few weeks they will make roots, and begin to form a shoot each that will push up and throw out leaves like an ordinary shoot-cutting. When fairly established, move them singly into small pots in sandy soil—either peat or loam; they usually grow the freest in the former. Although, as I have already said, these Begonias are amongst the easiest of plants to grow, still there is a great difference in the appearance of such as are treated in a way that enables them to exhibit their best form and others that are managed the reverse. The weak-stemmed, flabby-leaved examples often met with are the result of growing them too crowded, with too much shade, and keeping them too far from the glass with insufficient air and overmuch heat, all of which must be avoided if the plants are expected to fairly represent what can be done with them.

A LITTLE SHADE they must have when the sun is powerful. During the growing season syringe them overhead once a day (about the time the air is shut off in the afternoon is the best) and the water should be got so far as possible to the undersides of the leaves, as they are liable to the attacks of thrips. Give water, so as not to let them flag, or it will have the effect of dimming the beautiful glossy texture of their leaves, which is the principal thing that makes them effective. All they need in other respects is to increase the root room as required. Large specimens will want pots 11 inches or 12 inches in diameter, but it is not well to give too large a shift at once; rather increase the space as it is needed. They are quick growers, and it is not advisable to keep them until they get very old, as young ones soon attain a size such as to make them large enough for ordinary purposes. The larger silvery-leaved kinds are most suitable for growing in ferneries, and will

do well planted out in positions that admit of their getting the most light without being too damp.

SPECIES AND VARIETIES.—The undermentioned kinds represent the different forms and colours of leaf that are most distinct and desirable. B. Otto Forster is a bronzy green ground coloured kind marked and streaked with white; B. Rex has a bright green ground banded with white; B. argentea hirsuta has handsome silvery foliage of medium size; B. Pearl is a prettily marked kind, compact in habit; B. Edouard André has bold distinct foliage clearly marked; and B. Duchess has pale green leaves banded with dark green.

INSECTS.—These Begonias are little subject to insects. Thrips sometimes establish themselves underneath the leaves, and I have seen red spider attack them, but they can be easily kept down by syringing as already advised. T. B.

IMPORTED BULBS OF LILIUM AURATUM.

NURSERYMEN are already offering fresh importations of this Lily, but, according to my experience as regards the behaviour of freshly-imported bulbs, there is no need for hurry in purchasing a stock. I find that nothing is gained by getting them planted before March. They appear to me to start into growth much better when the natural temperature rises than they do if dormant in a low temperature for any length of time, and I believe that they are better kept dry than potted early in cold soil. In many cases it would be an easy matter to give them suitably warm quarters, but nothing would be gained by that in the end, even if the bulbs did not suffer from it. I never purchase our stock of fresh bulbs until March, and then as soon as they come to hand they are laid in a shallow box with a layer of Cocoa-nut fibre beneath them, and about half the depth of the bulb is also covered with the same material. The box is then placed on a side shelf in a cool plant house. The Cocoa-nut fibre is made just moist and then the box is covered with slates to keep the bulbs in darkness. I take off the slates and examine them once a week, and if the fibre gets too dry it is given a little water. The bulbs seem to extract sufficient moisture from the fibre, for in three or four weeks they plump up and look quite fresh. I then begin to look out for the formation of roots; each bulb is lifted separately from its bed; those that have begun to make new roots are set aside to be potted, and the others are returned to the box to wait until they show signs of making roots. I am of opinion that more bulbs are weakened, if not lost, through being potted too early in a cold, damp soil than from any other cause. We pot our bulbs in 7-inch pots, giving them moderate drainage and the best of soil which the place affords; it consists of three-parts turfy loam and one of well-rotted manure; a fair proportion of sand is also added. The plants are then taken to an unheated Peach house, where they remain until they come into flower. J. C. C.

FIGUSES AND THEIR CULTURE.

OF FIGUSES, there are now several fine-leaved kinds in cultivation without including the well-known India-rubber plant (*F. elastica*). Although not requiring exactly the same cultivation, they can all be struck from cuttings made of bits of the young shoots; these, if taken off early in spring and inserted in sand in small pots, kept warm and shaded in a confined atmosphere, will root in a few weeks, after which they should be moved to pots a little larger, using peat or fibrous loam. The kinds named below from hot countries require a considerable amount of heat to grow them. Through the latter part of spring and in the summer they will bear 70° at night, and they may be kept proportionately hotter during the daytime; shade, too, should be given when the sun is such as to require it, and air according to the state of the weather. Give larger pots as the roots seem to want more space, yet they can be grown without so much root room as some plants need, as they are gross feeders, and when once fairly established they can be kept in good condition by the help of manure water, of

which they will bear a large amount. In common with all other plants of a similar character, they look best when confined to a single stem, and should, therefore, be all through their growth placed sufficiently far apart to admit of their leaves, during formation, being fully exposed to the light, or they will lack the tough texture requisite to enable them to last long in good condition. By autumn the young stock will have made considerable progress; reduce the temperature before winter, when 60° at night will answer; give less water during winter, but the soil must not be allowed to get so dry as to injure the foliage. Give additional pot room in spring and treat them as before in the matter of heat, air, water, and shade. If afforded sufficient room they will grow large, but for most purposes it will generally be found better to only retain them so long as they are within a limited size, propagating young plants to take the place of the old ones. The following will be found to be

DESIRABLE KINDS: *F. exsculptata*.—This has elegant leaves with prominent lobes, the divisions being deeply cut so as to give the plant an appearance like that of some of the denser fronded Ferns. It comes from the South Sea Islands. *F. elegans*.—This species has large leaves, cordate-ovate, 20 inches or more in length; the young shoots and petioles are covered with a downy coat, not unlike that of some *Rhopalas*. A native of Java. *F. eburnea*.—This comes from the East Indies; its leaves are from 14 inches to 18 inches in length, by 8 inches or 10 inches in width, oblong-elliptic in shape. *F. Parcelli*.—This is a very distinct species from the South Sea Islands; it is a free grower; the leaves are handsomely variegated, dark green and white. *F. Cooperi*.—A large growing, handsome species, the leaves of which are deep green, and the midrib and nerves bright crimson. A native of Australia. *F. Porteana*.—A stately species, with deep green, thick, glossy leaves of large size. Philippine Islands. *F. dealbata*.—A stout-growing, bushy plant, with leaves from 10 inches to 12 inches long, green above, silvery white beneath. From Peru.

INSECTS.—Few insects affect these plants so as to give much trouble; the syringing to which they are subjected during the growing season is generally sufficient to keep them clean. When anything further is required, syringe freely with, or dip the plants in, insecticide. T. BAINES.

RIVINA HUMILIS AS A STANDARD.

THIS is one of the most useful of all the berried plants; its long racemes of brightly coloured fruit are not only exceedingly showy, but can be had in full beauty at almost any time of the year. It may also easily be grown in the standard form; all that is necessary is to run the plants up with clean stems to the height required. If bushes are wanted [it is only needful to stop the leader by nipping out the point, when it will soon break and become furnished with young shoots down to the base. If standards are desired, the best way to obtain them is to sow seed, as seedlings grow strongly and make straight and clean stems, which, if the plants are wanted for table decoration—a purpose for which they are specially adapted—look best about 15 inches high, as then their long bunches of glossy berries hang clear, and are shown off to the greatest advantage. The seed germinates so freely, and the plants are so robust when they come up, and give so little trouble, that it may be sown at any time. As soon as the seedlings are up and large enough to handle they should be potted singly in small pots, and after being watered set on a shelf where they can have the genial moist heat of a stove. In this they will soon start and begin to grow rapidly, when all side shoots should be kept rubbed off till the required height is reached, and if then stopped, the plants will quickly form nice compact heads and begin to flower. It will then be necessary to have them elevated so as to stand up near the glass to assist the flowers in setting. This they generally do pretty freely, and the berries are not slow in colouring, but they un-

fortunately fall rather readily, to prevent which the plants should be withdrawn from the stove and kept in a somewhat cooler temperature before being used. After they have done service and become shabby they should be rested by being kept somewhat dry and then cut back, after which, if syringed and watered, they soon break again, and, if repotted, become more full of berry than they had been before. If Rivinas are propagated from cuttings, it will be found that the young half-ripe shoots strike best, and all that is necessary with these is to insert them in sandy soil and keep them close in heat for a fortnight or so, by which time they root, and are then ready for potting. A compost of fibry loam and a little leaf-mould suits them well, and the firmer they are potted in this the better they fruit. S. D.

PEPEROMIAS.

In these we have an interesting set of small-growing plants of a soft fleshy texture, both as regards leaves and stems. Some of the weaker growing, trailing habited species are well adapted for hanging baskets; they are all suitable for growing in small pots for standing about in the stove or Fern house, where their prettily marked variegated leaves are seen to advantage. They strike readily from bits of the shoots, or from single joints with a leaf attached; if these are prepared in spring and put 1 inch or 2 inches apart in good-sized pans filled with silver sand, kept warm, a little moist, not wet, and shaded from the sun, they will root readily; they must not be confined in a propagating frame or under a glass, for if so treated, they are very liable to rot. When sufficiently rooted move them to 3-inch pots filled with sandy peat or good loam, placing them where they will get plenty of light; keep the soil in a healthy state as to moisture, but not so wet as many stove subjects require it to be. A temperature which will answer for the generality of stove plants, say 65° in the night, and 75° or 80° by day during the summer, will suit Peperomias, giving air and shade in the heat of the day. By July they will want putting into pots a size or two larger, continuing to treat as hitherto until September; then give more air with less moisture in the atmosphere, and dispense with shading. A minimum heat of about 60° will answer through the winter; they will require moving to 7-inch or 8-inch pots in the spring, giving the most room to the strongest growers. Those that are to be grown in baskets may be placed several together, according to the size of the baskets to be filled; they do well hung up where they can have an abundance of light, with just enough shade to keep the leaves from getting discoloured by the sun. When the plants get shabby, they may be shortened in, which will cause them to break back, and in this way their heads can be renewed, or, if preferred, young stock can be grown up to take the place of the old.

The following are worth growing: *P. argyrea* variegata.—This has oval leaves, red leaf-stalks, and the margins of the leaves are broadly banded with white. *P. Verschaffeltii*.—A dwarf-growing species; leaves cordate in form, deep green with white bands running longitudinally; of compact habit. It comes from Brazil. *P. nummulariaefolia*.—This species is of a trailing habit and the leaves are nearly round; it makes a pretty basket plant. A native of the West Indies. *P. microphylla*.—A Mexican species, with trailing shoots that branch freely; the leaves are obovate. *P. prostrata*.—This also is suitable for a hanging basket; the leaves are almost round and prettily variegated.

INSECTS.—Thrips and red spider sometimes gain a footing on Peperomias if the atmosphere is too dry, but with attention to syringing and sufficient care to see that the water gets well to the undersides of the leaves they can easily be kept down. T. BAINES.

Centropogon Lucyanus.—This deserves a place in every collection of winter flowering plants, bearing, as it does, long racemes of crimson-scarlet flowers uninterruptedly for many weeks

together, and that at a time when bright flowers are most acceptable. Cuttings of it root freely enough in spring in a little bottom-heat. Care should, however, be taken not to keep them too close, as they are liable to damp off. When rooted, they should be potted in a compost of loam, leaf mould, and sand, and grown on freely throughout the summer in an intermediate house, pinching the strong growths to keep the plants bushy. A little manure water will be found to greatly benefit them when their flowering pots are full of roots.—C. H. H.

IBERIS GIBALTARICA IN POTS.

There are two or three South European species of *Iberis*, such as *I. gibraltarica* and *I. Tenoreana*, that are not thoroughly hardy, and therefore not



Iberis gibraltarica as a pot plant.

suitable for growing in an unprotected border. These are excellent plants for pot culture, and are far more satisfactory grown in this way than in the open border. The above illustration shows what a pretty plant *I. gibraltarica* is when grown in a pot, and this example is not in the least exaggerated, as we have frequently seen plants of it with quite as many flower-heads, and when thus profusely bloomed their delicate pink colour is most attractive. This *Iberis* is best propagated by means of cuttings, as it rarely produces seed in this country. From their earliest stages of growth the plants should be well attended to as regards watering, for if they get too dry they soon shed their foliage, leaving the stems bare. Any ordinary potting soil will do. It is best to grow the plants in a frame, heated sufficiently in winter to keep out frost; but they must have no artificial heat given them when the weather is mild, and then the frame should be well ventilated. If cuttings of it are struck early in spring, some creditable specimens may be obtained by autumn, which will flower profusely the following spring, or rather in May or June. The Italian *I. Tenoreana*, also a pink-flowered species, may be treated in the same way as *gibraltarica*. It is also a pretty plant, but scarcely so effective as *gibraltarica*, and, moreover, it thrives well in the open border if treated as a biennial. *Iberis gibraltarica* hybrida, recently exhibited by Mr. R. Dean, is likely to prove a valuable plant—more so even than *gibraltarica* itself. Some plants of it shown in the early part of the year at South Kensington were greatly admired.—G.

Pelargonium candidissimum plenum.

—We prepared a considerable number of plants of this double, white flowering zonal *Pelargonium* under the impression that it would yield a good quantity of trusses during winter. Unfortunately, there appears to be two varieties, one only being worth growing for winter work, and of the wrong kind we have most plants. The original plant was bought at a well-known nursery, and is no better as regards free blooming in a rather high tempera-

ture than the older *Madame Amelie* Baltet. Next year we shall rely exclusively upon a stock of plants propagated from three specimens obtained from a friend, and which are flowering abundantly at the present time. The blooms, being pure white, are very serviceable for button-hole and hand bouquets, or for any other purpose for which white flowers are prized.—I.

AGALMYLA LONGISTYLA.

THIS miniature creeping Gesnerad is a native of Java, and from its peculiar habit it is well adapted for particular positions. When suspended from the roof of a stove where plants of small growth can with advantage be used, it gives the structure a more furnished appearance, and that without injuriously shading the other occupants. Such a position, too, appears to suit it well, and favours the free production of bloom. Like most other plants, the time of its flowering is considerably influenced by the course of treatment to which it is subjected, but it is generally in perfection during the later months of the year, a time when its scarlet or bright red flowers are very effective. They are comparatively large for the size of the plant, which when well grown produces them freely. Being of a creeping habit, the stems cling closely to any surface on which it is grown—not unlike the way in which the rhizomes of some Ferns, such as the weaker growing *Davallias*, attach themselves. The leaves, which are borne on short stalks, are ovate in shape. It may be cultivated in a pot, but as it is a true epiphyte, it does best on a block of wood, a way in which it can be better hung up, and as we have comparatively few subjects of a similar character and so suitable for the purpose, it is well to utilise it in this manner. Its flowers in such a position are also seen to the best advantage. As regards

CULTURE. procure a rustic-looking piece of dry Oak wood about 6 inches wide, a foot long, and 2 inches in thickness; if charred it will look none the worse and will last longer—a consideration in the case of such plants as this, that have clinging roots that adhere tightly to whatever they fasten upon, and cannot be removed without injury. Fix a copper wire by means of copper nails to each end of the block to hang it up by. Cut a piece of good fibrous Orchid peat about an inch thick and the same size as the block, shake as much of the earthy matter from it as can be done without breaking it, fasten it on the upper surface of the block with fine copper wire, shake a handful of silver sand over the peat, which will help to keep it from getting sour. Then take a plant that has been either grown in a pot, or cut several of the creeping stems with several leaves to each, and tie with wire or bast on the surface of the peat. Give water immediately, and shade until the roots have got hold. These operations should be performed in March before growth has commenced. All through the growing season the roots must be kept moist, and even in winter they must never be allowed to get too dry. During spring and summer the night temperature should range from 65° to 70°, and from 80° to 85° in the daytime. In winter it will do at 60° and a few degrees higher by day. The shoots require little training, simply bending about in such a way as to cover the block. As soon as the flowers make their appearance, do not allow more water to lodge upon them than can be avoided. It is a heat-loving subject, and neither when in bloom nor at any other time should it be submitted to a low temperature or cold draughts.

INSECTS.—With me the plant was never at any time attacked by insects. T. B.

Olive-growing in California.—Adjoining Hollister Place is the 2000-acre ranch of Mr. Ellwood Cooper, a model country place and fruit farm. It is almost unnecessary to rehearse the statistics of the 150,000 Eucalyptus trees of fifty different varieties, the 12,500 Almond trees, the 4000 Walnuts, the 3500 Olives, the 200 Figs, the 200 Vines, and the odd hundreds of other fruits. Mr. Cooper was the first to introduce the Eucalyptus

tree to California, and has seven miles of windrows and shade trees of this one kind of tree on his place. He was the first in this country to engage in the manufacture of olive oil from Olives. Don Josef de Galves brought the first Olive slip to California in 1769, and around all of the old Franciscan missions are groves and remnants of Olive groves that sprang from those original cuttings. Mr. Cooper planted his first Olive slips in 1873, and he has now a fine grove in full bearing, although the trees are mere saplings in point of age compared with some of the century-old Olive trees in Italy and the south of France. To the inexperienced an Olive tree looks very much like a Willow tree, save that the leaf is darker and the under side of it is of silvery white, that shows with beautiful effect when stirred by the wind. Botanically it belongs to the Jasmine family; has an evergreen foliage; produces fruit in seven years when grown from the seed, and in four years when grown from a cutting. It blooms about the 1st of May, and the fruit ripens from November to January. The Olives for picking are gathered in September or October, before they are fully ripened, and put to their bath of wine, and the oil is made in mid-winter. As to the profits to be realised from olive oil after the first ten years, one has only to count up the facts to be gathered on Mr. Cooper's place. Seventy Olive trees are planted to the acre. The average yield of one tree in a good year is 20 gallons of Olives, from which 3 gallons of oil are made. The oil is sold wholesale at 4s. for each quart bottle, and counting at this rate an acre of Olive trees ten years old will give £200 clear returns in oil. During the last winter 14,000 bottles of oil were made on the Cooper place.—*Pharmaceutical Journal*.

ROSE GARDEN.

TEA ROSES AS ANNUALS.

VIRTUALLY, the shoots may be treated as such in cold or ungenial localities. Neither need those who may unfortunately have had their Teas cut to the ground by cruel frosts despair of cutting good flowers the following season. Tea Roses on their own roots have a marvellous potentiality of growing force and blooming capacity in their root-stocks or large roots; hardly have they lost one set of branches than they set to work again and produce another, and these grow so fast under stimulating conditions, that they have plenty of time to grow and bloom once or oftener during the season in which they are produced. It is in this rapid growth and their capacity of blooming as they grow that Teas differ so much from the usual run of Hybrid Perpetuals; these last as a rule only bloom perfectly on the well ripened wood of the previous summer. Of course a few of them also bloom in the autumn on wood made during the current year. But the exception in regard to Perpetuals so-called becomes the rule in regard to Teas. Hence it is possible to lose the tops to the ground line and yet reap good results. The possibility of treating the tops of these Roses as annuals opens up to the cultivator new methods of cultivation. For example, the protection of dwarf Roses on their own roots may be well-nigh dispensed with. If these Roses can break strong enough from the root-stocks and form nice flowering bushes within six months, then it matters comparatively little what becomes of the old tops. And they can; there is no calling such facts in question. Still, it is necessary to earth up the root-stocks, say 3 inches or 4 inches at the least, and make sure of a sufficient base, to throw up from three to a dozen good young shoots. The tops should also be left on till the early spring, say March, in this mode of culture, as if pruned in the autumn the excitability of Tea Roses, their impatience of rest would cause

the young shoots to break so early and force them to grow so fast, that they would run the risk of being frozen and killed in the spring.

Another point must be guarded against in this mode of culture, and that is earthing up the root-stock too highly or protecting it too much; this would either weaken the breaks or force them to be produced too far from the roots. Clean strong breaks as near the ground as may be, are the two chief secrets of success in this mode of cultivating Tea Roses. Both may be greatly fostered by giving the plants an annual top-dressing soon after they break into shoots. Should dry weather set in, it is also of great service to give the plants several good delugings with sewage or other manure water. As the Roses have to make their growths and yield one or more good harvests of bloom all in the same season, it is important that they should lose no time from a scarcity of food or water.

In cold localities, too, where this mode of cultivating Tea Roses will prove of most service, the plants should be placed in warm sheltered sites, and on dry warm soils; where soil and climate are too ungenial for the wintering of the roots of Tea Roses in the open air, the latter may be lifted and either potted up for the winter, or, better still, laid in by the heels in frost-proof pits or frames. By removing the tops from them as they are lifted, a great many may be stored in a very small compass. Where this is done, however, a low temperature, not above 40° should be maintained, as nothing could scarcely be more injurious than the forcing of Tea Roses to break into shoots before being turned out into the open air for the summer.

Light leaf mould is the best compost to place Tea Roses in throughout the winter. If the straggling roots are gathered pretty closely together at lifting, and a handful of leaf mould thrown among them and kept in position by a layer of Moss and a tie, and the plants inlaid in leaf mould or Cocoa fibre refuse, they will be found a mass of white roots at planting out time, and these roots will strike into the soil at sight or touch and speedily fill it with feeders. Unless some such means or the potting up of the plants is adopted, the check to root and top growth at planting is a serious check to this method of treating Tea Roses as annuals. Of course where so very much has to be done in a short time no delay must occur from the start to the finish. There is yet another mode of treating Tea Roses as annuals by which prompt and successful results may be obtained. But it is so improvident of plants, that few would care to adopt it, and I must not be understood as recommending it. Cuttings may be rooted as early in the season as practicable, grown on either under glass or in a warm position in the open air into as strong plants as possible during the summer, safely protected in winter, and finally planted out from the first of April to the middle of May, according to climate and locality, stimulated to grow and flower to their uttermost the first season and left to live or perish during the winter as climate or constitution may determine; or such young plants may be potted up, or laid in by the heels, as already advised for older or larger ones.

This plan is carried out with more ease by those who grow Tea Roses under glass. These afford good supplies of early cuttings that may be rooted and fit to plant out by the end of May, so as to yield a fair harvest of fine blooms the same season, thus avoiding the interregnum of a year's culture in pots or in temporary quarters. By some such means as those here

pointed out, not only may the number of Tea Roses be multiplied almost to infinity, but thousands of those who have hardly as yet attempted to grow them may do so with very creditable success. Fortunately, no class of Roses is more readily multiplied by cuttings than Teas, and in none are maiden shoots and roots more essential to healthy growth and prompt blooming. By replanting Teas annually—the third condition of success—maiden soil for the roots is likewise provided. Perhaps this last is of the most importance, for this renders our experience the more obvious; but the fact is demonstrated that no plants become soil-sick so soon as the better classes of Tea and other Roses. D. T. FISHER.

ROSES AT CHRISTMAS.

THESE are every year becoming more plentiful and, I had almost written, more beautiful. Some, however, would doubtless object to the latter phrase, as the older Roses have beautiful and tender associations clustering around them, that the new can never have to many readers. Who can ever forget the first Rose gathered at Christmas-tide? It may have only been a dazzling bud of the crimson China, Cramoisie Supérieure, Fabvier, or Gloire des Rosomanes, a delicate bud of Mrs. Bosanquet, or Bourbon Queen, or a soft yellow one of Smith's yellow China. But surely simple Roses may have moulded as well as enriched the history of many a life. Their very rarity in these olden times enhanced their value. Roses at Christmas then were almost as rare as white sparrows, and well-nigh as attractive. Now, of course, Roses at Christmas, and all the year round for that matter, are considered the correct thing in the trade and also in private gardens, in which means are allowed for their production. These are briefly shelter, warmth, skill, and a good stock of plants to operate upon. It reads like an axiom to affirm that without shelter Roses at Christmas are an impossibility. But the impossibility is not always absolute. Every now and again we are favoured with a winter so mild and open that Roses are gathered in the open air right up to the end of the year. Notwithstanding the taste of frost we have had, it is quite possible that this Christmas may see some fair Rosebuds in the open air. But these are at the most and best but chance products, appearing at rare intervals, and by no means to be depended upon. But the shelter of glass brings Roses at Christmas within range of comparatively easy possibility. Add to shelter

WARMTH WHEN NEEDFUL, and the possible advances to certainty. A good deal has been written about the value of unheated glass houses for Roses. They are most valuable, and seldom fail to yield rich harvests of fine blooms in the spring. But to command Roses at Christmas another powerful factor in producing artificial warmth must be within reach of the cultivator. This will be obvious at a glance when it is borne in mind that the most favourable blooming temperature for Roses is embraced within the range of the 15° lying between 50° and 65°. To hope to command such a temperature in all weathers without an ample supply of and full control over artificial heat would be quite impossible. Doubtless in mild winters fair supplies of Roses may be gathered from unheated houses; but often when these are most promising severe frosts either check or destroy promising forests of buds, or the damp causes them to fog off at their base by wholesale. Such mishaps are impossible with artificial warmth available.

SKILL is the next factor in the production of winter Roses, and this is as much needed in the selection of varieties and the character of plants employed as in their general culture. As to varieties, doubtless Tea Roses may be depended upon to yield the best results at this early season. Truly well-proved sorts as the following seldom fail to yield good results. President is thus placed at the head of the list as the surest to bloom at

Christmas, or at any other time when wanted. Niphetos.—This exquisite white Rose, crowning almost every shootlet with its matchless bud, flowers freely as soon as it makes a few inches of growth. Safrano and Isabella Sprunt bloom in a similar way, and with equal or even more freedom. True, their buds are small and their blooms semi-worthless, but their constant floriferousness places them in the front rank as winter bloomers. Bougère is also a most useful and floriferous Rose. The following may follow in the order in which they are placed: Gloire de Dijon, Alba rosea, Marie Van Houtte, Souvenir d'un Ami, Souvenir d'Elise, Safrano, Jean Ducher, and Homère; among Noisettes—Lamarque, Solfaterre, Triomphe de Rennes, and Narcisse. Maréchal Niel I have not placed among Roses flowering at Christmas, as more experience is needed on this point. It has, however, thoroughly established its reputation as one of the finest and earliest Roses in the new year, and one of the grandest, sweetest, and most useful at all seasons. There are also

THREE USEFUL BOURBON Roses that should be grown to bloom at Christmas. These are Bourbon Queen, Mrs. Bosanquet, and Souvenir de la Malmaison. This beautiful Rose mostly comes of fine quality and perfect form out of season, that is, all through the late autumn or winter. The Queen of the Bourbons and Mrs. Bosanquet make useful companions, and contrast fairly well with such useful varieties as Isabella Sprunt and Safrano. First-class Perpetual Roses are now so numerous that it is impossible to choose a dozen and a half or so for blooming at Christmas without leaving many out that ought to be included. On the whole, the following are as likely to yield bloom at that season as any other sorts. A useful service might be rendered to the winter culture of these Roses were readers of THE GARDEN to amend or add to this list from their own experience. Abel Grand, Alfred Colomb, Beauty of Waltham, Camille Bernardin, Centifolia rosea, Charles Lefebvre, Comtesse de Serenye, Dr. Andry, Duke of Edinburgh, Edouard Morren, Etienne Levet, Exposition de Brie, John Hopper, La France, Marie Baumann, Marie Rady, Prince Camille de Rohan, and Sénateur Vaisse. The next point is the

CHARACTER OF PLANTS to select for blooming at Christmas. In general terms, there is but a choice of three—planted out Roses, established in pots, and plants more recently lifted. The best and largest results are likely to be reaped from large Tea and Noisette Roses planted out in light, rather thin rich borders, and trained up walls, pillars, or roofs. Established plants properly manipulated in summer and autumn may be so managed as to yield a goodly harvest of bloom at Christmas. Plants established in pots may either be prevented flowering in summer or autumn, and so timed in regard to pruning and growth of young wood as to bloom pretty freely in December. Even if allowed to bloom, and this refers especially to Perpetual Roses, and pruned back hard in July, the plants might be so managed as to be again in flower at Christmas. A simpler plan than either that sometimes yields good results is to look through Tea or other Roses in the open air and carefully note their condition in regard to bloom. Those that are showing a fair prospect of buds taken up carefully and potted on the spot, with as little root disturbance as possible, and placed in cold, close frames till they recover their temporary check, incident to the most careful transference from the open, often succeed remarkably well. This brings us to our last point—

PROPER TREATMENT, the most crucial of all. The most perfect shelter, any amount of warmth, and the finest material, all will fail to yield Roses at Christmas without skilful management. This is the sort of skill that determines such points as soil, size of pots, time and extent of pruning, the admission of air, the giving of water, exposure to light, &c. In general terms, the soil should be light rather than heavy, its bulk and mass relatively dry—that is as far as possible removed from any excess of water—the drainage perfect. Those grown in pots

should be in small ones, the roots not too compressed and the whole mass of earth full of them. Nothing but great experience can determine the exact time or measure the proper extent of pruning Roses, so as to assist as far as any pruning can do their blooming at Christmas. In most cases any pruning needed should be given at periods ranging from six months to six weeks before the bloom is needed. Recently lifted plants will probably need no pruning. Abundance of air when the external air is over 45°, little or none when it is under 40°, should be the safe rule on which to ventilate the winter Rose house. Only give water when the roots are actually dry. Let the water be at least 5° or even 10° warmer than the atmosphere of the house at the time. Clear or very weak manure water, like weak tea, is the most suitable; all gross and stimulating food, either in a liquid or solid state, should be withheld from Roses that are forced to bloom at Christmas. Houses for the winter flowering of Roses cannot be too light. Every ray of our winter sunshine will prove invaluable. Roses in pots should be placed in pits, low houses, or stages within, at the most, a yard of the glass; and the higher the quality of the glass, and the cleaner it is kept, the finer will be the foliage of the Roses, the more fragrant and more perfect their blossoms.

ROSES OUT OF SEASON by no means escape the usual insect pests. On the contrary, some of these attack them with unusual force and vigour. Among these caterpillars, grubs, aphides of all colours, and mildew are the most formidable. In proper houses and under skilful treatment the latter ought not to prove troublesome. Grub-hunting becomes almost pleasant indoors, and the chances of success increase as the area of the feeding grounds diminishes, while tobacco smoke in close houses makes short work of the fly; the latter ought not, however, to be used when the Roses advance towards cutting condition, as a Rose saturated with the weed is worse than worthless at Christmastide or any other season.

D. T. FISH.

THE £750 ROSE: WM. FRANCIS BENNETT.

BY PETER HENDERSON.

I SUPPOSE that most people have heard the story of Mr. Evans, of Philadelphia, having paid this large amount to Mr. Henry Bennett, of London, probably the largest amount that was ever paid for the stock of any Rose in this country. Cheap enough it would have been in all probability had it not been trammelled with the extraordinary condition that no cuttings or plants should be sold for four years, Mr. Evans having to look for his profits from the cut flowers, but here is where the snag comes. It is well known that Rose-buds can not now be sold unless cut with long stems, and the question arises, how is Mr. Evans going to prevent the cuttings attached to the buds from being used by others for the purpose of propagation? In a visit by some half dozen of us, all veterans in the trade, to Mr. Evans' place last March, the question was raised for Mr. Evans' benefit as to what were the best means of killing the leaf-bud, or of preventing its growth. Various remedies were suggested, such as touching the leaf bud with acid, cutting it out, and squeezing the bud and stems. The two latter methods we have experimented with and find that neither of them is safe. Cuttings of several varieties of Roses put in a month ago, that were squeezed both in the stem and bud, granulated throughout and rooted quite as quickly as others put in at the same time without mutilation, and seemingly will make quite as good plants. Others from which the buds were cut—leaving the leaf on of course—in two out of three developed latent side buds, so that it seems neither of these methods is safe. If the suggestion of destroying the bud with acid were practicable it certainly would be objectionable from the danger to the hands when handling the Roses. The subject becomes one of very general interest, for although it is rare that such an extraordinary compact as that between Mr. Bennett and Mr. Evans occurs, yet cases must constantly be coming up where

the buds of new Roses that may sell only at 5d. each must have cuttings attached to them where the plants sell at 4s. or more each. So that the owner of new varieties must either sacrifice his flowers or give for 5d. what is worth to him 4s.—*Gardeners' Monthly*.

FORCING ROSES.

IN order to obtain the best results from forced Roses, it is desirable to delay placing them in artificial heat until the days get long enough to afford them sufficient light to give strength and consistency to the leaves and branches. This applies especially to Hybrid Perpetuals, which do not respond so readily to an increase of temperature as Tea-scented varieties. I am aware that it is possible to get Hybrid Perpetuals in flower as early as February, but blooms obtained so early are wanting in colour, and the petals are thin and small. Unless wanted for some special purpose, they should not be placed in heat so early as to render it needful to afford them a high temperature in order to bring them into flower. The best Roses are those upon plants that have been allowed to come on slowly in an ordinary greenhouse temperature. Roses to be thus dealt with should be pruned in December, and allowed to remain in some structure just secure from frost, where they will get sufficient protection to induce the buds to form and gradually develop. The middle of February is soon enough to give them an increase of temperature, and then the day maximum heat ought not to exceed 55°, 10° less being allowed at night. Under this treatment they come on without any increase of artificial temperature until the flower-buds are visible; during this time they should have a very light position and be as near the glass as they can be got without coming in actual contact with it. Gentle syringing night and morning will assist in promoting vigorous growth, and regular supplies of manure water will also help them. They will bear such a gentle stimulant as often as they require water. Respecting the

TEMPERATURE FOR FORCING ROSES, apart from whether it be early or late in the season, the cultivator is perforce limited in its application if he desires a full measure of success. While the young growth is forming, and up to the time when the flower-buds are visible, forcing must be slow, or the flowers will be few in number, and the growth drawn and weak. After flower-buds are formed, a moderate increase of temperature is quite safe, but at no period of their growth should the maximum heat exceed 70° during the daytime, and then they must have abundance of light and a moderate amount of air, but up to the end of March 60° by day and 50° by night would suit them better than 10° higher, but 50° would not be sufficient to get them into flower very early. As growth advances it should be neatly tied out, so that each branch stands separate from the others, and in the case of old plants something more stimulating than manure water is desirable. For such purposes we use some of the chemical manures now in the market, a large tablespoonful of which for a 12-inch pot is sufficient. The first supply should be given as soon as the flower-buds can be seen, and another in about a fortnight afterwards. A thin shade on the glass on very bright days will keep the plants from being severely distressed by the action of strong sunshine. Gentle syringing must be kept up until the flowers begin to open, unless an attack of mildew should set in. In that case a drier atmosphere should be maintained for a few days, and the infected leaves dusted with flowers of sulphur. In the early stages of growth the Rose maggot must be looked for, every curled leaf must be examined, and the pest destroyed.

TREATMENT AFTER FLOWERING.—Forced Roses are sometimes hardly dealt with after they go out of flower. They are set about in odd corners and in cold draughty positions. Such treatment is not right. Roses forced early require nearly as much care after they have done flowering as before; the new-made growth requires to be gradually hardened before it is exposed to the

open air. As a matter of fact, a good deal of the next year's success depends on how the plants are treated when they go out of flower. If the leaves are allowed to develop and harden up in a gradually reduced temperature compared with that of the forcing-house, there is a much better chance of their producing a good crop of flowers the next year than is the case when they are exposed to a low temperature suddenly after being brought from a warm structure. Even those which flower in May should be gradually hardened off before they are placed in the open air. A deep pit from which the lights can be taken during the day in favourable weather is the most suitable structure in which to harden off forced Roses.

J. C. C.

Spent Hops as manure.—Hops which have been used in brewing make, I find, a valuable manure for pot plants when rotted down to a kind of leaf-mould. The best way of keeping them sweet is to put them in heaps out-of-doors; if stored under cover they get mouldy and are of little use, but when exposed to the atmosphere they quickly decompose and become fit for use. For mixing with potting soil they appear to suit almost any kind of plant that delights in a rich, porous material, such as Pelargoniums, Fuchsias, Coleuses, and other rapid-growing plants. For those who experience any difficulty in getting good leaf-mould this material forms a good substitute. I know several town gardeners who use spent Hops freely both for potting and also for enriching their flower beds and borders, and their plants bloom well under such conditions. I may also add that spent Hops produce a very strong heat. They are, therefore, useful for propagating purposes or for forcing anything that requires bottom-heat. I have used them in frames for striking cuttings off rapidly; also for starting Asparagus and Seakale into active growth. If mixed with leaves and stable litter the result is a good manure for many garden purposes, and in spring, when potting off small plants, propagating, and seed sowing, a good supply of light, rich soil is of the greatest importance. It should, however, be stored in an open, airy shed, as nothing is so conducive to successful plant culture as having the soil for potting in good friable condition.—J. G., *Hants.*

TREES AND SHRUBS.

SCARCITY OF HOLLY BERRIES.

I AM not aware whether this is general, but about here Holly berries are few and far between. The spring weather that thinned our bush fruits to something near to *nil*, wholly destroyed the Plum blossom, and very seriously cut into our Apples and Pears, also swept away the fair prospect of a feast of coral berries for Christmas-tide. As usual, too, the more scarce the berries, the more ravenous the birds, so that unless the berries are stored betimes, none will be left in shrubberies or hedgerows by Christmas Eve. The ways of birds among the berries are past finding out. For example, many of the Thorns are quite cleared of Haws, not one being left; whereas almost touching them are other trees with their leafless boughs so studded with them, that their branches look like delicate sprays of coral. By the way, I never remember Thorns being defoliated so soon nor so completely as this autumn-tide. The majority of trees kept their foliage so long that the autumnal tints were less fully developed than usual, apparently from lack of time. This made the exceptional state of the Haws the more apparent. Hips as well as Haws seem unusually abundant. The former may be turned to good decorative purpose at Christmas-tide; but Haws, though striking in the mass on the trees, are virtually useless for church or room decoration. Exception must, however, be made in the case of some of the larger-leaved and berried species of Crataegus, which are not only highly ornamental, but durable.

D. T. FISH.

Hardwick House, Bury St. Edmunds.

Hovenia dulcis.—Though with a Linden-like leaf and vigorous habit of growth, this is of the Buckthorn or Rhamnaceous family. It comes from Japan and proves perfectly hardy. Mr. Brackenridge calls it a "Rare, beautiful, hardy, useful, and ornamental tree, about as hardy as the European Linden, and with a habit very much resembling it. Some of our trees are 30 feet high and have a spread of about 20 feet. These have bloomed and borne fruit with us for several years; the peduncles of the fruit are edible and pleasant to the taste, resembling that of a ripe Pear. The flowers, which are borne on branching panicles, make their appearance about June 1, and afford a supply of honey for swarms of bees for a period of two to three weeks. Our original plant was brought from Japan by Mr. Thomas Hogg, of New York, to whom the country owes a debt of gratitude for this and many other fine plants and trees which he has been the means of introducing."—*Gardeners' Monthly.*

Beauty of yellow Pine.—The *North-west Lumberman* says: "Yellow Pine, hard finished in oil, is the rival in beauty of any wood that grows, not excepting the costliest hardwoods. It is susceptible of receiving and maintaining as high a degree of polish as any wood with which we are familiar, and as to durability, when thoroughly impregnated with oil, it may be said to be almost everlasting. In such a condition it is impervious to even hot grease and other substances that leave an ineffaceable stain upon White Pine, Maple, and various other woods. Flooring for use under carpets should be largely sap-wood, and when exposed either for inside or outside use, should be as nearly all heart as possible. For inside trimming, wainscoting or panel work, the curly variety—which, by the way, can only be obtained in limited quantities, and ought to bring from £12 to £16 per thousand in any market, instead of only half that sum—is, in the writer's estimation at least, superior to either Cherry or Bird's-eye Maple." Unfortunately, the name "Yellow Pine" is given to so many kinds of Pine, that we should be glad to know what species receives this name in the North-west.

Thuja Lobbi and T. gigantea.—There seems to be still various opinions about the names of these Conifers—a circumstance not to be wondered at when we look over the trade lists that annually appear. Some have T. Lobbi as gigantea and T. gigantea as Libocedrus decurrens. The same occurs in Gordon's "Pinetum." If rapidity of growth has anything to do with the name, I hold that T. Lobbi is entitled to be called gigantea. Here it grows at three times the speed of T. gigantea, and is altogether a more hardy and stately looking tree. Several are growing here on situations exposed to all the winds that blow. They range from 40 feet to 56 feet in height, and are clothed from the ground upwards with their ferny looking foliage, "and are dense enough at the bottom to turn chickens;" whereas T. gigantea, growing under the same conditions, has a tendency to get bare at the bottom, and in time becomes mopsy-looking. T. Lobbi is best adapted for making a screen or hedge, but should not be clipped; when it requires trimming, use the pruning knife. As a timber tree it has few equals, but the question arises, what quality of wood does it produce? Perhaps some of the correspondents of THE GARDEN may be able to supply this information.—W. B., *Windermere.*

SHORT NOTES.—TREES AND SHRUBS.

Laburnum in flower.—In a garden near Tunbridge Wells is a Laburnum tree in flower. There is not a leaf on it, but there are numbers of seed-pods still attached to the branches. The bunches of flowers are small, but the tree is well covered with them.—G. S. S.

Leycesteria formosa.—The notice of this shrub in THE GARDEN the other day induces me to add that it is thoroughly naturalised here. Large numbers of seedlings spring up everywhere yearly. The situation is sheltered, and the soil on a moist bottom. Established plants make rods 9 feet or 10 feet high in one season. Many have been planted in the woods, as I have been told the berries are an attraction to pheasants. Can anyone inform me if it really is so?—J. M., *Charmouth, Dorset.*

GARDEN FLORA.

PLATE 419.

MUTISIA DECURRENS.

FEW plants are more beautiful than this Mutisia—probably the finest of the genus to which it belongs; it ranks even as one of the choicest and best of the Compositæ. The Mutisias number about thirty-six species, all South American, and they are generally scandent shrubs, climbing by means of leaf-tendrils. M. decurrens was introduced by Messrs. Veitch, through their collector, Mr. Pearce, from the Andes of Chili, more than twenty years ago, but it has always been rare, no doubt because of the difficulty which has generally attended its propagation. Not long ago there seemed to be small probability of getting a plant of it, but in summer I found there were plants of it in the Edinburgh Botanic Garden, and I have since received one. It is a dwarf climber, a few feet in height, producing stems which branch but little. The leaves are lanceolate and undivided, with a blade which runs down the stem, and a midrib which is prolonged into a tendril, single or divided, by means of which the plant climbs. In young plants the tendril is undivided, and the leaves seem to have a prehensile tip, like those of Gloriosa. So far as we know, the Mutisias are the only tendril-bearers belonging to the Compositæ. The magnificent flower-heads of this plant in a measure resemble great Gazanias, and are from 4 inches to 5 inches across; they are supported on long stalks from 6 inches to a foot in length; the ray florets reflex, and are, as the annexed plate will show, beautiful in colour. The flowering season is from June to August.

CULTIVATION.—It is a suitable plant for the wall of a conservatory where we should always have one or more for safety's sake, but owing to its hardness there should always be plants of it out-of-doors, where, under the most favourable conditions it may be expected to do well. It has the reputation of being somewhat difficult to grow, but in every garden a place could doubtless be found in which it would flourish. It stood the severe winters of 1860 and 1861 unharmed without protection in the open air at Exeter. At Floors Castle Mr. Knight found it to be hardy against a south wall, where it flowered every year. At Eastnor Castle, in Herefordshire, it was found by Mr. Coleman to do better in the open than against a south wall, where its leaves became rusty. When planted in an open part of the grounds, with good loam and peat on a cool bottom, it was found to flourish and form a striking object. It grew vigorously, flowered profusely, and even ripened seeds from which young plants were raised. Against a south wall, however, it sometimes succeeds admirably, as many as seven dozen blossoms having been produced at one time. At Kew it succeeds well in a large pot in one of the octagons of the temperate house, trained on wires running up one of the walls between two of the windows. It is impatient of much training, and out-of-doors it should be allowed to scramble over an old shrub, over root-work, or similar support. I think it was this species which used to grow as a pillar plant beside one of the walks in the grounds at Hillfield, Reigate, in Mr. Wilson Saunders' time. In some parts of the kingdom partial shade seems to be an important element of success in its culture. Its requirements are probably not very different from those under which other Chilean plants, such as Philesia, Lapa-



geria, Berberidopsis, Mitraria, Sarmienta, and *Tropeolum speciosum* are found to flourish. For these, in general, some shade, but plenty of light, is necessary; they are fond of moisture, and a burning summer heat is the reverse of being conducive to their health. We may therefore expect that in Scotland a south wall would be the best position out-of-doors for this *Mutisia*, while in dry Cambridgeshire it would be quite useless to plant it in that position. It should be an excellent plant for the Isle of Wight, the Isle of Arran, the Scilly Isles, and Devon and Cornwall, where it would no doubt flourish under full exposure, but in dry and more sunny climates shade should be considered necessary. With regard to propagation, I am unable to say much, as I never had the opportunity of trying it, but, judging from the small plant in the Cambridge Botanic Garden, it should be increased by taking off carefully the small shoots which grow from below the soil; in this way it has been, I believe, propagated by some. There may be, however, a better way, for Mr. James O'Brien once had a fine stock of it in Messrs. Henderson's nursery, in the Edgware Road. It is considered to be a difficult plant to propagate, and as good seeds are produced, it will always be best to obtain them if possible. Root cuttings might be tried, or it might be grafted on *M. ilicifolia* when it can be had, as that strikes freely from cuttings.

OTHER KINDS.—There is only one other kind which I am sure is in cultivation, and that is *M. Clematis*, but there may be another, viz., *M. ilicifolia*. Only four species have been introduced so far as I know, but several other names belonging to them have been used. The first we had was *M. speciosa* (*M. arachnoidea*) introduced to Kew about 1823, but this has long been lost, and it is one of the least showy. It has pinnate leaves with small purple florets in comparatively insignificant heads and is scarcely worth culture. The next arrival,

M. ILICIFOLIA (*M. latifolia*), is a much finer plant, well figured in *THE GARDEN* (plate 32 Vol. X., p. 134). It is both singular and beautiful; it has Holly-like leaves furnished with tendrils, and pink, or sometimes nearly white ray florets. It is a variable plant, slight forms of which have received several different names. At Aberdeen it grew for several years with no more protection than that of a wall, and, therefore, it is fairly hardy. In this position it flowered freely, but never ripened seeds; cuttings, however, were rooted in heat without difficulty. This is common on the hills around Valparaiso, and if quite lost to gardens—as most likely it is—it might be re-introduced, probably without much trouble. It was cultivated by Mr. Wilson Saunders, and was figured in the *Botanical Magazine* ten years ago.

M. CLEMATIS is grown at Kew and in Messrs. Veitch's nurseries at Chelsea. Its appearance is that of a leguminous plant, and it grows freely without special effort on the part of the cultivator. Under glass it flowers very rarely, but out-of-doors in warm localities it is said to blossom well. The flower-heads are rich red in colour and highly ornamental; the leaves are pinnate with several pairs of alternate or opposite leaflets, and the rachis terminates in a tendril which is usually branched. This is a plant which lovers of choice things should try in such places as the Isle of Wight. It has never been figured, I believe, in any English work. Usually it is grown as a greenhouse

plant, and probably there are many specimens of it in the country.

M. GRANDIFLORA is a kind which might be introduced with advantage. It has brilliant red flower-heads 6 inches high from the peduncle, and 5 inches across the top. Its introduction has not probably been attempted, and it is rare perhaps in its native country, as Humboldt found it only on the mountains of Quindiu. It is a lofty climber, and would be magnificent if it succeeded in any large conservatory. Every pretty-flowered shrubby composite should receive the attention of collectors, and especially those with cirrhose leaves, for they would either be *Mutisias*, or something new to science.—R. IRWIN LYNCH.

*** Our plate was made from a plant which flowered in Mr. B. Hooke's garden at The Towers, Hillingdon, Uxbridge, on the 17th July last. Mr. Hooke grows this plant better than ever we have seen it elsewhere, and while he was at Bradfield, in Berkshire, he was even more successful with it. He has favoured us with the following note respecting it: "The plant from which the annexed plate was taken is growing on lattice-work on a south-east wall, and was put out in May twelvemonth. It continued to grow all through the last mild winter, until in June it was 12 feet high, when it produced its first bloom, quickly following by others amounting to nearly thirty in number, and they remained in perfection for two months. *M. decurrens* is a true climber, as may be seen by the tendrils, which are naturally formed at the extremity of the foliage, and should always be planted against wire-work and mixed with other creepers, as the leaves are rather shabby-looking at the bottom, and nothing is perhaps better than the *Clematis* for this purpose. In planting the *Mutisia* in a dry soil and situation it would only be necessary to add some leaf mould or rotten manure to the border, but if the soil is clay and wet it should be removed to the depth of about 18 inches, and some good sandy loam substituted; this should be extended right and left for some distance, as this plant is somewhat peculiar in its habit, running underground and throwing up at intervals new growths, which will be the flowering stems for next season, and those which have flowered may be removed after the maturation of the seed. I have been fortunate in obtaining seeds, and some have already germinated, so that a good stock may be secured in this way, as well as by suckers, which, if they come up in the border, I would remove for this purpose, or twist back against the wall to fill up a blank space. I would, however, recommend that the shoot running along the wall should not be interfered with in any way, or in all probability the whole plant will suddenly die. It is most sensitive to any mutilation, especially during the time when it is in bloom. I have never found it necessary to protect the *Mutisia* except in unusually severe winters, and then only with some Bracken over the roots and a little tied opposite the young growth at the extremity of the shoots."

Chrysanthemums out of doors.—The absence of severe frost in November has been favourable for out-door *Chrysanthemums*; even the Japanese varieties have flowered in the most satisfactory manner, and some of the reflexed flowers have also been exceptionally good. For growth out of doors, however, the *Pompones* are the best, at least where large quantities of cut flowers are required. Amongst them the best varieties are *President*, *Bob*, *Rose d'Amour*, *Lilac*

Gem, *Jersey Beauty*, white *Cedo Nulli*, yellow *Cedo Nulli*, *Bijou d'Horticulture*, *Mrs. Dix*, and white *Trevenna*. We have them planted against warm walls, and in some cases between fruit trees. Early in April the old plants are dug up and divided, and the most promising portions set apart for planting again, the rest being thrown away; a little manure is then mixed with the soil and the plants are put in again. As they advance in growth they are kept up to the wall by means of string, which is all the attention they get.—J. C. C.

SEASONABLE WORK.

FLORAL DECORATIONS.

WHERE a considerable amount of dinner-table decoration has to be done, a good supply of Ferns and *Selaginellas* should be kept up in small pots. Of the former, *Adiantum cuneatum*, *Pteris serrulata*, and its crested variety will be found serviceable. Of the *Selaginellas*, *S. denticulata* (*Kraussiana*) and its different forms are the best. Where such as these are grown, a considerable change may be made in the mode of grouping and arrangement, in order to give variety and avoid monotony. A good central group may be made in the following manner: If proper receptacles are not at hand, a thick oval layer of brown paper on the cloth will answer, or perhaps what would be better, a large oval dish, with a slight layer of Moss on the bottom. For the outer edge select somewhat bold foliage, such as that of the variegated forms of *Begonias* or *Adiantum farleyense*. If *Calanthe vestita* can be had with well-developed spikes, select four or five plants of it, turn them out of their pots, and arrange them on the Moss. Then, if Ferns are at disposal, as previously mentioned, they should be likewise used in sufficient numbers to make a good groundwork to the whole. Neither the *Calanthes* nor Ferns will be injured provided they are well looked to afterwards, and they will produce sufficient variety without any additions thereto, unless it be one or more of the spikes of *Calanthe Veitchii* to furnish colour. Still keeping to the same base as a commencement, a fringe of rather bolder forms of Fern foliage may be first arranged, then fill up the central part with small Ferns, &c., as aforementioned, adding thereto one plant of *Cyperus alternifolius* as a centre. Then insert a few spikes of *Eucharis*, or one or two each of *Roman Hyacinths* or *Paper-white Narcissus*, using as a contrast thereto some sprays of *Euphorbia jacquiniæflora*, or two or three rather small bracts of *Poinsettia*. For sideboard decoration the Japanese forms of *Chrysanthemum* make a bright and effective display, two or three colours being sufficient for one vase. We think these look best when arranged by themselves, as do also the large flowered incurved varieties. As these will all soon be over it will be advisable to make the most of them while they last.

INDOOR PLANTS.

VIOLETS.—Where a continuous supply of these is wanted through the winter, the stock for the purpose requires to be treated in different ways. During the present autumn Violets have bloomed out-of-doors freer than usual, and so far have saved the necessity of bringing them on by other means. Where plenty of leaves are at hand so as to make up beds that will give a little heat to stimulate root action, and to throw off enough top warmth to keep the frames placed over the plants at a genial temperature, there are few better devices by which these sweet-scented flowers can be had, as under such conditions they usually succeed well. Beds of this description must not, however, be made too warm; if too great a body of leaves is used they sometimes become over-hot. They should be put together at intervals, putting on a few inches of soil, upon which set the plants, which ought to be taken up with good balls, having as many of their roots intact as possible; place them as close as the clumps will stand, and fill in the interstices with a little loose soil, after which water moderately, and give air daily propor-

tionate with the warmth in the bed and the condition of the weather. It is an advantage to treat them in this way, so as to draw out the flower-stalks a little, which makes them more manageable in arranging, but if kept too warm or overmuch confined, the stems become too weak to support the flowers without drooping when exposed.

WINTER FLOWERING EPACRISSES.—The earliest blooming varieties of these are frequently kept a little warmer in autumn than ordinary greenhouse stock, the result being that they flower earlier, but the warmth also has the effect of exciting growth; and if after they have done flowering they are submitted to cooler treatment, they, like the Heaths, are liable to die off. In fact, it may be taken as a rule that any plant, however hardy it may naturally be, that has its growth started in the autumn or winter should afterwards be kept on moving gradually, or the check will be such as to induce ill health. As soon as the flowering is over shorten all the shoots well in, and if possible keep the plants in a temperature similar to that which has induced them to grow. So managed the progress they will make for the next two months will be little, but the check that so often destroys them will be avoided.

CHRYSANTHEMUMS.—Cuttings of these may either be put in about this time or in February or March; in the former case they should be put in pots or pans, kept moist, and as close as they will bear without causing the leaves to damp by covering with hand or propagating glasses, but at the same time they should not be kept warmer than the temperature of an ordinary greenhouse. In this way they root slowly without the tops getting at all drawn, and as soon as struck they should be placed near the glass and have plenty of air, moving them singly into small pots about the beginning of March. These early propagated plants produce larger blooms where severe thinning is practised, and also a greater number of flowers where the plants are grown for ordinary decoration than those struck later. In all cases see that the cuttings consist of short, stout shoots, and not those that have been drawn up through the plants being crowded together whilst in bloom; where the cuttings are produced under the latter condition the plants are never so strong as they should be, and it is impossible to keep their lower leaves fresh on them through the summer. After the general stock has done blooming, all not required to furnish cuttings may be discarded, or they can be planted against walls or anywhere where there is a chance of their flowering out-of-doors.

LAPAGERIAS—Plants of these done flowering, if at all affected with scale or thrips, should be syringed freely with insecticide strong enough to kill the insects now when little or no tender growth is present, sponging the leaves and stems afterwards, so as to remove any eggs that may remain. Both the red and white varieties are best increased by layering a few of the strong mature shoots, which, when so treated, produce through the spring suckers that in the course of the season can be taken off and potted singly. Supposing the plants to be planted out, the mode of procedure is to get some loose peaty soil to which has been added a little sand and leaf-mould. This should be laid about 4 inches deep on a portion of the surface of the bed in which they are already growing, and in this layer the shoots, covering them with the soil, so that the whole of the stems are buried and about one-half of the lower portion of each leaf, leaving the opposite end above the surface. The shoots must be pegged down with hooked sticks to hold them in their position. Keep the soil moderately moist, and when the young growths make their appearance above ground each should have a stick stuck in the soil to support it.

SALVIAS.—Those who grow a sufficient stock of the free blooming *S. Bethelli* and *S. Picheri* will find them amongst the best plants for associating with *Chrysanthemums*, suitable alike for general decoration and for cutting, for either of which purposes they will last longer than most flowers. If to succeed these some of the later

flowering varieties, such as *S. gesneræflora*, are grown, a good display may be kept up for a considerable time in the new year, but the plants of these late blooming sorts must not be kept too cold, or they will get stagnated in a way that will much interfere with their flowering. The opposite extreme must likewise be avoided, or they will come in too soon. A temperature of 40° at night will answer with the latest of the stock, and if the pots are very full of roots a little manure water should be given every week.

SARRACENIAS.—These are extremely liable to the attacks of brown scale and thrips. The latter are almost sure to make their appearance every summer, secreting themselves under the recurved mouth of the pitchers, and unless means are taken to destroy them as soon as discovered they injure the pitchers so much as to cause their premature decay, and even when the mature insects are killed there usually remains a number of eggs ready to start into life as soon as returning warmth brings them on. To exterminate these all the pitchers should now be carefully sponged with strong Tobacco water, and in like manner wherever scale exists an effort should be made to completely eradicate it, for so exceptionally fast does it breed on the young growths of these plants, that they are all but sure to get disfigured through the operations they are necessarily subjected to in removing it when the pitchers are soft and immature.

FLOWER GARDEN.

A GENERAL survey should now be made to see what improvement can be effected in the way of flower beds, as this and other alterations that it may be desirable to carry out can now be accomplished with speed and comfort; and not only these, but deciduous trees and shrubs transplanted before the close of the year stand a much better chance of succeeding than is possible for them if their removal is deferred even a week or two later. Any, however, of large size had better be left till next autumn, and to prepare them for lifting then they should have a trench opened around them now in order that their roots may be cut, when by filling in the trench again with light sandy soil the cut roots will form fresh fibres, which will be a great help towards rendering their future removal safe, and will assist materially in getting them quickly established. In the transplanting of trees and shrubs, the great point is to secure as many roots as possible, and to preserve each and all from injury. Another thing that militates greatly against the

SUCCESSFUL LIFTING and transplanting of trees is leaving their roots exposed, through which they become dry and shrivelled, and not only do the roots get in this unsatisfactory state, but the bark of the stems and branches contracts, and when allowed to get in that condition it is long before the sap vessels come into proper working order again. To prevent this shrivelling it is a good plan, if the trees moved be large, to bind their main stems and branches with Moss, large flaky pieces of which may be quickly tied on; the whole surface is thus enveloped by a covering which will preserve plenty of moisture, and keep the bark plump. Before doing away with beds by turbing them over it is a very important matter that they be well rammed, for if this is not done there is sure to be a gradual subsidence of the earth, and this sinking soon causes unsightly hollows that cannot be rectified till the autumn. As the soil of beds is generally richer than that on which Grass has been growing it is always advisable when carrying out the alterations adverted to above to remove a portion of the surface and replace it with soil of a poorer character, or the lawn will prove patchy for years. In the selection of turf the best is that near paths where it has been subjected to a good deal of traffic, which makes it come finer, and gives it altogether an improved texture and quality. The handiest sized turves for laying quickly and handling easily are those which are about 2 feet long by 9 inches or 10 inches wide, and 1 inch to 1½ inches thick, as, so long as they will hold together, the thinner

they are the better they will roll and unroll, and the more speedily can they be beaten down level in their places. The beating down should first of all be done during a dry time, and then immediately after rain, and if the roller is afterwards passed over, a firm level surface will be the result.

HERBACEOUS PLANTS are seen to the best advantage in wide shrubby borders with low evergreens to back them up, but these latter ought not to be of a kind whose roots spread widely, or they rob the plants and so spoil their growth. *Rhododendrons*, *Berberis Darwini*, *B. stenophylla*, and such like do not do this, and therefore should be largely made use of, as they are not only valuable on this account, but they are more desirable than most others on account of their moderate habit of growth and the great beauty of their flowers, which they bear so profusely in spring. For variety of foliage, *Aucubas*, *Euonymus*, and *Hollies* are the most suitable, and to these may be added the variegated *Dogwood* and *Acer fraxinifolium*, and by way of contrast to these, one or two of the dark-coloured *Nut*, which, with its rich coppery leaves, shows up well. As most herbaceous plants are fond of rich soil, the opportunity afforded when making a new border, of giving a good dressing of manure should not be lost. The kind of manure most suitable for the purpose is that of a mild nature and which has been lying by for some time to get well decomposed. Such as this is agreeable to most plants, and may be used freely, but it is always best to keep it low down.

FRUIT.

PINES.—Endeavour to maintain a bottom heat of 90° and a minimum top heat of 70°, with a rise of 10° by day in the fruiting pit. Look over the plants at least once a week, and water well with warm diluted liquid or guano water, when feeding is considered necessary. Dew the plants over with a fine syringe on clear, mild days, and moisten every part of the house with weak liquid when the house is closed for the day. If the fruit is to be kept for any length of time after it is ripe remove the plants bodily, or cut the Pines and remove them to a dry, warm atmosphere as soon as they begin to change colour. From this date the latter course is perhaps the best, as the suckers left on the old stools will gain strength and be in the best possible state for potting in February. Where a batch of promising Queens were selected last month and plunged in a bottom heat of 90° in a light house they will soon show to an experienced eye whether they are likely to throw up fruit without making a growth, and when this point has been determined more water may be given to the roots; but great care will be needed, as the best of plants may soon be spoiled by over-watering in winter. Keep a moist growing atmosphere by damping all available surfaces, but defer overhead syringing for the present. Plants now resting, and from which a growth may be expected before they show fruit, must be kept cool and dry until the commencement of the new year, when the treatment recommended for the earliest batch may be applied. In succession and sucker pits a general reduction in top and bottom heats may now be made. When fire heat is needed a minimum of 56° to 60°, with a rise of 10° by day will be sufficient. The bottom heat should not sink below 75°, neither should it be allowed to rise above 80°. Pay particular attention to watering, as plants in small pots placed over hot-water pipes soon become dry, and a check produced by the want of water is very likely to cause them to start prematurely when more heat is applied in the spring. Where fermenting leaves or tan are used for supplying bottom heat there is less danger of the plants becoming dust dry, but these should be regularly examined and watered before that stage is reached. Strong rooted suckers that were potted into fruiting pots late in the autumn should be kept near the glass, in a light span-roofed house, where they can have sufficient top and bottom heat to keep them progressing through the winter.

FIGS.—Although we have not as yet done more than warm the pipes in our early Fig house on fine mornings, the application of warm water to the roots, aided by fermenting material, has set the sap in motion, and the young Figs are beginning to swell. The trees are now regularly syringed twice a day, and the temperature is allowed to range from 50° on cold nights to 65° by day. When the terminal buds get a little more advanced the night temperature will be raised to 56°, and as this will necessitate more fire-heat, the daily syringing and watering will be proportionately increased. When young trees in small pots are forced, the most important operation is the supply of water to the roots, as one mistake in this part of the daily routine is almost sure to prove fatal to the most forward, and, as a matter of course, the most valuable portion of the crop. If plunged or placed on a bed of fermenting leaves the latter should be well worked before they are taken into the pit.

CHERRIES.—The early house from which ripe fruit is to be gathered in May should be closed about this time, and pot trees which have been standing in the open air may be cleansed, top-dressed, and placed upon shelves or borders where they will not be shaded by the permanent trees. The old May Duke and Black Circassian are excellent kinds for growing in pots, as they come in early, and being portable they can be removed to the open air as soon as the fruit is gathered, when the Bigarreau, Elton, and other late varieties trained under the roof can have the house entirely to themselves. All preliminaries having been completed, the starting of Cherries is a very simple affair, the main point being the maintenance of a low temperature with plenty of air, say 40° at night when artificial heat is needed, and 45° to 50° when external conditions are favourable. If old trees thickly set with blossom buds have been heavily taxed, top-dress with good rotten manure at once; defer this operation where they are young and make vigorous growth. Keep the borders in a healthy growing state by the judicious application of tepid water, and syringe with the same twice every fine day. When from artificial heat or mildness of the season the temperature rises to 55° ventilate freely.

VINES.—By this time the buds in the early house will be sufficiently forward to admit of a slight advance in the day temperature, but no alteration must be made by night until we have a change to more ordinary forcing weather. Follow up the daily syringing until the bunches are well advanced and all the buds are fairly on the move, but avoid constant saturation of the spurs at this dead season, as too much moisture often induces weak, elongated growths and loose, straggling bunches which rarely set properly or colour well, while a light, buoyant atmosphere with a gentle circulation of air and moisture in moderation lead to the development of stout leathery foliage capable of laying up plenty of colouring matter so essential to the perfect finish of early forced Grapes. If the inside borders have not been watered since the house was closed, another nice watering with diluted liquid at the maximum temperature of the house may be given, and the borders may be well mulched with fresh short horse manure, which will exhale ammonia when gleams of sunshine raise the temperature of the house. External borders hitherto covered with Ferns, litter, sheets, or shutters may now advantageously receive a good covering of moderately dry fermenting leaves which will set the surface roots in action and draw them into the autumn surfacing of turf and bones ready for the performance of their work when the stoning and colouring processes draw so heavily upon the Vines.

LATE VINERIES.—Muscats, Alicantes, and other thin-skinned Grapes will now require cutting, as they will keep better in the Grape room than on the Vines. When the latter are cleared, get them pruned and cleansed; dress the cuts with styptic, and throw the ventilators open in suitable weather to give them a month's rest before growth is again excited. If the internal borders are not satisfac-

tory, immediately after the Grapes are cut is the time, and the only time to get them put right. Years ago many people were afraid of disturbing the roots of Vines, but it is now well known that external or internal borders may be taken out alternately, and every particle of the old soil may be replaced with new, not only without endangering the succeeding crop, but with the certainty that it will be greatly improved. Lady Downes, Mrs. Pince, and that excellent Grape, Black Morocco, are keeping unusually well, but they had a liberal share of fire heat early in the spring, and they will hang for any reasonable length of time without shrivelling. If the Vines are not already clear of foliage, all the leaves will be ripe enough for removal, and the Grapes will be in a fit condition for cutting and bottling by the end of the month. When cutting Grapes for keeping, always remove every doubtful berry, as the smallest spot is sure to end in decay. Choose a bright dry day for bottling; never cut away any of the wood beyond the bunch without applying styptic, and avoid disturbance of the berries in the removal of the bunches to the Grape room. Growers who have Mrs. Pearson hanging in late houses will do well to give it a fair trial, as it promises to be a good keeping Grape, and the quality being so excellent it cannot be too soon or too well known that we have at last a worthy companion to the invaluable, but often badly treated, Lady Downes.

PEACHES AND NECTARINES.—With a leaden kind of atmosphere, through which the sun cannot penetrate, the forcing of an excitable tree like the Peach must be carried on with great care and patience. In mild weather the temperature best suited to this valuable fruit (45° at night and 55° by day) can be maintained almost without fire-heat, but under colder conditions 5° lower will be safer figures to work upon until brighter days set in and the flower-buds get well advanced and show by their plump, robust appearance that the most critical stage in forcing has been safely tided over. In proportion to the diminution in the day temperature let syringing be reduced, as too much moisture is apt to injure the buds, but keep the atmosphere in a nice growing state by damping the pipes and borders and by turning the fermenting material at short intervals. If plants of any kind occupy the early house, see that they are kept clear of the trees, and fumigate as often as may be needful to secure freedom from aphids during the flowering period. Ventilate the house on all favourable occasions, and, if possible, leave a chink of air on all night, but avoid draughts of cold, frosty air, particularly when the blossoms begin to unfold and the wood buds burst into growth. Many people think it is quite unnecessary to ventilate a Peach house until the trees get into growth, but when it is borne in mind that a modern house is hermetically sealed and that many Peach trees are ruined by being kept in too high a temperature, the importance of now doing for ourselves what the old generation of glaziers so thoroughly performed for us must no longer be overlooked or neglected.

PEACHES IN POTS.—Where the number of permanently planted Peach houses is limited and the earliest is, perhaps, planted with the good old sorts which are beaten in point of time of ripening by modern varieties, but still hold their own with something to spare in quality, it is a good plan to take the first crop from pot trees plunged in or placed over fermenting material in light, efficiently-ventilated, span-roofed houses. To ensure success, take kinds like Amsden's June, Alexander, Hale's Early, Early Grosse Mignonne, and A Bec, which ripen in the order named; Lord Napier and Advance Nectarines should be potted up and grown into fruiting trees under glass before they are taken in for forcing. In many places there are houses well adapted for this kind of work, as the trees need not be large, and this being a suitable time for getting maidens or cut-backs, preparation may still be made for having a good stock of suitable trees for next year's forcing. Of the two we prefer the compact maidens with plenty of side shoots from the union of the bud upwards, and as Peaches are not improved by being cut back, all

that is needed is firm potting in 10-inch pots and pruning back all the side shoots to a single bud when they begin to break into growth in the spring. It is hardly necessary for us to say the house in which these trees are prepared should be moderately heated, as the pots should be full of roots and the wood thoroughly ripe by the end of July. If the side shelves or pits are too low for Peaches, Figs in the bush form will do well for a great number of years.

HARDY FRUIT.—The mild, damp weather which has been so favourable for pruning and nailing will have held out inducements to many to postpone such work as top-dressing and mulching until walks and borders are in a better state for wheeling manure and compost. But so important an operation must not be longer neglected, as the timely application of a good covering to newly-planted or root-pruned trees cannot be overrated. Where Pears are grown on the Quince stock and the roots have not been disturbed, the annual top-dressing of good rich manure may be wheeled out on frosty mornings as soon as the nailing is finished. It is well known that the successful culture of Pears on the Quince stock greatly depends upon rich top-dressings; and as the borders in course of time become too high, old top-dressing and exhausted soil may be forked off and placed on the vegetable quarters to make room for the new. After a few years heavy cropping puts an end to extension; blossom buds only are formed, and as many people are quite incompetent to thin their own fruit, the annual removal of old spurs at pruning time should not be neglected. Push on the pruning and cleaning of all kinds of fruit trees, as the time may be at hand when men cannot stand for hours at a stretch against cold brick walls. Unfortunately, the winter dressing of hardy trees is much neglected; many troublesome insects are allowed to rest in the bark and in the walls from which they almost precede the unfolding of the earliest buds in spring.

KITCHEN GARDEN.

DURING the past few weeks Broccoli, Lettuces, Endive, and Borecole have grown rapidly, and should severe weather set in suddenly it will be much more disastrous than if it had been colder and more seasonable. Young Cauliflowers for spring planting, and likewise Lettuces in frames, have become somewhat tender through making such rapid growth. Therefore care must be taken not to expose them to too much frost when it arrives. A few degrees will, however, in no wise harm them. Large plants of Lettuce and Endive should be got into frames or into a cool house. When the plants become thoroughly dry, a few should occasionally be tied up to keep up a succession of good blanched salad. Any of the late Cauliflowers now just turning in should be lifted and placed in a frame or shed where they will be partially protected from frost. The heads of late Cauliflowers thus treated will not be large, but will be very acceptable next month. If early Broccoli, just beginning to button, be lifted now, and placed under glass where a little heat can be given in frosty weather, and likewise abundance of air when necessary, they will produce some fair-sized heads, and may be useful should those out-of-doors be destroyed by frost. A deep frame is the best place for them. Plunge them in 6 in. or 8 in. of good light rich soil, and allow the foliage to be close to the glass. The largest of the winter Turnips should be lifted and stored in a pit out-of-doors, similar to Potatoes, where they will keep much firmer than if stored in a cellar or shed. This is a good time for breaking up old plantations of Seakale or Rhubarb. From the former should be selected the largest and strongest for forcing, reserving the small ones and all the roots for making cuttings for planting out in spring. Rhubarb may now be divided and fresh plantations made; each piece should have a good crown. Some roots may be forced in the open ground by the use of pots and manure, or placed in a frame or Mushroom house, according to circumstance.

FLOWER GARDEN.

HELLEBORUS NIGER AND ITS VARIETIES.

Mr H. maximus and the wild Carniola form referred to by Mr. Brockbank are one, whence the conflicting descriptions? I believe from what I have seen that there are more forms of *H. niger* than we have yet given that species credit for. I have grown forms of it scarcely differing from one another in size of flower, but materially different in the shape of the leaves and their size, and also in the markings of the leaf-stalks and flower-scapes, the bloom in some instances being more highly coloured than in others. Two years ago I had some roots sent me by Mr. Parker, of Tooting. I asked for, and obtained, large clumps from the open ground, and therefore soon proved the normal quality of the blossom; it was highly coloured, but it has not struck me as being more so than that of some sorts which I had from Edinburgh called the "Wardie variety," though otherwise the plants differed. The conclusion I come to is this, that raised from seed *H. niger* is prolific in variety, and that from the extra attention which Christmas Roses have received of late years, the most attractive forms are becoming conspicuous, and, perhaps, rendered more so by the wider cultivation to which they are subjected in different soils and climates—certainly important factors in the development of form as well as colour. When one writes or talks about Hellebores, what definite information do we get? Only the other day in comparing notes with a correspondent who grows a magnificent collection, he said of one kind, "I am specially glad to get such a fine piece of *H. niger* var.; it seems to come near *H. niger angustifolius* of Brockbank, but it is distinct from anything I have." That with me is a common form, but when compared with others it seems to be uncommon. And so it is; the largest growers and those most experienced in such matters are anything but certain as to the identity of specimens so long as they seek to refer them to certain forms, for the reason, to my thinking, that the varieties differ largely as regards number, and often but slightly in features.

This brings me to notice another fact on which my thoughts have run whilst writing. I know of a bed of Hellebores grown simply as *H. niger*; in that bed great variety of leaf is to be seen; the stalks of some are green, others spotted; in the latter respect many resemble maximus; in some the foliage is a very pale, nearly yellowish green. Many plants have scapes two and three-flowered, flowers from 3 inches to 4 inches across, and throughout the bed the tints vary. This we learn whilst cultivating *H. niger*. Age, degree of vigour, soil, exposure, and length of time during which the roots have been established, all have an influence on them one way or another. Here, however, are plants grown under the same set of conditions, and yet great variety exists. If one may venture an opinion, it is that it may be possible to find intermediate forms leading by slight stages from the type to the largest white or rose-coloured kinds. I have not tried to collect such varieties, but I have met with such numbers, that they warrant such a statement of opinion. It is useless trying longer to narrow the descriptions of the niger progeny so as to bring them under a few names or specifications; rather let those who think that varieties should be named and kept distinct prepare a number of florists' names for them, as some of the German raisers are doing for varieties of other species, and as the French do for their Pæonias.

It may be interesting to quote from Miller's dictionary (1807) a description of the type and the names of a few varieties as follows: "Roots transverse, externally rough and knotted, with many dependent fibres, and some large roots striking down; scapes from 6 inches to near a foot in length, round, upright, variegated with red, rising from a sheath, and terminated usually with one flower, sometimes two, and very rarely three; corolla very large, generally white at first, but frequently with a tint of red, growing deeper with age, but finally

becoming green; nectaries, eight or ten to twelve or thirteen, greenish yellow, the upper lip longest and slightly emarginate, the lower finely notched; stamens more than seventy; germs from four to eight. Each flower has a bracted leaf or two, supplying the place of the calyx. Leaves only from the root, deep and dark green, on long petioles; leaflets, five to eight or nine, ovate-lanceolate, smooth, fleshy, the upper half serrate."

H. NIGER FL.-ROSE (Baub. and Mor.), *FL.-ALBO*, AND *RUBENTE* (Baub.).—Parkinson (1640), in the margin of his "Theater of Plantæ," under *H. niger* verus gives the name of a variety *flor-rubro*, "whose flower is red from the first opening." Gerard's figure of *H. n. verus* has the floral leaf, and cannot be correct, and it otherwise differs much from that of Parkinson, which is evidently intended to represent the true variety. If, then, we are sure that this popular flower ranges so widely in dissimilar forms, rather than try to bundle them under a few names which cannot amply represent them, had we not better leave them alone, and rejoice that the finest winter flower we have is increasing itself by variety?

Kirkstall.

J. WOOD.

THE GREAT YELLOW MUSK HYACINTH.

Of all the Grape Hyacinths, this fine variety has alike the distinction of beauty, fragrance, and rarity in a greater degree than all others of its sweet-scented race. That it is fairly well figured and most truthfully described in Parkinson's "Paradisus" is proof sufficient of its long-standing tenancy in English gardens. The description in "The Garden of Pleasant Flowers" is so quaint and so truthful withal, that I transcribe it here: "This Musk Jacinth, or Grape Flower, hath five or six leaves spread upon the ground in two or three heads, which, at the first budding or shooting out of the ground, are of a reddish purple colour, and after become long, thick, hollow, or guttered on the upper side of a whitish green colour, and round and dark coloured underneath; in the middle of these heads of leaves rise up one or two hollow, weak, brownish stalks, sometimes lying on the ground with the weight of the flowers (but especially of the seed), yet, for the most part, standing upright, when they are laden towards the top with many bottle-like flowers which, at their first appearing and until the flowers begin to blow open, are of a brownish red colour, and when they are blown of a fair yellow colour, flowering first below and so upwards by degrees. Every one of these flowers is made like into a little pitcher or bottle, being big in the belly and small at the mouth, which is round and a little turned up, very sweet in smell like unto musk, whereof it took the name Muscari. After the flowers are past there come three square thick heads, puffed up as it were bladders, made of a spongy substance, wherein are here and there placed black round seed. The roots are long, round, and very thick and white on the outside, with a little wooliness on them, being broken, are full of a slimy juice, whereunto are annexed thick, fat, and long fibres, which perish, not as most of the other Jacinths, and therefore desireth not to be often removed as the other sorts may."

It was charmingly in bloom in M. de Graaff's nursery at Leyden in April last, in open air beds of sandy earth, sheltered from the cutting east winds by thin fences or screens of Reeds. In the same beds were *Narcissus Bulbocodium*, *N. triandrus*, and other kinds, *Fritillaries* of sorts, and many varieties of the smaller blue-flowered varieties of *Muscari botryoides*. It appears to be a very rare bulb in our gardens, but no doubt is, like the dingy yellow and typical *M. moschatum*, quite hardy on warm sandy soils. I never saw this noble form (*flavum*) before, but a friend to whom I brought fresh flowers from Holland tells me that he once or twice saw it in cultivation. Perhaps one reason why it is yet rare is owing to the fact of its slow increase by offsets, as mentioned by Parkinson. The common grey or ash-coloured *M. moschatum* is far from showy, but even a withered cluster of its waxy blossoms is so deliciously sweet that it

well deserves culture, even for its fragrance alone. Parkinson mentions other varieties of this large flowered section of *Muscari*, one having white and the other reddish flowers, but of the white form he doubts the existence. In his time bulbs of the type and its variety *flavum* came to English gardens if not actually from Turkey Proper, certainly by way of Constantinople, and the old author suggests that they may "be come thither from beyond the Bosphorus in Asia."

It is needless to point out that this section of Musk Hyacinths is quite distinct from the numerous varieties of blue or white varieties of the Starch and Grape Hyacinths, which are far more commonly met with in all good collections. Of these the variety (and consequently the number of names) is legion—a fact due to their distribution being naturally extended over a large area, and perhaps in a still greater measure owing to their seminal reproduction in Continental gardens. At Haarlem this spring I saw enormous beds of these flowers in bloom, and in size and colour the variety seemed infinite. From the dainty little white variety the colour varies through greyish mauve to pale turquoise-blue, and so on gradually until dark blue and an almost plum-purple or black tint is reached. Parkinson, who is very careful in distinguishing these Grape Flowers from the Musk Hyacinths, tells us that "they grow naturally in many places, both of Germany and Hungary, in Spain likewise, and on Mount Baldus in Italy, and Narbonne in France, about the borders of fields, and we have them in our gardens for delight." He further tells us that "the Dutchmen call them Drivekins," and "some English ladies call the white Grape Flower Pearls of Spain."

F. W. B.

Epigæa repens from cuttings.—After several years' efforts, a few nicely-rooted cuttings of this have been obtained; and from the rarity of meeting with this charming creeper, and the high price one has to pay for it, it may be inferred that its increase is a slow process. Such has been my experience, though I have tried it year after year, and had good healthy stock to work with; only one of three methods has succeeded this summer. Branches taken in June that had begun to root, and which were considered pretty sure to make plants, were potted in peat and sand, and plunged in moist shady quarters, but did no good. The second trial, also made in June, consisted of cuttings without the least sign of roots, though many of the prostrate branches yielded laterals showing silky fibres; they had, however, a bit of the previous year's wood attached to them. These were planted in a miniature bog bed in sandy peat and shade; but, like the others, they failed. The third and successful lot consisted of cuttings similar to those just named, and taken at the same time; they were set in a deep seed-pan, well drained. On a layer of lumpy peat small pieces of granite were placed on edge, and against their flattened sides the cuttings were fixed with more lumpy peat put across the pan, and so on until the pan was full. It was then placed in a cold frame, but quite exposed to the sun, so that it must have been subjected at times to great heat; over the cuttings were put a few twigs, and in a month or so they were given more and more air, until it was considered safe to set the pan out in the open, but during hot sunshine a branch was put over them. This panful is nicely rooted, the older wood being furnished with fine wool-like fibres. I fancy the drier state of the compost and warmth of the frame have been the conditions most helpful, but though I have tried heat before, the results have not been satisfactory when the cuttings were otherwise inserted. It seems, therefore, that this moisture-loving shrub is better in the cutting state with even less moisture than is given to most other things. If the cuttings are transplanted whilst they have only tender or rudimentary roots, the operation certainly ought to be done with more than ordinary care, owing to their fragile character and the weight of earth they lay hold of. Perhaps the safer plan would be to leave them undisturbed until they had time to form woody roots.

J. WOOD.

THE WATER CALTROPS.

TRAPA NATANS, the subject of the annexed illustration, is an interesting plant for the indoor aquarium, or for a warm tank out-of-doors. At Glasnevin I have seen it doing well outside the Victoria house, where it had the advantage of growing in water which came from the tank inside. Without such an advantage as this it grows best under glass in our climate; it merely requires a tub of water with soil at the bottom, which may conveniently stand on a stage in the greenhouse, or even in a stove. Being an annual, it is raised every year from seed, which, unfortunately, cannot always be obtained alive, and I do not remember to have heard that it has ever been ripened in Britain. The character of this plant is well shown by the accompanying illustration, but it branches

where it grows plentifully, and ripens its fruit by October. He was informed by Sir George Macleay that the fruits (known locally as *frutti di lago*) used for the rosaries are obtained from the Lago di Varese. It is the lobes of the calyx which harden and form the formidable projections which make the fruit remarkable. In the accompanying illustration it will be observed that there are root-like masses beneath the water, and these are finely divided leaves, which probably, to some extent at least, perform the office of roots like the submerged and root-like leaves of that charmingly pretty tropical water weed, *Salvinia*, which has no roots at all.

R. I. L.

SAXIFRAGA (MEGASEA) PURPURASCENS.
EARLY in autumn the leaves of this become beauti-



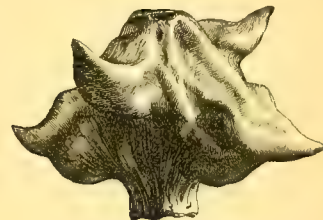
The Water Caltrops (*Trapa natans*).

and spreads near the surface of the water, upon which here and there it produces its pretty floating rosettes of leaves, each one of the latter with a swollen stalk, by means of which to a great extent buoyancy is secured. Its flowers are inconspicuous, but the singular appearance of the plant is sufficient to make it always attractive. Its fruits are very remarkable; those of this species have been compared to the spiked iron instruments used in ancient warfare for strewing on the ground in order to impede the progress of the enemy, hence the name Water Caltrops. They are called Jesuit's Nuts in Venice, and in some parts of Southern Europe are ground into flour and made into bread. The seeds of all the species abound in starch, and are much used for food. Those of *T. bispinosa* in Kashmir are said to feed 30,000 people for five months of the year. *T. bicornis* has seeds fancifully considered to resemble a bull's head, and in China they also form a considerable article of food. Mr. Thiselton Dyer drew attention a short time since at the Linnean Society to a little-known form of this plant called *T. verbanensis*. He was shown handsome rosaries made of the fruits at Pallanza, on the Lago Maggiore,

fully coloured. Handsome even as the spring flowers are, to my mind they are not nearly so effective as the autumnal tints, and, what is more, in the cultivation of this Saxifrage two quite different methods should be followed—for flower and leaf effect. To have the former it is needful to plant it in a well-drained, rich, but sandy, loam in the sunniest situation, leaving the plants alone for years, as, according to my experience, even good sized roots are two or three years before they produce their bulky flower-buds, and the more matured they get in this respect, the less the leaf-development both in size and number. Plants treated for foliage effect have quite a different appearance, and during the early season of growth might almost be taken for *Megasea ligulata*. Plants but a year old make leaves the size of a man's hand. What a rich autumn bed these would make! the sombre green turning yellow, then a striking vermilion, with the additional attraction common to glabrous foliage of a leathery substance. These young plants are destitute of the legginess of blooming stools, the leaf stalks springing from the soil. Where there are several old plants to cut at, a stock for

bedding purposes might soon be secured, a statement which may appear strange to many who look upon it as exceedingly rare and costly and difficult to manage.

TOPS CUT FROM OLD PLANTS just as they begin to grow in April, with an inch of stem, packed closely in a pot of sand, and plunged in more sand in a place sheltered, from drying east winds, become well rooted in a month, and may be potted singly and brought into the sunshine in a week or



Fruit of *Trapa natans*.

so. Young stock thus obtained have grown like young Cabbages, and had four and six good sized and well coloured leaves the first autumn. Moreover, in the meantime the old plants will have broken at many joints on their somewhat long stems and surface-creeping roots. Of these, as many as can be got may be cut off with an inch of the thick stem attached, and treated like those struck in April to be potted early in autumn. Those off the rooted stems, if with ever so little root attached to them, may be potted at once in rich sandy material. In cutting up the stems, too, for these pushing shoots, other short lengths of an inch or so will be found; these may be inserted an inch deep in sand; plunge the pan also in sand in the full July sunshine, and they will start like Potatoes, and they, too (a fourth supply from the old stools still left growing), may be potted before cold weather sets in.

UNDER SUCH TREATMENT in the warm part of the year, with clean, sharp sand for the roots to strike into without check from stagnant moisture or ground pests, there is no more difficulty in increasing this rare and beautiful Saxifrage than any other of the *Megasea* section, all of which, one may say, are noted for free growth. It may also be added that, as in the case of the whole section and that of many other herbaceous plants, this becomes all the more vigorous for frequent transplanting or propagation, and the advantages as regards the leaves are their earlier and larger growth and greater certainty of a full period of leaf coloration. Here in Yorkshire old plants, of which I have long had one, always seemed behind time, the frost cutting the foliage before it had well begun to colour. This reminds me of the doubts which some entertain as to the hardiness of this Himalayan species I have always found it to be perfectly hardy; the severe winters of a few years ago never hurt my old plant, and younger ones planted in 1880 have only suffered as many other things do; none were killed.

J. WOOD.

Kirkstall.

A WELL-ARRANGED BORDER.

A HERBACEOUS border which I saw towards the end of last summer struck me as being very skillfully arranged. It was formed on the south side of a wall running north and west; the wall was about 10 feet high, and covered with small-leaved Ivies, green and silver alternately. Out of the silver-leaved variety was growing *Clematis Jackmanni*, and out of the green-leaved one the white-flowered *C. Flammula*, and here and there amongst the other things peeped forth the scarlet berries of the *Pyracantha*. The border in front of this was about 12 feet wide. In the back row, nearest the wall and about 20 feet apart, were *Deodars*, and half way between these were fine plants of *Pampas Grass*. In the centre of the border at regular distances apart were specimens about 4 feet high

of the variegated Dogwood (*Cornus mas variegata*) and Golden Elder (*Sambucus nigra aurea*). At the back the spaces were filled up with Phloxes, Larkspurs, perennial Sunflowers, Asters, &c., with here and there a Dahlia. Coming nearer the front were placed at short intervals small bushes of *Euonymus japonicus variegatus*, silver variegated Ivies, *Biota aurea*, and other dwarf-growing Conifers.

From the number of trees named it may be thought there were too many of them and that no room was left for plants, but that was not so; the trees were small and at good distances apart, leaving plenty of room for herbaceous plants. These were distributed in such a fashion among them as to make the effect in every way excellent. Beginning at the margin of the border nearest the road, the first row consisted of such plants as *Aubrietia Campbelli*, one of the best of the *Aubrietias*, and the variegated variety of *A. purpurea*, *Cheiranthus alpinus* and *C. Marshalli*, *Gentiana acaulis*, *Crocuses*, white Pinks, double scarlet Sweet William, *Campanula carpatica* and *turbinata*, Pansies, *Vinca minor*, variegated and otherwise, in nice round patches, and Saxifrages, especially the mossy section; behind these, forming the next row and filling the spaces up to the middle of the border, were such plants as are usually found in herbaceous borders. Conspicuous among them were *Potentillas*, *Papaver umbrosum*, *Lupinus nootkatensis*, a dwarf growing species; *Linum narbonense* and *L. davum*, and *Aquilegia cœrulea* and *A. chrysantha*. The chief beauty of the border, however, lay in the general distribution of the plants; for instance, in no case did I see a weakly growing plant behind a tall robust one. In every case, the dwarf and weak ones were brought to the front, and there was a gradual rise from the front to the back; as much care and trouble must have been bestowed on the planting of this border as on a most perfect summer bed. It is the general belief, I know, that herbaceous plants will succeed put in anyhow. That may be the case with some, but there are others that require careful cultivation.

A striking feature of this border was the variegated plants used in it, and which, distributed at regular distances apart, were very effective. Amongst them were variegated forms of the following, viz., *Symphytum officinale*, *Scrophularia nodosa*, *Dactylis glomerata elegantissima*, *Santolina incana*, *Alyssum saxatile*, *Funkias*, and others, which, with the variegated shrubs, lit up and set off to advantage the whole arrangement, and they kept it almost equally pretty the whole year round. To everything great attention seemed to have been paid, and certainly the result was most satisfactory.

L. W.

FRUIT GARDEN.

EARLY FORCED STRAWBERRIES.

FEW fruits are so much prized as Strawberries, and the earlier they can be got fit for dessert the more they are appreciated. It is sometimes stated that, like Grapes, Strawberries are what may be termed all-the-year-round fruits, and doubtless they can be had in every month of the year. But after trying the earliest known sorts under the most favourable conditions, I could never get really good Strawberries before the middle of February, and, as a rule, the middle of March is quite early enough to commence the Strawberry season. The routine of cultivation I have found to be best is as follows: The earliest runners are always produced by young plants; I, therefore, have a row of young plants put out every year specially for producing runners. What are termed 3-inch pots are the best sizes in which to layer them, or they may be layered in the fruiting pots—6-inch ones—as soon as they are large enough for that purpose, thereby doing away with the necessity of repotting. For very early forcing, every day is of consequence in regard to getting the plants established in their fruiting pots.

THE SOIL I find to be best is the top spit from pasture land stacked up long enough to kill the grass. This I mix with a little thoroughly decayed manure and old mortar rubbish. The whole

is chopped up tolerably fine with a spade, but not sifted, and if moderately dry it can hardly be made too firm in the pots, which must be carried to the beds and set so that the runners can be laid one in each pot; after pressing them into the soil lay a good-sized stone close to the neck of the runner to keep it in its place, or fasten it there with a wooden peg, but I like stones best; they retain moisture under them, and, associated with them, the runners always root rapidly. Water with a fine-rosed pot, and if the weather is hot they should be watered every day as soon as the sun's rays begin to diminish in intensity. Under favourable conditions they will have made good roots and be fit for separating from the parent plant in three weeks from the date of layering, or about the first week in July in the southern parts of the kingdom.

THE POSITION in which they are grown should be open to the full rays of the sun, and I find nothing better for setting them on than beds of coal ashes about 5 feet wide. On these the plants can be readily examined, runners picked off, and other details of culture performed, and the ashes provide good drainage and keep off worms. Watering is of vital importance in all stages of growth, and if possible rain water only should be used. If the soil is rich they will not need manure water, but a little soil—just enough to make the water smell of it will be of benefit to them, and will give a healthy gloss to the foliage. After September, however, when plants for early work should have their pots crammed with roots and must not be excited to grow, only clear water should be given them. Do not over-water or allow the soil to get so dry as to cause the foliage to flag. Red spider follows drought, and the Strawberry is a moisture-loving plant; keep the plants far enough apart for the air to circulate freely amongst them. If the weather becomes very wet, set each plant on a brick or inverted flower-pot, so that rapid drainage may be secured. By the end of October the earliest plants should be placed

UNDER GLASS. Pits filled with dry leaves make capital places in which to start the roots into growth, and the tops of the plants should nearly touch the glass. Give plenty of air whenever the weather is favourable, attend carefully to watering, and syringe the foliage on bright days. About the middle of December, when the crowns will be ready to burst into flower, they should be transferred to light, airy shelves in a vinery or Peach house just started where a gradually progressive temperature is maintained. They must not be hurried by high night temperature; 50° at night and all the rise that can be got by sun-heat at this period of the year will suit them. It is a mistake to suppose that pot Strawberries need the top soil taken off and replaced with fresh material, as no plant that I know of suffers so quickly from root disturbance as the Strawberry. Stimulants of a liquid character can be readily applied while the flower-stems are pushing up, and when the flowers have expanded, a cool, dry atmosphere must be maintained with a gentle circulation of air both night and day except in very severe weather. The blossoms should be fertilised with a camel's-hair brush, lightly touching every expanded flower so as to get every floret to set perfectly, or the fruit will not swell up evenly. As soon as set they may be transferred to a warmer temperature and pushed on with more moisture at the root and in the atmosphere. Clear liquid manure, too, may be given at each alternate watering, but as soon as the fruit begins to colour, discontinue syringing and liquid manure, and ripen the fruit off in a dry, airy atmosphere; its flavour is decidedly improved by a spell of cool treatment. As regards

VARIETIES, there are none I have ever found equal to *Vicomtesse Héricart de Thury*. It produces plenty of flower-spikes, and comes on naturally with but very little forcing. The next is *La Grosse Sucrée*, a very beautiful Strawberry, and for a succession I find *Keen's Seedling* still to be one of the best, producing fine, highly coloured fruits that are not excelled in flavour by any early sort in cultivation. As the plants get divested

of fruit, set them in cold frames until the middle of April; then plant them on well-prepared soil, and they will produce a good crop next year.

Gosport.

JAMES GROOM.

LATE KEEPING GRAPES.

WE have now arrived at a period of the year when complaints multiply as to Grapes going mouldy, but in that there is nothing new. The only way to make a supply of Grapes continuous is to grow sorts that keep well in houses devoted exclusively to them when they are ripe, for Grapes will not keep in an atmosphere saturated with moisture such as that of a house in which pot plants are kept. For general purposes the Black Hamburgh is still our best Grape, but unfortunately its best season is over before Christmas, although good examples of it are frequently preserved even later than that. That is only so, however, under exceptionally favourable conditions, and as we have not all got Grape rooms, it follows that a Grape that, with careful ventilation and a dry atmosphere, will keep on the Vine is what the majority of cultivators require. For this purpose high temperatures are not needed, only a little warmth in the pipes—just enough to make the atmosphere light and buoyant. I have tried most of the kinds of Grapes worth growing, and have proved over and over again that the following may be relied on to keep well until the end of February or early in March, even without a Grape room, by simply cutting the bunches and shoots entire, and putting the ends in bottles of water about the middle of January. When the sap in the Vine begins to move, cut the Grapes, and if a darkened chamber for storing is not available, try the next best remedy, and resort to artificial shading.

If I had only room for one sort of Late Grape, I should unhesitatingly select *Lady Downes Seedling* as the best keeper in the black section. It is a noble looking Grape, sweet, crisp, and juicy, even after many other sorts are shrivelled. It is one of the best sorts for bearing on the spur system that we have, and scarcely ever fails to produce plenty of fruit. It requires careful thinning, as it produces a quantity of small imperfectly set berries, and all late keeping Grapes require more severe thinning than early or mid-season ones. Black Alicante is also a handsome Grape which produces finely shouldered bunches, and, like the preceding, seldom fails to colour as black as Sloes; the berries are longer than those of *Lady Downes*, and for a Christmas Grape it has few equals, but my own experience is that it will not keep fresh so long a period as *Lady Downes*. *Gros Colmar* has of late years become a popular Grape; it is remarkable for size of berry, forming a truly magnificent bunch, but its flavour is only second rate. It is a strong grower, and produces its finest bunches on the young wood. Therefore the long-rod system suits it best. There is one peculiarity about it, viz., its foliage is liable to curl up at the edges as if scalded, and in houses where it is growing side by side with other kinds it is one of the first to suffer from sudden changes of temperature. A little air left on continually night and day is the best antidote for scalding. This Grape needs severe thinning; even if the bunches look like skeletons when first thinned, they become solid before they get fully ripe. Mrs. Pince's Black Muscat is a very fine late Grape, that will keep any length of time, and it is one of the best flavoured. Its usual failing is not colouring well, but when not over-cropped it generally finishes off noble bunches that make excellent companions to the Muscat of Alexandria, the best of all white Grapes. The prevailing idea that this Grape needs a stove temperature is wrong; at least, good Muscats can be grown without it. The most economical way of growing this and other Grapes that require a little heat beyond that afforded by a glass roof is to have the late house next to a plant stove for which fire heat is employed, except during the greatest heat of summer; just a turn of the valves keeps the pipes warm, but not hot. Any of the above kinds of Grapes can be brought to the highest perfection. *Raisin de Calabre* is a white Grape well adapted

for keeping late in the season. It is round-berried, and remains plump and fresh-looking until spring, when its noble appearance makes it a valuable companion to Lady Downes. It is a strong grower and produces very fine bunches, and, although not of first-class flavour, it is one of the best of white Grapes in its season.

There are several other kinds that keep well, but are not in such high favour as formerly. For instance, West's St. Peter's is a beautiful Grape that always colours well and succeeds with only a moderate amount of heat, but it has been superseded by larger berried sorts. Size of bunch and berry has overcome the equally or more important question of flavour. There is, moreover, Black Barbarossa, which produces very large bunches, that keep well for a long period. This variety does better on the long-rod system than on spurs; the bunches on young wood usually attain several pounds' weight each, and form striking objects on the dessert-table at a period when fresh home-grown fruit is at its lowest ebb.

The above is a selection that may be relied on to yield Grapes in good, plump condition until early forced Strawberries are procurable, and where special means of preserving them are taken they may be kept in really fine condition until May, and even June, thereby doing away with the necessity for early forcing. These late kinds are made a speciality of in many market fruit-growing establishments, and also in most large private gardens; but in gardens of limited extent Grapes are over just at the time when they are most needed.

Gosport.

JAMES GROOM.

ORCHARDS AND PARAFFIN OIL.

IN THE GARDEN (p. 484) is given a *resumé* of a paper on this subject by the Rev. Henry P. Dunster, which appeared in the *Nineteenth Century*, and although the article in question is calculated to do good, there are, nevertheless, some points in it which are misleading. Mr. Dunster appears to attribute the present comparatively unproductive state of our orchards to the presence of Mosses and Lichens on the bark. "The main point conducive to health and productiveness," he says, "is the bark." He meets everywhere fruit trees covered with Mosses and Lichens, and asks, "Is it possible, under such circumstances, that orchards can be expected to pay?" Mosses and Lichens are not parasites in the true sense of the word; but even were they possessed of parasitic powers, they would find an unsuitable resting-place on the dry bark of old trees; they would, one would think, rather seek the juicy young shoots, the skins of which are more easily penetrable. Mr. Dunster informs us that, "after scraping off the rusty bark with a spokeshave and rubbing the tender branches clear of all Moss and Lichen, there was nothing to arrest the flow of the sap!" Cleanliness, I make no doubt, is conducive to health in trees as well as in other things, but the root of the evil is not reached thereby. The conditions affecting root-growth must be considered in order to solve the problem. Mr. Dunster tells us that "roots are able to search out and find the soil that suits them;" and again that "no amount of nourishment supplied to the roots will serve to renovate our decayed fruit trees without some specific remedy applied to the bark." Is Mr. Dunster not aware that if trees are provided with proper food at the roots they will not require to go on prospecting expeditions for more? Let fruit trees which are unproductive be either lifted or root-pruned, *i.e.*, if barrenness be the result of over-luxuriance, and stimulate root action in such as are decrepit through other causes by top-dressings of fresh soil. Many years ago I remember well a garden in which not only the wall trees, but also those on borders scarcely bore any fruit. Those in the borders were young and vigorous—too much so, indeed; for it must be recollected that fruit buds are more complicated as regards formation than wood buds, and that they require more time to get properly developed. Therefore, if a tree is over-vigorous, it will not wait for their formation, but will push onwards its more simply con-

structed wood buds. Well, these border trees were root-pruned early in the autumn, and the very next year they bore fruit, and their fruit-bearing disposition increased as they acquired age. The wall trees were also root-pruned; the borders were concreted and filled up with good soil, and the results were most satisfactory. If we force trees through lack of proper nourishment to strike deep into the earth, they in time become unfruitful, let the state of the bark be what it may, paraffined or unparaffined. Surely Mr. Dunster is wrong when he says "while the head of a tree is gradually dying the roots continue in a perfectly healthy state, and perform their proper functions." In such a case the true cause of decay will probably be found at the root. Keep trees free by all means from Mosses and Lichens, but such vegetation must not be blamed for the results of bad culture. Roots do not seek food to the extent named so much as they take what is given to them, nor is the nutriment stolen in transit by Moss or Lichen, for it is not presented to them. Sir Herbert Maxwell in reference to seaside trees says, "Another effect may be noticed, *viz.*, the prematurely aged look which is caused by the growth of grey Lichens on the bark, although it does not appear to be hurtful to the trees."

R. A. H. G.

Horsforth, near Leeds.

The Wellington Apple is now one of the very best sorts in season, being beautifully white when cooked and very juicy. Although such a hard, sour Apple when raw, it is one of the very best when cooked. Probably it owes much of its excellence as a culinary fruit to the small amount of sugar which it contains. As a rule, the sourest Apples cook best and keep best in colour. Sweet dessert Apples turn dingy when cooked, and are, as a rule, dry and leathery compared with such sorts as the Wellington.—J. G. H.

Grapes cracking.—"J. S. W." is evidently so very wrath at my daring to say that I had "never read or heard of" the article he, by implication, accused me of getting the "atmospheric" idea of cracking from, that to set his mind at rest I wish to say that I did not doubt his word; and had he sent me the article prior to my notes being sent to press, I should certainly have mentioned it. He quotes (p. 536) from the article in question sufficiently at length for your readers to judge whether or not it were possible for me to get the idea of "atmospheric moisture" from it—an article that contains no such allusion.—W. WILDSMITH.

Good and bad Grapes.—"S. W." (p. 493) objects to Gros Colmar. Now, while fully endorsing the principle "S. W." has at heart, namely, the evil of giving preference to fruits of bad quality simply because they are large, I cannot but think that he is carrying the principle too far in the case of this Grape, for when grown in a temperature that suits Muscats, its flavour is by no means so poor as he would have us believe. Surely, too, its noble appearance amply makes up for its inferior flavour. Although flavour is the principal quality by which we determine good sorts of Grapes, still there are other things to be taken into consideration as well.—D. B.

Birds and buds.—Birds must now be looked after, for where they abound they soon clear Gooseberry and Currant bushes of their fruit buds unless preventive measures are taken in time. A spell of severe weather, especially if snow lies long on the ground, makes them so daring that it is difficult to frighten them by any kind of scare-crow; powder and shot have therefore to be resorted to, with the view of reducing their numbers. Near towns the common house sparrow is almost the only depredator, and I find that the most effective remedy is threading the bushes over with dark worsted or thread, so that when they fly into them and strike against it they are far more scared than by any quantity of lighter coloured material. To that they soon get accustomed. The bullfinch, which in rural districts is far more destructive to buds than the sparrow, is

more easily frightened. Dusting the bushes with lime and soot is a good preventive in this case, and it should be applied when the bushes are wet, so that it may stick to them; when dry, it takes a good deal of rain to wash it off. I may add that pruning should be delayed until spring, as when pruned early the loss of even a few buds is much more felt than when the wood is left thick until the buds are ready to burst into growth.—JAMES GROOM, Gosport.

A good Apple.—One of the best dessert Apples I have seen and tasted this season is that known as Seek-no-farther. It is an old variety, though very rarely met with. The fruit is of medium size, conical in shape, and richly coloured, juicy and rich in flavour, besides possessing an aroma superior to that of any other sort now in season. The tree from which my specimens were procured is growing in Dr. Marsh's garden, near Frome, and seldom fails to bear well. It appears to be a good grower, and is particularly well adapted for bush culture. The fruits were fit to eat early in November, and those I still have are sound and good. That such an attractive-looking and generally good variety has not been more extensively grown is very surprising.—I. M.

Best late Grapes.—I think Mr. Wildsmith (p. 498) will have a difficulty in classifying the Muscat of Alexandria if he will not admit it to be a late kind. By common consent any Grape is considered late that can be had in good condition from December onwards. Mr. Wildsmith can keep Muscats in "fair condition" till February, but because it does not keep till March or May it is not, he says, a late kind. This may do to prevent it competing with the Lady Downes in the sense that that Grape was praised by him, but it does not remove the Muscat from the catalogue of late kinds, in which every grower places it except Mr. Wildsmith. In answer to his other question, late black Grapes rank as follows in my estimation: Lady Downes, Alicante, Alnwick Seedling, Barbarossa, and Mrs. Pince.—J. S. W.

Wintering Strawberries in pots.—Many expedients for protecting pot Strawberries are resorted to, such as stacking them in ashes, placing them in cold frames, etc. I have tried many different methods, but I feel sure that more harm than good is done by placing them under glass too soon. They do best out of doors set on a good coal ash foundation, provided the pots are plunged to their rims in leaves, tan, ashes, or Cocoa-nut fibre. The Strawberry is hardy enough to stand our winters without any protection in the open ground, and in pots they only require to be placed closely together and the intervals between them packed with some non-conducting material to render them perfectly safe; in fact, in this way the foliage will be cleaner and the roots healthier than those of plants wintered under glass. When wintered in this way it is surprising how much more readily they respond to heat when introduced for forcing than they otherwise would do. The exposure to the winter's cold induces perfect rest at the proper season, and glass structures can be employed for other purposes.—J. G., Hants.

Pruning Vines.—Spur pruning, *i.e.*, leaving one bud to each spur, although suitable for some varieties, is by no means suitable for others; yet we find that as a rule in houses planted with mixed varieties all are pruned alike, and with the result that, while Black Hamburgs, Muscadines, Sweetwaters, and other free-fruited sorts bear good crops, others are very scantily furnished with bunches. Now, as Vines are grown simply for the fruit which they produce, they should be pruned to suit the particular sorts grown. My own experience is decidedly in favour of leaving more young wood than is usually done. The lowest bud, *viz.*, that which is left in close spur pruning, is a small one compared with the second and third buds on the same shoot. I therefore feel sure that if anyone will try alternate Vines, pruning one on the closest system, and in the case of the next allowing two or three buds to remain until they show bunches and then selecting the best, they will get finer bunches and more regular crops than

by close pruning. The appearance of the rods when pruned goes for little; the result in the shape of a crop is the chief object. Then there are many sorts that spur pruning does not suit at all, and amongst these may be mentioned the Barbarossa. For such kinds the long-rod system is best, for it is only by having a constant succession of young canes that good crops can be secured, and I feel sure that anyone wishing to get a maximum return from their Vines should every year allow some young canes to replace exhausted ones.

—JAMES GROOM, Gosport.

ORCHIDS.

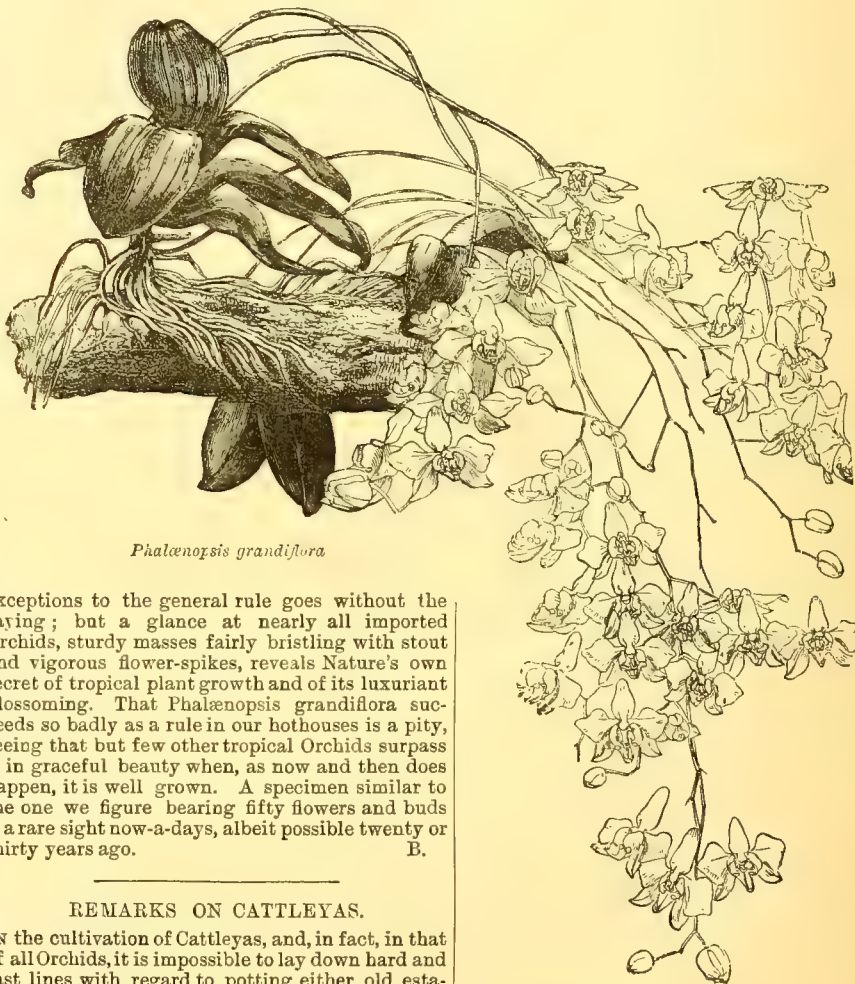
THE GREATER MOTH ORCHID.

(*PHALÆNOPSIS GRANDIFLORA*.)

A FEW small-flowered *Phalænopsids* are met with on the continent of India, but most of the species are found in those islands of the Malayan Archipelago which cluster like so many emeralds in the warm and shallow sea near to the line. The natural focus or head-centre of the genus would seem to be the Philippine group, where *P. amabilis* and the rosy-flowered *P. Schilleriana* are alike at home. Here the rare *P. intermedia* and its rosy variety *P. Portei* are also found, as also *P. rosea* and one or two others of less note. Passing from Manilla to Borneo, we find *P. amabilis* replaced by *P. grandiflora*; so also in Java by another variety of the last-named species, with thicker leafage and more constitutional vigour both in growth and inflorescence. *P. grandiflora* is of all the kinds one of the most difficult to grow in our hothouses in a really permanent and satisfactory way. Why this should be so is not easily explained, seeing that they grow so readily in the Orange and Mango orchards of the Tropics. Naturally, *P. grandiflora* affects the coast line or the small islets so plentifully scattered in the China Sea between Borneo and Singapore. For years nearly all the plants of *P. grandiflora* offered for sale in Singapore were collected in the Tambelan Islands, off the south-west coast of Borneo, but this source of supply is now well-nigh worked out. In 1877 a new habitat was discovered in which the plant grew very abundantly, to the north of Labuan Island, but this again is now exhausted and collectors must look further afield. But few other epiphytal Orchids evince such a decided preference for the sea. I have seen *P. grandiflora* growing on low trees actually hanging over the beach, and in positions where it is difficult to see how at all times it could have escaped the influence of salt spray. Perhaps want of air is what it most suffers from in our hothouses, seeing that abroad it is subjected to strong trade winds and occasional hurricanes. The robust root growth of *P. grandiflora* astonishes all who see the plant growing in its native habitat for the first time. How tightly the plants are lashed upon the trunk or branch on which they grow! Here, high up in mid-air and under a fierce sun, all the leaves are occasionally scorched off, or dried off by sun and wind during an exceptionally dry monsoon, but the plant's energy still lives in its roots, which, securely lashed to the bark of trees, remain firm and strong, and no sooner does the wet season arrive than leaves and flowers are produced as if by magic, so quickly do they appear. It is quite a mistake to imagine that Orchids produce more flowers in our hothouses than they do in their natural habitats. Very few tropical plants ever give us a tithe of their luxuriant flower growth in our hothouses. In the case of Orchids this is particularly true; not only are the blossoms more numerous and finer in colour, but they are produced on growths much smaller in many cases than could ever be induced to bloom under our dull skies. The beauty of all Orchids, however, in the Tropics is short-lived, since wind and insects alike too soon destroy their loveliness. In this matter home growers have the advantage, since whatever flowers are produced are preserved fresh and fair for a much longer time than is possible abroad. Home growers can also induce many tropical plants to

display their flowers much sooner than such plants would naturally do in their native forests or savannahs; but anyone who has seen *Nelumbium speciosum* growing and flowering in a wet ditch or canal in the east would scarcely recognise its pale-blossomed representative in our gardens at home. So also of *Bougainvillea* in its native woods; nay, even in Southern France and Italy; so also of the large-flowered Moth Orchids, which abroad give a shower of white blossoms from a mass of spikes, old and young alike, just as shown in the annexed engraving. Neatness and trimness we secure by hothouse culture; the flowers, too, are preserved for us as long as is possible for them to endure when undisturbed; but there the advantage ends. We have only to look at the imported masses of *Cattleyas*, *Odontoglossums*, and *Phalænopsids* to see how true this view really is. That there are

is quite sufficient for several months, and by that time, if the plant has done well, it will have half made up its young breaks and pushed out plenty of young roots which will have penetrated through and through the compost, when the plant may safely be treated like its older companions. It is sometimes advisable when a weak, shrivelled plant has to be established to put it in drainage alone for a few weeks until the bulbs have recovered and show an inclination to grow. In this way water can be poured over the lower part every day, as it quickly dries without danger to the plant. As soon as there is the least sign of root action, compost must be supplied; any delay in this respect at this stage will check the progress of the plant. The long-bulbed *Cattleyas* and *Lælias* require at all times more water than the shorter ones, and, as a rule, are in a



Phalænopsis grandiflora

exceptions to the general rule goes without the saying; but a glance at nearly all imported Orchids, sturdy masses fairly bristling with stout and vigorous flower-spikes, reveals Nature's own secret of tropical plant growth and of its luxuriant blossoming. That *Phalænopsis grandiflora* succeeds so badly as a rule in our hothouses is a pity, seeing that but few other tropical Orchids surpass it in graceful beauty when, as now and then does happen, it is well grown. A specimen similar to the one we figure bearing fifty flowers and buds is a rare sight now-a-days, albeit possible twenty or thirty years ago. B.

REMARKS ON CATTLEYAS.

IN the cultivation of *Cattleyas*, and, in fact, in that of all Orchids, it is impossible to lay down hard and fast lines with regard to potting either old established plants or newly imported ones. Mr. Douglas is right to a certain extent when he says newly imported *Cattleyas* should be potted in drainage only, but I do not think that in the majority of cases such treatment is necessary. Of late years imported Orchids have arrived in so much better condition than they formerly did, that many of the precautions then thought necessary are no longer wanted. An imported plant of any of the short or medium bulbed *Cattleyas* coming into the cultivator's hands in spring or in the summer months in healthy condition, with the bulbs tolerably plump and most of the younger leaves fresh and green, may safely be potted in the compost used for old-established plants. A thinner layer of it over the drainage, however, is advisable for the first year, as it will in that case dry sooner, and not be so liable to become sour. If such a plant is properly watered, however, there is little danger of this happening. A good soaking of water once a week

weaker and more exhausted state when imported, and are always more difficult to establish. These I mostly pot in drainage only for a short time, and find it of advantage to do so. I cannot agree with Mr. Douglas that winter is the best time to repot any Orchid; on the contrary, I do not think a worse time could possibly be found for the operation. *Cattleyas* are nearly all resting at that time of the year, and must certainly not have done so well as they ought to have done during August and September if they are only about this time commencing to root. No better time can be selected for repotting *Cattleyas* than July. The young growths will soon after that begin to make up their bulbs, and, if treated properly, will root freely at the base. These roots will soon push into the fresh peat, and soon reach the side of the pot, round which they will cling and often branch, and again push through the compost, thereby

nourishing the young bulb at a time when it requires more nourishment than at any other until the flowers begin to open. To keep Orchids free from thrips is one of the most troublesome things with which an Orchid grower has to contend. Low temperature and plenty of air at all times, I feel sure, will not ensure success. Last summer I had plants out in a cold frame, with the lights propped up more than a foot, notwithstanding which no plants suffered more from thrips. They were syringed overhead twice a day as an experiment, but no attention was paid to them as regards cleaning or fumigating. In order to keep thrips in check, one must be constantly on the watch, and destroy them at once either by means of a brush or dipping in some insecticide. If the plants are too large for either of these operations, or if a great many are infested, as a last resource we fumigate morning and night two days in succession. —

B. B.

Sales of flowering Orchids.—One of the best displays we have seen of flowering Orchids in an auction was that on Tuesday last at Messrs. Protheroe and Morris's rooms at 67 and 68, Cheap-side. The collection of flowering plants was large and varied, and many of the specimens were unusually fine. The prices realised were very good indeed, the principal items being £13 13s. each for a fine variety of *Odontoglossum Alexandræ* and *Cattleya Trianae* alba. The others varied from £9 to £2, but there were many at £5, £4, and £3. These sales occur monthly, and being now established, there is every prospect that they will be carried on successfully.

Masdevallia ignea Massangeana.—There is a wide contrast between the ordinary form of *M. ignea* and this superb variety, which first appeared on the Continent a few years ago. The flowers are considerably larger than those of the type, being fully 2½ inches in length and of proportionate width. The colour, too, is brighter, being more of an orange-scarlet. It is, in short, a very fine Orchid, and flowering, as it does, at this season, its value is enhanced. It is now beautifully in bloom in Messrs. Shuttleworth & Carder's nursery, Park Road, Clapham, where also other species, such as *M. Chimæra* and *M. Roetzli*, are in bloom, as well as some new unnamed species.

Cattleya Eldorado var.—A short time since Mr. Fowler, of Ashgrove, Pontypool, sent us a bloom of what we considered to be the richest-coloured variety of this *Cattleya* that we had seen, but the other day he sent us another variety, which far eclipsed the former bloom with regard to colour. The most remarkable part in connection with this variety was the lip, which had the lowermost lobe of an intensely deep amethyst-purple, while immediately above it was a large and most conspicuous blotch of bright orange-yellow—a striking combination of colours. The sepals and petals were of a delicate mauve. The *connoisseurs* to whom we showed the three blooms Mr. Fowler sent us were all agreed that it was by far the finest *Eldorado* they had ever seen. It is satisfactory to know that such fine varieties of this *Cattleya* as these may crop up at any time in an importation, though few and far between.

Cypripedium Dauthieri.—This hybrid Lady's Slipper is one of the very few that have not had their origin in this country. It was, we believe, raised in Germany some years ago, and is presumably a cross between *C. barbatum* and *C. villosum*, the same parents that produced the handsome *C. Harrisianum*, the first hybrid Lady's Slipper that flowered in this country. *C. Dauthieri* much resembles *C. Harrisianum* both as regards the flowers and foliage, but the former are paler in colour than those of the best forms of *C. Harrisianum*; it is quite as free a grower and as profuse a flowerer. It may now be seen finely in bloom in Mr. B. S. Williams' nursery at Upper Holloway, where there are numbers of plants bearing several flowers each. We had no idea that this hybrid was so plentiful; we thought it existed in but a few collections in this country. Among other species of *Cypripedium* now in bloom in the Victoria and Paradise Nurseries are *C.*

Stonei—an unusual flowering season for this beautiful Orchid—*C. Spicerianum* (represented by some superb varieties), the rare, charming little *C. Schlimi* album, *C. Sedeni*, and *C. calurum* (both of which seem to be perpetual flowerers), *C. Haynaldianum* (a very near relative of the handsome *C. Lowi*), and *C. insigne* and all its varieties, including the genuine Maulei variety, which is remarkable for the dorsal sepal being almost half white. The varieties *Chantini*, *albo-marginatum* and the others are also in bloom.

Lælia albida and peduncularis.—Of these two beautiful winter flowering species, some uncommonly fine spikes have reached us from Sir William Marriott's garden at Blandford. On the spike of *L. albida* there are no fewer than ten white wax-like flowers and twelve on that of *L. peduncularis*. These are of a beautiful deep rose-purple, with a white blotch on the labellum and a deep, almost black blotch in the throat. The dozen flowers are crowded in a dense cluster in *peduncularis*, while those of *albida* are loosely arranged on a stiff, erect spike. These two *Lælias* should be grown in the choicest selections of Orchids for winter blooming. Both are Mexican, and thrive well under the same treatment.

Odontoglossums in flower at the Victoria and Paradise Nurseries, Upper Holloway, include the following: Once the rarest, though not the most attractive, species is *O. purum*, which may be best described as a white form of *O. Wallisi*, and it bears a resemblance to *O. constrictum*, which, by the way, is very finely in bloom, and is really a pretty plant when well flowered. The decidedly hairy white labellum in *O. purum* is a character by which it may be at once recognised. What is considered by Mr. Williams to be the genuine *O. odoratum* is likewise in bloom. It is remarkably sweet scented, like Hawthorn; hence its specific name. The flowers are pale yellow, heavily and copiously spotted with chestnut-brown. The plant that usually passes for *O. odoratum* seems to be really *O. gloriosum*, which is in flower side by side with *O. odoratum*. The flowers of *gloriosum* are altogether lighter in tone, and are not nearly so sweet scented. *O. Ruckerianum*, a dark form bears an enormous spike carrying no fewer than forty-six flowers. It is an exceedingly graceful Orchid. The rare *O. brevifolium*, a near relative of the splendid *O. coronarium*, is coming into bloom, and alone will be well worth seeing. It is grown successfully in the cool *Odontoglossum* house, treated much the same way as *O. coronarium*. We hardly expected to find *O. grande* in bloom, but here it was lighting up the *Odontoglossum* house with its huge and handsome blooms. It has been in bloom in this nursery uninterruptedly for fully a couple of months. Of the luteo-purpureum type, the most noteworthy was the fine white-tipped form of *O. Halli*, named *leucoglossum*. Lastly, we are bound to mention the grand varieties of *O. crispum*, which now adorn the houses, for they are, without exception, the finest forms we have seen—large flowers, broad petals, and beautifully crisped margins.

SHORT NOTES.—ORCHIDS.

Angræcum bilobum is a small East African species of the *Kirki* or *arcuatum* section. The leaves are strap-shaped, broader at the apex than the base, with a deep sinus at the top, hence the name *bilobum*. The flowers are ivory-white, crystallised, as large as those of *Kirki*, and the spur 3 inches in length. There is a plant of it bearing several flowers in the Orchid house at Kew.—B.

Cypripedium Schlimi.—This soon perishes in a warm house. The coolest position among Orchids is the most suitable spot for this pretty-flowered Lady's Slipper, and it needs plenty of water always. A rapid rate of growth is the result of warm treatment, but it is at the expense of "bone," and spot and damp follow closely on the heels of whatever growth is made.—B.

Pruned Dendrobies.—In regard to "J. S. W.'s" enquiry (p. 519) in reference to our pruned plants, I must say that the experiment is not satisfactory, either in the case of *Wardianum*, *Freemanni*, or *crassinode*, the only three kinds pruned. Pruned plants that were allowed to retain last year's bulbs only gave the best results. Although hitherto not a success, I intend to give pruning another trial next year.—F. BEDFORD, *Strafan, Kildare*.

Calanthe Veitchi superba.—I send you a spike of this *Calanthe*, cut from a bulb grown in a 5-inch pot; it produced two spikes, one at the bottom of the bulb and one about half way up, just at the narrow part of the bulb. The spike sent is from the bottom. You will find that there are nearly forty blooms on it. The remaining spike still on the plant has upwards of twenty blooms, and is quite as good as the one sent as regards colour. Is it usual for these *Calanthes* to produce two spikes from one bulb?—JOHN CROOK.

* * A superb spike, a fine example of good growth, and, moreover, the best variety as regards colour of any we have seen, being many shades deeper and richer than usual, affording a wide contrast to the "washy," almost white forms which one generally sees in cultivation.—ED.

Cymbidium Mastersi.—A spike of this lovely Orchid, carrying no fewer than sixteen flowers, has been sent by Mr. Fowler, Ashgrove, Pontypool. We do not remember ever seeing so many blooms on one spike before, ten and twelve is generally considered a good number. The spike sent is one of the loveliest things in the way of Orchids we have seen. It is some 16 inches in length and gracefully arching, and with the faces of the flowers all turned towards the tip of the spike. The sepals are of ivory whiteness, of wax-like substance, while the lips are exquisitely spotted and freckled with pink. This Orchid combines gracefulness of form and delicacy in colour in a charming way, as the foliage is long, grass-like, and recurved.

Odontoglossum Londesboroughianum.—Sir William Marriott sends to us from his rich collection of Orchids at The Down House, Blandford, a spike of this Orchid, which represents one of the finest varieties of the species we have ever seen, and certainly the best as regards the depth of colour. The spike, about 15 inches in length, carries a flower at every inch of its length, and as most of the flowers face one way they have an extremely beautiful effect on the slender and gracefully drooping spike. The sepals and petals of the flowers are a pale yellow heavily marked with transverse bars of chestnut-brown. The labellum in each flower measures over an inch across, and is of a deep canary-yellow, with bars of cinnamon-red near the point of attachment to the column. This is indeed one of the most beautiful of all *Odontoglossums*, but, unfortunately, it is such a rambling, untidy grower, and needs a wide trellis to grow against. Its great value is that it flowers in mid-winter, and it has been in bloom at The Down House for two months. With this Sir W. Marriott sent a spike of *O. Alexandræ*, which he considers is the finest variety he has ever seen. It certainly is fine, the flowers being nearly 4 inches across, with broad overlapping sepals and petals, which with the labellum is beautifully crisped at the edges. There is no spot on the flowers and only a dash of rosy purple to mark their chaste purity. The blossoms are more closely set on the spike than usual, and are, moreover, of thick texture.

COVENT GARDEN MARKET.

CHRISTMASTIDE is the time when one becomes most impressed by the amount of business done in this market, and also by the want of room in which to comfortably do it. How four millions of human beings are supplied with vegetables, fruits, and flowers from so small a space is surprising. True, there are other markets, but this is the principal one, and really London deserves a better—a market worthy of the name. Foreign fruit is just now supplied on a somewhat extensive scale. Fruit, with the exception of Grapes, has not been of late very satisfactory. Apples, a very heavy crop, have been small and inferior in quality. There are not sufficient first-class English Apples now in the market to keep down the prices of Canadian and American goods. The importation of Apples from New York is now comparatively small. Boston, however, sends a fair portion, but Nova Scotia during the last few years

has sent more than both New York and Boston put together, and the variety is also greater, the principal sorts being Baldwins, Greenings, Russets, King Tomkins, Ribstons, Nonpareils, Spitzenburghs, and a few Blenheims. The great advantage in a commercial point of view is the way in which foreign fruit is sorted. Although the standard of quality does not come up to that of home-grown produce, the prices realised lately have been 20s. to 25s. per barrel of 3 bushels. New York Apples have chiefly consisted of Newtown Pippins, of which, however, but few good samples have reached the market this year. When really good they fetch from 30s. to 60s. per barrel of 2½ bushels, other sorts, such as Northern Spy, Seek no Farther, &c., making from 20s. to 25s. per barrel of 2½ bushels.

French Pears have been very short, and have realised high prices. The following particulars regarding fruit sales obtained from Messrs. Webber show the demand which is created and supplied at this season. Oranges, a very popular fruit just now, may be taken first; of these the principal varieties are St. Michael, Lisbon, and Valencia. These are sent over in cases and boxes. Of the former some 50,000 have been put up for sale, and each case contains from 420 to 728 Oranges, the price per case being from 14s. to 18s. Boxes of Oranges, of which some 30,000 were furnished, each containing from 200 to 300 fruit, realise from 6s. to 7s. per box; Lemons (Malaga and Messina), 20,000 cases, in each from 360 to 400, fetch from 15s. to 20s. per case; Lemons, 5000 half chests, in each from 500 to 600 fruit, 18s. per half chest; Almeria Grapes, 59,294 barrels, from 12s. to 25s. per barrel of 42 pounds; St. Michael Pines, 20,000 realised prices ranging from 2s. to 8s. each; French Pears, 1450 cases, from 1s. 6d. to 12s. per dozen; Easter Beurré, from 12 to 60 in each case, from 5s. 9d. to 15s. per case; some examples of Belle Angevine or Uvedale St. Germain sold for 66s. per dozen; Lady Apples, 1400 boxes, from 10d. to 1s. 2d. per box, from 24 to 32 Apples being in a box; Pomegranates (Malta), 100 barrels, 9s. to 10s. per barrel; Pomegranates (Malaga), 200 cases, from 120 to 150 in each, fetched from 10s. to 15s. per case; Tomatoes, 200 packages fetched 12s. 6d. per package of 50 dozen; Bananas, 500 packages, from 10s. to 15s. per bunch; Valencia Melons, 250 cases at 10s., 20 fruit being in each case; Chestnuts (Bordeaux), 5000 sacks, each weighing from 1 hundredweight 3 quarters to 2 hundredweights, from 20s. to 40s. per sack; Walnuts (Naples, French, and German), 2000 cases, each 1 hundredweight 2 quarters, 46s. per hundredweight; soft Almonds, 3000 bales, each 1 hundredweight 2 quarters, 55s. per hundredweight; Cocoa-nuts, 265,000, from 8s. to 24s. per 100; Nuts (Turkey and Hazel), 500 bags, each weighing 1 hundredweight 1 quarter 16 pounds, 30s. per bag; Brazil Nuts, 500 barrels, each 1 hundredweight 2 quarters, at 46s. per hundredweight.

THE FLOWER MARKET presented quite an animated and brilliant appearance. Here were to be seen the specialities of market growers, grown in faultless style, perfect examples of good culture. Flowering plants were represented by Chinese Primulas in variety; Poinsettias, the large richly coloured red bracts of which had a striking appearance under gas-light. Of this, one grower alone cultivates about 8000 plants annually for the market. It is his speciality, and his plants were put up in prime condition, one specimen in a 4½-inch pot having twelve bracts and measuring 2 feet over; height, 18 inches. Of Hyacinths and single and double Tulips there was a very fine display. Bouvardias were good, and so were Zonal Pelargoniums, early Indian Azaleas, Azalea mollis, Lily of the Valley, Erica hyemalis, finely flowered and in quantity; Epiphyllums with their showy pink and crimson flowers, and Cyclamens of various and pleasing shades of colour. How prettily marbled are the leaves of some of the sorts! Amongst

CUT FLOWERS, in which trade appeared to be very brisk, may be mentioned Camellias, Lily of the Valley, Pelargoniums, double and single—

quite an exhibition—and generally white-coloured, Carnations, Chrysanthemums, principally Japanese. Fine-foliaged plants, too, were shown in considerable numbers; amongst them were *Dracena Cooperi* and *terminalis*, *Areca lutescens*, *Latania borbonica*, *Cocos Weddelliana*, *Euterpe edulis*, and other Palms. Amongst Ferns the principal varieties were *Pteris cretica*, *P. serrulata*, and *Adiantum cuneatum*. India-rubber plants were also plentiful. Holly and Mistletoe came pouring in by huge waggon-loads—an unerring indication that the coming festive season was close at hand.

NOTES OF THE WEEK.

The Veitch Memorial Prizes for 1884 will, we understand, consist of three bronze medals and £5 in money, to be offered at Dundee, and similar medals and money prizes at one of the Royal Botanic Society's shows. Three others of the same value will be also offered at shows held by some of the florists' societies.

The Alexandra Palace and Grounds. Notification is given of an intended application to Parliament next session by the London Financial Association for leave to bring in a Bill for the repeal, modification, or amendment of certain sections of the Muswell Hill Estate and Railways Act, 1866, and of the Alexandra Palace Act, 1877. Power will also be sought to enable the Association, or the owners for the time being of the Palace and lands annexed thereto, to sell or otherwise deal with them free from the restrictions imposed by the Acts mentioned, or subject to other provisions which may be prescribed by the Bill.

Royal Caledonian Horticultural Society.—The annual meeting of the members of this society was held in Edinburgh on the 6th inst., Prof. Dickson presiding. An abstract of accounts for the year ending 30th November, 1883, was submitted, and showed receipts amounting to £1568 14s. 3d., and expenditure amounting to £1409 17s. 6d.—leaving a balance of £158 16s. 9d. The takings at the three shows held during the year amounted to £1029 12s. 2d., and the expenditure to £582 1s. 9d. The total amount of the funds in the hands of the treasurer at present amount to £1205 16s. 2½d. The Earl of Hopetoun was elected vice-president, in room of the Earl of Stair, who retires by rotation; and Mr. James Buchanan and Mr. David Thomson were elected members of council, in the room of Mr. John Clapperton, who retires by rotation, and Mr. Mackintosh, nurseryman, whose death was recently announced. Messrs. Stewart, Neill Fraser, and Turnbull Smith were respectively re-elected secretary, treasurer, and auditor. In replying to a vote of thanks, Mr. Fraser said that the financial condition of the society was very satisfactory, as the members' subscriptions and the takings at the shows had amounted to a larger sum than they had ever done previously on ordinary occasions. He also stated that upwards of 40,000 persons had visited the shows during the five days they were held, or about 8000 per day, showing their appreciation of them by the public in and around Edinburgh. The secretary was instructed to communicate with the Market Committee of Edinburgh Town Council, asking if steps could not be taken to provide better means of entrance and exit at the principal door of the Waverley Market, which, it was stated, was too narrow.

Gardeners' Royal Benevolent Institution.—The committee of this institution, says a circular which has just been sent to us, have had under their consideration for some years past the question of augmenting the pensions by the sum of £4 each, but before this desirable object can be carried out, they consider it necessary that the reserve fund should be raised to £20,000. For the last three years they have caused collecting cards to be issued among gardeners, nurserymen, and others interested in horticultural pursuits, and the result has been that £2400, including the "Arthur Veitch Memorial" fund, has been secured. The amount that has been distributed in pensions this year is £1312. A further sum of £2500 is required before the committee can re-

commend an alteration being made in the amount of the pensions they therefore take this opportunity of bringing the subject prominently under the notice of the subscribers, in the hope that those who, from various causes, have not yet contributed to this special fund will respond to this appeal, and, by their generosity, assist the committee in alleviating the distress, and adding a little to the comforts of old and deserving horticulturists in their declining years. It is added that any sum which people may think fit to subscribe will be gratefully acknowledged by the secretary.

DATES of the Meetings of the Scientific, Fruit, and Floral Committees in 1884.—Scientific Committee: Tuesday, January 8; Tuesday, February 12; Tuesday, March 11 and 25; Tuesday, April 8 and 22; Tuesday, May 13 and 27; Tuesday, June 10 and 24; Tuesday, July 8 and 22; Tuesday, November 11; and Tuesday, December 9. Fruit and Floral Committees: Tuesday, January 8; Tuesday, February 12; Tuesday, March 11; Tuesday, March 25; Tuesday, April 8; Tuesday, April 22; Tuesday, May 13; Tuesday, May 27; Tuesday, June 10; Tuesday, June 24; Tuesday, July 8; Tuesday, July 22; Tuesday, August 12; Tuesday, August 26; Tuesday, September 9; Tuesday, October 14; Tuesday, November 11; and Tuesday, December 9.

Flora of the North-west of Ireland.—At a meeting of the Royal Irish Academy, held on Monday evening last, Mr. A. G. More read a paper on the heights of plants, as observed on Ben Bulbin, Sligo, by the late Mr. Thomas H. Corry. Mr. Corry had received from the Academy a grant for the exploration of the Ben Bulbin range of mountains, and it was in carrying out this undertaking that he met with the accident which caused his premature death, having been drowned with his companion, Mr. Charles Dickson, through the upsetting of their boat on Lough Gill, near Sligo, in the month of August last. In supporting the resolution, "That the paper just read be referred to the Council for publication," Dr. E. P. Wright referred to the excellent work done by the late Mr. Corry in physiological botany and expressed the hope that we might yet see published the much-needed "Flora of the North-west of Ireland," towards which Mr. Corry had collected so great a mass of material. Such a work would be a fitting memorial of one whose loss to science was so much to be deplored.

Seedling Abutilons (G. B.).—The flowers you send do not appear to be in any way superior to others in cultivation. The yellow seems to be a good variety.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—F. R. Smith.—*Oncidium ornithochyllum*.—F. D.—*Saxifraga hypnoides* var.—E. H. Eyles.—*Cotoneaster affinis*.—J. L.—*Salvia farinacea* (now tolerably common in gardens); *Arabis albidula*.—E. H.—The flowers you send represent but one species, viz., *Odontoglossum tripudians*. Whether it is worth cultivating or not is difficult for us to say; all we can say is, that there are showier species. There is a slight variation in the three flowers.—S. O. E.—2, *Dammara robusta*; 4, *Griselinia lucida*; no number, *Lomatia elegantissima*.—H. T.—7, *Asplenium laserpitfolium*; 8, *Lamium aureum* var. For potting *Cypripediums* see last week's GARDEN (p. 529).—J. H.—1, *Doodia media*; 2, *Hypolepis repens*; 3, *Aspidium falcatum*; 4, *Nephrodium* (send specimen in fruit).—W. Y. D.—1, *Onychium japonicum*; 2, *Asplenium Adiantum nigrum*.—H. Tull.—Bulb is *Amaryllis reticulata*; others next week.—*Heatherdale*.—A variety of *Hedera Helix*, but we cannot name the variety from a leaf only, especially at the present season.—Mac.—We cannot name the *Chrysanthemum*.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received. In all cases where the numbers of the specimens sent are not mentioned, it must be inferred that the fruits to which they were attached are either local sorts, and therefore unknown at Chiswick, or that they are not in a fit condition for naming.

Names of fruits.—S. T.—1, Adam's Pearmain; 2, Court of Wick; 3, Cockle Pippin.—Camb.—The Pear is Glou Morceau.—Everest.—Glou Morceau.—T. R.—Probably a local variety only.—Other fruits sent will be named next week.

No. 632. SATURDAY, Dec. 29, 1883. Vol. XXIV.

"This is an Art

Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ENSILAGE FOR THE GARDEN.

A WRITER in a morning paper, speaking of the rough-and-ready mode of preparing ensilage as sometimes practised by the small farmer in the Netherlands, says: "It may be interesting to some to know that the farmer's wife, too, in those parts has her 'silo.' This is an earthenware jar about 2 feet high. Into one such in summer-time she shreds Kidney Beans; into another she puts shelled Green Peas; into another Broad Beans, say; and having thus formed a 6-inch layer, she sprinkles on the top a little salt, and presses the whole firmly down. Then comes another layer, with another sprinkling, and so on, until she has come to the end of her vegetables, leaving a light weight on the top, which serves to keep all firmly pressed and exclude the air. When more vegetables are ripe she repeats the process until the jar is filled. A good substantial weight is then placed on the top and the opening covered with brown paper, and her object is attained, viz., ensilage for her family, *i.e.*, vegetables preserved green for winter use, more or less good, according to taste, when brought to table."

Some good way of preserving our stocks of tender green vegetables would be a great gain, not only for the sake of the supply which it would give us in winter, but also in other ways. It is a common thing in almost every garden in summer and autumn to see Kidney Beans and Peas in a hard and uneatable state in quantity and useless, while they are robbing the plant of the power to give a succession of tender eatable pods. Discouraged by the loss we speak of, we have before now advised that all such crops be gathered at the right time whether wanted or not. Those who want vegetables in the best condition only would find it profitable to gather and give away rather than pursue the usual way of growing things well only to waste and injure them. But with any simple, inexpensive, and good way of preserving tender vegetables we could at once adopt rational ways of making the most of our best vegetables. Of the vast importance of that it is surely unnecessary to speak, and we should be greatly indebted to any of our readers who could point out a good plan of preserving our surplus summer vegetables for winter use. We believe that no way can be the best which depends on the use of salt or any extraneous substance; ensilage appears to offer the simplest conditions for our guidance.

The Lily of the field.—*Sternbergia lutea*, which the pre-Linnean botanists sometimes called "an autumn Daffodil," is sufficiently puzzling to me. Here it so persistently affords us nothing but leaves, that I sometimes wonder if it really does bloom elsewhere, and what are the precise conditions under which it does so. Even now its vivid green leaves spear upwards; but, alas! no sign of the yellow buds, the *Crocus*-like cups of gold. I told my sorrows to M. de Graaff last spring, who recommended me to take up a few bulbs in July, and give them three months' rest before replanting. I did this, and so far the only result is more foliage than ever. All this is perplexing and just a little annoying when I remember that at the old Wellington Road Nursery, St.

John's Wood, I used years ago to see its yellow blossoms upturned to the winter's sunshine, and at Tottenham I last autumn saw the dwarf *S. ætensis* very prettily in bloom along with the *Colchicums* and autumnal *Crocus*. The narrow-leaved variety *S. lutea* var. *angustifolia* is by some thought to bloom more freely. Is this a fact? If so, doubtless others besides myself would like to cultivate its acquaintance.—B.

NOTES.

Green leaves.—One of the greatest charms possessed by an English garden is its greenery and freshness during the wintry season. "Ah!" said an American visitor the other day, as he examined our well-berried *Hollies* and admired the numerous forms of *Ivy* growing on the walls, "we have nothing like this. Our gardens are very bleak and bare during winter." Verily there is quite an especial charm in the wintry aspect of a well-planted English garden, with its bold clumps of *Yucca* and evergreen shrubs glistening in the morning sunshine. After *Hollies* and *Ivy* in variety, the *Aucuba* is one of the best of all winter evergreens, its warmth of golden leaf colouring affording quite a cheery effect. *Garrya* hung with its grey tassels is most picturesque, while crimson *Dogwood* and golden *Willow* shoots contrast most effectively when planted together near water margins. Really one might make a very beautiful winter garden; full of warmth and colour, even without flowers.

Corn Cockles.—All those interested in our wayside flowers and cornfield weeds, as also those who admire good work in the way of plant portraiture and wood engraving, should take a peep at the *English Magazine* for December, wherein are some beautiful sketches on wood by Mr. Alfred Parsons, to which something approaching justice is done by the engraving of M. O. Lacour and Mr. J. D. Cooper. The little picture of "Ragged Robin," "Stitchwort," and the "Cornflower or Blue-bottle," are really exquisite, and almost photographic in delicate truthfulness. Mr. Grant-Allen's accompanying article is interesting, and although our own opinions differ from his conclusions in many ways, nevertheless we can most thoroughly appreciate a writer who has full confidence in his own views. A striking feature in Mr. Allen's papers is the nearly entire disuse of Latin in favour of English names!

Good Apples.—If Fate should confine us to one vegetable, I suppose the Potato would, by common consent be the one selected; and so of fruits, no one kind could so long delight us as could the Apple. And yet how rarely are really good Apples of native growth to be purchased. It is not very creditable to us as a nation interested, as we all are, in land and its culture, to be well nigh obliged to purchase fruit of foreign growth whenever a fairly eatable Apple is desired at a moderate price. In most shops just now the stock of Apples consists mainly of three varieties—Baldwins, Russets, and Newtown Pippins, all of American growth and most excellent of their kind, but all costing from a penny to threepence each. If we want a Blenheim Orange, or an aromatic Cornish Gilliflower, a grateful little Spice Apple or a Wyken Pippin, or a juicy Ribston, it is not so easy to find them outside of Covent Garden. I once read of a tree of Blenheim Orange at Windsor; I believe it was producing twelve bushels of fine fruit in one season, or say value for £12 sterling! This is, of course, an exceptional case, but the great fact remains that really good home-grown Apples are very difficult to procure, and were it not for American kinds, they would be too high priced for all but the well-to-do.

Fruit of fine flavour.—A lady who read my notes on Pears a few weeks ago writes to say that she believes "the oldest of fruit trees yield fruits of the finest flavour." To this opinion she has been led by the following experience: "At my father's place," she writes, "all the fruit trees are very old ones, and so of the Peaches indoors as well as the wall and orchard fruits. Scarcely

any of the trees are under twenty years old, and the vines were planted nearly fifty years ago. No Grapes I ever tasted are finer in flavour, and the same is true of the wall fruit, especially the Pears. Here in our new garden, on what is thought to be a much drier and better soil, the fruit of all kinds is much larger and finer in appearance, but, alas! the flavour is not in proportion to the enhanced appearance. I am, of course, speaking of the same varieties. Our Black Hamburgh Grapes, for example, are more like Gros Colmar in size when compared with those from our old home garden, but not nearly so fine in flavour. So distinct indeed are they, that some of our fruit-eating guests have doubted their being the same variety, until we have told them that the eyes were taken from the old vines. The same is true of the Pears, and I fully believe fruit trees must be old to yield fruit of really fine flavour. Do you think I am right?"

Hardy flowers.—And what may we gather in the open-air garden for our Christmas and new year's bouquets? Purple Violets certainly for their sweetness, Pansies "for thoughts," Christmas Roses because most seasonable, and with them a few of the vivid scarlet Crown Anemones that glisten (bright as cornfield Poppies) in the winter sun. In this shallow vase of sweet Violets we shall place a few flowers of the honey-scented *Chimonanthus*, and in this tall slender vase two or three flowers of *Iris stylosa*, attended only by its own graceful leaves. A handful of the long shoots of the winter Jasmine laden with golden buds will open their yellow blossoms fresh and fair indoors, so also the buds of this dainty lilac-hued *Crocus longiflorus*. A good bunch of Wall-flower, both crimson and golden yellow, must grace this old brown pitcher, and in this broad tazza of fresh green wood Moss and bronzy *Ivy* leaves we shall place our "pale Primrose flowers." Late *Chrysanthemums* (with red *Mahonia* leaves) are also available; none fairer or more welcome than *Fleur de Marie*; and with the Daisy-like blooms of this rosy *Erigeron* may well be grouped the bronzed leaf of *Heuchera* and the glowing red varied foliage of *Tellima*, and a little bit of golden Thyme, with a spray of Rosemary added to our posy, may, by their fragrance, remind us of absent friends.

Andre's Anthurium.—When this plant was first introduced it was quite an interesting wonder to plant growers, many of whom doubted if ever it would equal Schertzer's species in flower beauty; one might now answer the question either way, yes or no, as the case may be. Andre's plant is finer in leafage and ever-blooming, while Schertzer's plant gives a greater flush of blossoms, and in this wise has an advantage. There are various other points which might be contrasted, but perhaps we had better accept the old Scotch saying, "baith's best," and grow the best varieties of both species on their own merits. Even small specimens of *Anthurium Andreanum* are rarely without two or three spathe among them, and these form a vivid contrast among fresh green Ferns and snowy blossomed Orchids or with bulbous flowers of the *Eucharis* and *Pancratium* type. Some of the varieties of *A. Schertzerianum* lack brightness, but a well grown plant of either Ward's or Henderson's variety is a sight to see when at its freshest and best.

Primula obconica.—One more word in praise of this ever-blooming *Primula*, and this to call attention to its long endurance. When its slender-stalked trusses of pale rosy lilac blossoms are cut and brought indoors for decorative purposes, they endure fresh a long time. A friend to whom I gave a couple of seedlings last summer sent me a flower-spike, among other things, as a token that the plant was in bloom. That spike, after a fortnight in water, is as fresh as ever. True, some of its pips have fallen, but, on the other hand, others of its dainty buds have expanded, and so it may be used as a cut flower on occasion, if needs be. I have a plant in the greenhouse which has never been out of bloom for thirteen months! From this our original plant seedlings are now in full flower. When I give a flowering

plant of this *Primula* to any appreciative visitor, I ask them to send me a post-card when it goes out of bloom, but as yet no post-cards have come to me. It is not perfectly hardy here on our moist soil, but as a greenhouse plant, or even as a window flower, it is evergreen, ever blooming, and ever beautiful in its own delicately quiet way.

Chou de Burghley.—Mr. Gilbert's new Cabbage Broccoli does not appear to have quite pleased everybody, but the few exceptions that have been so far taken to it were really necessary to prove the rule that it has pleased most people pretty well, especially those who have given it a fair trial and good cooking to boot. Personally I am rather disappointed that it has not met with more critical opposition, because I notice that the success of any good thing, be it a new idea or a new plant (albeit only a Cabbage), is proportionate to the opposition or critical criticism it undergoes. If Chou de Burghley had been really a duffer, Richard Gilbert would not have sent it out. If it had been really bad, it would not have been opposed in print so much from certain quarters, for I find all good gardeners have a cunning knack of letting bad varieties find their way unheralded to the rubbish heap. A friend told me the other day that the wood pigeons liked it in preference to any other vegetable in his garden, and I respect the good taste of that canny bird. A severe winter, that reduces ordinary Cabbage and Broccoli leaves to a rotten state of dirty flannel, will prove what a hardy and delicious vegetable this Chou de Burghley really is in northern gardens.

Sweet-scented Tussilago, or, to call it by its prettier name of Winter Heliotrope (*Tussilago fragrans*), is now in blossom on sunny banks here and there. Phillips calls it "the Heliotrope of the open garden," and tells us it is a native of Italy, first introduced in 1806, but it is now naturalised by the acre near to Dublin, nearly every waste roadside being covered by its heart-shaped leaves and scented by its fragrant, if not showy, flowers. Although the plant grows and flowers freely beside roads and on sunny canal banks, it does not, as a rule, bloom so freely in the garden, although it grows fast enough—indeed, often therein becomes a troublesome weed. It is most suitable for a sunny bank in a half-wild place, whence its sweet flower-heads may be plucked and brought indoors for the sake of their grateful fragrance. It is just the plant to introduce on banks where more weedy things have possession, as there are but few of our native plants, however troublesome, which this emigrant or settler will not crowd out wherever it may be introduced.

Crossandra undulæfolia.—Under the name of *C. infundibulæformis* this plant used to be employed with excellent effect in the Botanical Gardens at Singapore as a bedding plant, and as seen growing in a mass, at no great distance from the eye either, its resemblance in effect to some of the salmon-scarlet-flowered zonal *Pelargoniums* was most marked. As a bedding or flower garden plant in tropical gardens this *Crossandra* is most useful. As a pot plant in our gardens it requires plenty of sunshine and a stove temperature. Being distinct in habit of growth, and also in colour, from the stove plants now usually grown, it well deserves a trial in our hothouses, even although it may not produce its flowers so copiously or so continuously as it does when planted out in tropical gardens in the East.

A new Rhododendron.—A new type of *Rhododendron*, albeit of tropical origin, is a great gain to our gardens, since no one can say what may be the practical outcome of its introduction. It was discovered by Mr. C. Curtis, after whom it is named, and has been quite recently exhibited and certificated at South Kensington. Its neat habit and oblong lance-shaped leaves, of a pale green colour, remind one of a *Daphne*, and that the dark crimson blossoms have a subtle fragrance will not detract from the future popularity of the plant. When we remember what has resulted from the happy marriage of *R. javanicum* with the *Jasmine*-flowered species from Mount Ophir, we are

led to hope great things of this new crimson-flowered beauty from Sumatra. Mr. Curtis is to be congratulated on having made such a beautiful and interesting discovery, and Messrs. Veitch upon the successful introduction of such a distinct and sterling novelty to our gardens as this new *Rhododendron* Curtis undoubtedly is.

Orchids.—The best of imported Orchids were never cheaper or more readily obtainable than they are to-day. The rarest of Orchids, on the other hand, especially the rarest of good varieties, were never dearer than they now are, so keen is the rivalry between wealthy amateurs. We have not as yet got quite so far as the old Tulip buyers in the matter of prices, but it is nevertheless quite evident that many buyers affect rarity rather than beauty, and there is, moreover, a dash of the Stock Exchange spirit becoming infused into our modern Orchid sales. What we would rather see, and what would in the long run prove far better than speculation for all concerned, is a greater increase of *bona-fide* amateur cultivators, and when sales of Orchids in flower shall have become the rule, we shall hear less of the disappointment now experienced after the purchase of established plants not in flower. My advice to amateurs now is never purchase a plant unless it be an imported one, unless you see it in flower, or have some guarantee of its quality. So much rubbish, the result of weeding out bad varieties, is now sold, that all who neglect this rule will the sooner learn its value.

Asparagus decumbens.—As a basket plant in a warm greenhouse this graceful *Asparagus* deserves more general culture. It has thickened tuberous-looking stems, or tubers from which dangle the long glaucous growths in a really pretty way. A well-grown plant forms a dangling, cloud-like mass of soft glaucous greenery, becomes a really pretty object, contrasted with scarlet *Pelargoniums*, or with the vivid crystalline flowers of *Epiphyllum*. When its slender growths are studded with tiny white flowers, or later when the little greyish green fruits appear, it is alike both interesting and effective, and about as different from its cousins—the *Lilies*—as can well be imagined. When its finely divided growths become fully developed, they are very useful for cutting and arranging either in bouquets, or with the daintiest of cut blossoms indoors.

Floral sunshades are, as we learn, the latest innovation in flower fashion just now in Nice, where the "ladies are using parasols composed entirely of natural flowers, so that their sunshades resemble nothing so much as gigantic bouquets stuck on sticks. The stalks of the flowers are woven together, so as to form a network of bloom, the inside being lined with silk. One parasol is made entirely of *Violets*, with a bordering of *Jessamine*; another of *Geraniums*, white and red in rows, fringed with a *Maiden-hair Fern*; another of *Pansies*, and so on. When the flowers fade the parasol has to be made up again, generally at intervals of two days." We always thought our New York friends a little extravagant in their flower torture, nor could anyone persuade us to admire the great massive crosses, anchors, wreaths, and wedding bells affected by some portions of American society; but even there they do not, I believe, expose their beautiful flowers on sunshades to wither and die. I hope that it is only some ladies, and of those only a few, that degrade Nature's flower gifts in this way. A friend to whom I showed the above paragraph said she should as soon think of skewering a living dove or a lark in her bonnet as of abusing lovely flowers wholesale in the manner that I have just indicated.

Good Chrysanthemums.—There are some few decorative varieties of *Chrysanthemums* so good and floriferous that everyone having a cool greenhouse should grow them. Of these we may mention the following: *Madame C. Desgrange* (or "maize," as it is sometimes called), large white, with a sulphur centre in its early opening stage. This blooms before *Elaine*, which it somewhat resembles. *Trevenna*, both white and

rose-coloured forms are alike good; so is *Sœur de Melanie*, another good white kind. *St. Michael* is the brightest of yellows; and *Julia Lagravère*, a vivid maroon-crimson, most effective. Contrasted with the last-named kind, all the *Cedo-Nulli* race are good *Pompone* kinds. For growing in small pots the above are all good. For a good supply of cut flowers grow *Elaine*, Mrs. Rundle, *Ethel*, *Fair Maid* of *Guernsey*, and Mrs. Charles Carey. *James Salter* is a good rosy lilac; *Mon Caprice* is also dwarf and good; *Peter the Great* is a fine pale yellow; *Mons. Croussé* is a good red; and I am particularly fond of *Progne*, which has rich ruby-purple flowers, which, apart from fine colour, have the most delicious whiff of *Violet*-like perfume.

The best Lady's Slippers.—It is very complimentary to find that people agree with one's own ideas, and so we are glad to notice that Mr. David Thomson thinks that *Cypripedium punctatum* and *C. insigne Maulei* are really the best of all the *Lady's Slippers* now in flower. There may be rarer, and also more valuable kinds, but considering all things none others known to us are likely to be so much admired. A coloured plate of these was given in *THE GARDEN* some time ago, and quite a demand for these two varieties has since arisen. Although *C. punctatum violaceum* (*C. Chantini*) is neither cheap nor plentiful, other kinds may equal it in beauty, but in our opinion it is the one best worth growing, and we are glad Mr. Thomson agrees with us.

VERONICA.

GROS COLMAR GRAPE.

EVERYONE has a right to grow and eat whatever Grape pleases him best, but when it comes to the advocacy of a variety for general use the case is altered. There are plenty of people who would like to know the best sorts of Grapes to grow, and if they were to believe all that has been said in favour of *Gros Colmar*, they might probably plant whole houses of it, and find out their mistake when too late. I come as often in contact with those who eat Grapes daily as most people, and I have never met anyone yet who would eat a *Gros Colmar* while any other sort was to be had, either here or elsewhere. I have tasted what were said to be the very best samples by its advocates, and though said to have been improved by being grown in a high temperature, I never found them anything else than the *Gros Colmar* in fibre and in flavour, and they have always been very red as well. The best examples I have ever seen are grown for market by an acquaintance of my own. He exhibited six fine bunches of it the other week at a *Chrysanthemum* show. They had enormous berries and were very perfect in colour. I never saw such well-coloured Grapes of the sort, and they were as good flavoured as the Grape can be, but they were not good, and the grower himself told me on another occasion that he would not think of growing this Grape for his own use. I apprehend all our culture, writing, and exhibiting are done with the object of improving our Grapes, and I ask why extol a variety that has only one quality to recommend it, viz., size of berry, but which is without exception the worst flavoured and generally worst coloured Grape in cultivation? If I am wrong, will anyone pledge himself to name any variety that is worse, all else being equal? The gist of the matter is just this: I can grow the *Lady Downes* and other late Grapes to as good a size of berry as anyone could desire, we shall say. I can colour them to perfection, and have them of good flavour for their kind, and I can keep them longer than any other sort. That being so, will anyone tell me why I should grow the *Gros Colmar* for dessert and when I should use it—I mean in a private garden? Advocates of the *Gros Colmar* I confine to this view of the case, because it is the practical view. Is there one Grape grower who would, for a prize, exhibit the *Gros Colmar* against any other well-known late Grape for colour or flavour? If they cannot do this, why recommend it?

J. S. W.

LEVENS HALL, WESTMORELAND.

LOVERS of scenery are sometimes narrow-minded, and we have even heard some sticklers for "nature" object to Chatsworth and its gardens as an offence against "the Derbyshire country." Still, every visitor to the Lakes who cares at all about the history of gardening ought to make a point of seeing Levens. The grey old mansion, with its tower and gables, its simple green terrace and long flight of steps up to the unornamented doorway, harmonises perfectly with scenery—magnificent trees grouped about a wild mountain stream, and every here and there peeps of the background of fells—such as is seldom found except near the English lakes. Plenty of culture, plenty of richness; those Limes and Sycamores, those avenues of Oak and Beech, and those huge Pines and very tall Birch trees, speak

probably suggested to Coleridge those lines in "Christabel" about—

The chamber carved so curiously—
Carved with figures strange and sweet,
All made out of the carver's brain;
just as his walk on Duddon sands taught him (he tells us) to say of the Ancient Mariner—
Thou art long, and lank, and brown,
As is the ribbed sea-sand.

But there is a similar Samson and Hercules fireplace at South Wraxhall almost (like the rest of the house) too far gone for preservation, while Levens is kept up, as such a place should be.

And the garden, with which we are chiefly concerned, looks as if it was still under the care of "M. Beaumont, Professor of the Topiary Art to James II." who laid out Hampton Court gardens. It is even better than Elvaston, as a sample of

projecting between the skirts of some periwigged beau.

It is not exactly the garden into which you would summon a romantically-minded young lady like Maud, though both the Yew arbours and the high, thick green-walled Beech alleys offer charming flirting nooks; but it is as good a sample as we know of what is wrongly called the Old French style, but which comes direct from the Romans, Pliny for one giving elaborate instructions as to how the topiarian is to improve on Nature.

Though a garden showing how not "to do it," yet it harmonises with a particular kind of house—better, however, even with the Caroline style or the red brick of Anne than with grey old Levens. Anyhow, it is worth seeing, especially when it has such an interesting house, and such a glorious park along with it.



Levens Hall, Westmoreland.

of solid peace; while the brawling Kent and the bare scour of Whitbarrow take us back to the Moss-trooping days when, if safely out of the way itself, Levens was often called on to help less fortunate neighbours. The house, with its mixture of comfort and strength, tells the same tale as the grounds: You are on the edge of the Borderland, where every cultivator had his "peel" and was often glad enough to use it. Inside, the most noticeable feature is the perfection of the "keeping up;" the rich Oak panelling, the leather-work (on dining-room as well as bedroom walls), the tapestry, the plaster ceilings—all are trim and in order. How few old houses there are of which this can be said! Look at South Wraxhall, by far the finest manor-house near Bath; there is a historic place once much grander in every way than Levens, as fine as Haddon, which it much resembles, and (after having been everything—even a boarding school!) is empty, and fast falling to ruin. The wood-carving at Levens is very good. The principal fireplace, with its "five senses, four seasons, and four elements," and—

Samson supporting one side, as in rage;
The other, Hercules, in like equipage,

what can be done with Yew, and Box, and Holly. Here near the house are pyramids with balls at top and bastionettes fashioned in their angles; arbours impenetrable to sun or rain or peering eyes, tall Mushrooms on slender stalks, and other quaint devices. Use, too, is mingled with "ornament;" all round the frames and hotbeds is an embattled wall, just so high that you cannot tell what it conceals, and relieved with embrasures, &c. Among these Yew and Box trees are flower beds of most intricate patterns with wonderfully neat Box edgings. Behind, dividing the main garden, is an alley of Beech, with arches every here and there, and a central circular space Beech-walled all round, which, if it had a few statues and vases, would speak even more than it does of Versailles and Watteau. As it is, you look for the dent of high-heeled shoes in that soft, daisied turf, and for the rustling of hoops, and the glory of plum-coloured coats and laced waistcoats amid the tender green of the young Beech leaves. It is all so exactly as it was, that, sitting in the rustic seat at the far end, you almost think you hear whisperings round the bowling-green, and a leafless bough does duty for a dress-sword

And Levens is easy to get at; it is five short miles from Kendal, down the Kent, which a little below it broadens out into a sandy estuary. You may walk to it in less than two miles either from Milnthorpe or Oxenholme Stations, and in much less, if you happen to strike the "bit of a back loan," to which any passer-by will direct you. Either walk is, like all the walks thereabouts, lovely; and whichever way you choose you must remember also to see Sizergh Castle, about a mile from Levens. This, the old place of the Stricklands, is a sad contrast to the other; it is scarcely kept up at all, yet historically and otherwise it is by far the more interesting of the two. In its gardens are plenty of Yews in a strangely intermediate state between trimness and wildness; the topiarian has not been there for years. But the terraces and moat garden are thoroughly English. There are in the Lake country plenty of grand "places" besides the well-known Muncaster Castle; but Levens and Sizergh, though not at all grand "places," are both well worth seeing, just because they are thoroughly characteristic. They can be seen, too, without interfering more than to the extent of, say, three

hours of the tourist's programme. Levens garden is something which few have seen, just because there are very few perfect examples of it remaining. F.

FRUIT GARDEN.

APPLES FOR CIDER MAKING.

THE abundant crops of Apples this season has, coupled with the Apple congress at Chiswick, and the various exhibitions held in the country, given rise to numerous suggestions as to the best varieties to grow, and the best means of disposing of them profitably. One of the means of doing so does not, however, seem to have been brought forward as prominently as it deserves to be, and that is making them into cider. In this county (Hereford), no matter how heavy the crop, growers are never at a loss how to dispose of it profitably, and, considering that there are twenty-five thousand acres of orcharding in Herefordshire alone, some idea may be formed of the enormous quantity produced in a season like the present. Fully 90 per cent. are cider fruit, and plenty of that is none of the best either, but no matter how bad it is a profit can be made out of it at the very lowest price of cider. What I wish to point out is that however heavy the crops may be, where there is a cider mill, the fruit can be turned to good account after picking out the best for cooking and dessert, so that there is no danger of being over-stocked with Apple trees where the soil is suitable for them; even growing bad varieties on unsuitable soil in the very worst way, viz., leaving them to take care of themselves, with the exception of gathering the fruit or cutting the Mistletoe out of them to sell for Christmas decorations, the pruning which they receive often depending upon the state of the faggot-rick. Even, I say, under such cultivation orchards are amongst the best paying things on a farm. Allow me to relate how an orchard that came under my immediate notice pays. It is a small one, about $1\frac{1}{2}$ acres in extent. Three seasons ago the amount of cider made from about 500 bushels of fruit which it produced was 25 hogsheads of 100 gallons each, which was sold in one lot for £50; the cost of making was 5s. per hogshead, which included shaking and gathering the fruit and making it ready for sale. We only found the man who undertook to make it a horse for grinding. Last season it only produced 5 hogsheads, but this year it is estimated to have borne quite enough fruit to make 28 hogsheads; then the grass under the trees will pay the rent. The orchard is planted thick and fairly well sheltered. This shows how the roughest method of cultivation and the crudest way of converting the produce into cider succeeds, the varieties of Apples not being worth any better method. Cider of the quality which this orchard produces is generally worth from 4d. to 6d. per gal., and any description of fruit will make it, but to produce cider of a superior quality worth from 1s. to 1s. 6d. per gal., very different methods must be adopted. In the first place it is necessary to have

THE RIGHT KIND OF SOIL, which gives the cider that rich flavour and delicious aroma and sweetness that keeps improving with age. A strong deep clay loam resting on the old red sandstone is the most suitable soil on which to produce fruit of the highest quality, and it is absolutely necessary that it should be well drained. Bad drainage is one of the most frequent causes of canker, and also of various other diseases; shelter is also of the greatest importance, and to obtain this a good plan is to let the hedges grow up as high as possible, or to plant a belt of quick growing trees thickly, such as Poplars, Austrian Pine, or what is perhaps the best and quickest growing tree for permanent shelter, Thuja Lobbi. The expense of this is, however, against it, but it is a first-rate Conifer. It grows so dense and with us faster than any evergreen tree. The ground should be thoroughly cleaned and deeply cultivated. Then mark it out into spaces 25 feet apart each way, a very fair distance, or plant 15 feet apart, and eventually thin out to 30 feet apart. An

orchard thickly planted does much better than one planted thinly. The trees protect each other. Next dig the holes; then drive in a stout stake, leaving about 6 feet out of the ground. Larch is the best for the purpose, being very durable, and it can be made more so by plunging it into quicklime previous to using it; then plant the trees to the stakes. The advantage of fixing the stakes first is that there is no disturbance of the roots and the tree can be fitted to the stake and tied to it at once, even before the roots are covered with soil which ensures it from being planted too deeply.

SELECT THE TREES with clean, healthy, straight stems and well-formed heads either two or three years from the graft. After planting cut any broken or bruised shoots off, but no others, for the less pruning they receive the better they will grow, but in after years any cross or misplaced branches should be removed. It is customary in this part, though the system is fast dying out, to plant Crab stocks in the permanent positions, and then graft them in two years time—an extremely slow process, and one of doubtful advantage, for they are grafted from 5 feet to 6 feet from the ground, and if at all neglected the grafts are often blown out. Being grafted so high, too, is often the cause of old trees splitting under the influence of the wind. It is, therefore, much better to buy the trees, for during the time the Crab stocks are growing the bought trees will be getting well furnished with branches.

THE NAMES of a dozen good cider Apples are as follows, viz., Red Foxwhelp, Rejuvenated Foxwhelp, Cherry Norman, Red Norman, Pym Square, Sack Apple, Royal Wilding, Devonshire Redstreak, Crimson Queening, White Norman, Strawberry Norman, and Kingston Black. These are good bearers, and kinds that make first-rate cider.

N.

CRANBERRY CULTURE.

THE Cranberry is a low, trailing evergreen shrub with very slender branches and erect, fruit-bearing stems. It is almost exclusively a northern plant. The early settlers in America found it so abundant, growing wild, that there was no necessity for its cultivation, and it has only been within the last half century that attention has been directed to its culture. For the last 40 or 50 years, however, there has been a steady increase in the area devoted to it, not only by individuals, but also by companies with abundant means to cultivate it on a large scale. Like Hop-growing and most other special industries, the profits from its cultivation have varied considerably; but on the whole it has proved a profitable crop to growers. Being antiscorbutic, the Cranberry is perhaps the most healthful of all our fruits, and as it can be cooked in many different ways, and is sprightly and pleasant in all forms, it is one of the greatest luxuries of the table. In addition to the benefit of having our markets and tables supplied with this fruit, its culture is a source of national wealth and welfare, inasmuch as the land devoted to it was previously uncultivated, enriching neither individuals nor the State. Moreover, by its cultivation many low, boggy wastes that generated malaria that poisoned the air for miles around have been converted into healthful localities and fruitful fields. There are still scattered throughout all parts of the Northern States numerous marshes and manure beds that are now productive of rubbish that could be readily converted into flourishing Cranberry beds, rich sources of income to their owners.

LOCATION.—As a Cranberry plantation is a permanent investment, giving annual returns for a lifetime, it is important that every precaution should be taken to make it as perfect as possible. Naturally, the Cranberry is a semi-aquatic plant, requiring a constant supply of water to insure a state of thrift and productiveness. Experience shows, however, that it can be profitably grown on a great variety of soils; but the best soil for it is an equal mixture of coarse sand and manure. As it is seldom that a soil of this composition can be found in a state of nature, the best way is to

form it artificially by covering well decomposed manure with a layer of sand. In a few years the two become thoroughly incorporated, making a soil resembling black sand. Profitable sites for a Cranberry bed are the following: Heath ponds, or low basins, places naturally flooded with water in winter; swamp lands in which deposits of manure or peat are found, and when properly prepared these make valuable and lasting plantations; savannas or low grounds lying between swamps and uplands; bottoms of old mill-ponds from which the water has been drawn off, and black sand with a clay subsoil; in short, soils formed by the deposits of muddy water, or, in other words, alluvial formations are suitable for Cranberry culture. Various modifications of the above situations can also be converted into profitable plantations. Although there are numerous instances of successful Cranberry culture on alluvial uplands, still such locations are invariably less desirable and profitable than the low, damp sites just enumerated, for the Cranberry is naturally a semi-aquatic plant, requiring a constant supply of water to ensure its highest perfection. Water is needed not only to supply moisture to the plants, but also to cover them in winter so as to afford them protection from severe cold, and to retard blooming in spring, as premature flowers would often be injured by early frosts and, moreover, flooding destroys the injurious insects and their larvae, frequent assaults of both plants and fruit. The moisture should be always not far below the surface; but stagnant water is fatal to the thrift of the plant, and the site of a plantation should therefore be such that it can always be flooded in winter and, whenever needed, irrigated in summer from a stream, lake, or spring; yet it should be capable of being well drained at least 1 foot below the surface. Another important material used in the preparation of Cranberry beds is sand—which is spread over the surface of the ground. This sand should be pure, free from any admixture of clay or loam, and the best test of a suitable kind is this: Take a portion of it and compress it tightly in the hand; if it is suitable, it will fall apart on being released; if it adheres together after the pressure has been removed, a better article should be sought. To save labour and expense, therefore, it is very desirable that an abundance of a suitable quality of sand should be close to the site of a Cranberry bed.

PREPARATION OF THE BED.—Having selected a location combining water, sand, and manure or peat, the next step is to prepare the ground for planting. The method of doing this varies somewhat in the several locations mentioned, but here there is space for only a general account of the process. Usually the first step is to cut a main ditch through the lowest line of the land. This should be as straight and as near the middle of the marsh as possible. In large plantations a second or even a third such ditch may be advantageous, the object being to drain off the surplus water, so as to make the rest of the work easier at the outset, each ditch afterwards forming the main drain in the plantation. The cuttings should therefore be broad and deep enough to carry off the water readily. Smaller ditches from 12 inches to 18 inches deep should then be cut from 30 feet to 40 feet apart, as necessity may demand, at right angles to the mains, into which they must open like lateral drains in ordinary drainage. Sometimes tile drains are substituted for open ditches. When the water has been removed, then clear off all trees, brushwood, Briers, and other encumbrances. These may be burnt on the ground and the ashes be scattered over the surface, provided this can be done without endangering the soil. When the soil is dry a considerable depth of the turf is sometimes burned, so that the remainder can be more easily handled, but if the deposit is dry far down, it may burn to too great a depth, so that this practice is hardly advisable. If the manure is deep enough, so that a portion of it can be spared (and a depth of 2 feet or 3 feet is ample for a Cranberry bed), it should be carted off for application to the neighbouring uplands, after

having been weathered or used in a compost. If a turfed meadow is selected, the surface is either cut in blocks, which are packed in heaps on the dry land until they are well rotted, when they are spread on the place whence they were removed; or, better and easier, the surface is turned over flat and left to decompose. A dry meadow, free of obstructions, may be ploughed with a plough having a sharp, extra wide share, so as to turn over the furrows flat without lapping in the slightest degree. Indeed, when the soil of any sort of bed is sufficiently firm to admit of being ploughed and harrowed, it is best to do so, as by this means it can be prepared better and more cheaply than by hand work. It is always well to prepare the ground at least one season before planting, so that all weeds, brushwood, and roots may be thoroughly destroyed, for if this is not done at starting, it will be a difficult operation after the ground is covered with plants. The bed having been thus cleared, it should be made quite level, so that when flooded the water may rest at an equal depth everywhere. If, however, the surface has a natural fall (which is favourable for drainage), the embankment at the lower extremity should be high enough to permit a depth of 2 feet of water at the upper end of the plantation. When the bed has been levelled and otherwise prepared, it should be covered with pure, coarse sand to a depth of from 2 inches to 8 inches, the depth depending on the compact or loose character of the soil. If it is very loose, more should be applied than when it is comparatively compact, as more or less will sink into the soil. That the depth should be uniform on a level surface, if the soil is of a uniform consistency, is quite important. The work of spreading the sand is greatly facilitated by laying down a rude, movable track on which the trucks containing the sand may run. When the bed is flooded in winter after having been otherwise prepared, the coat of sand may be spread on the ice, in which case it will sink to its place when the ice melts. If the manure bed is underlaid with sand, and is not too deep, pits may be dug at intervals and the clean, white sand from beneath thrown up, or a subsoil plough or trenching may be employed for the same purpose. Experience proves that sand is especially suited to successful Cranberry growth. It is light, porous, and almost incapable of supporting weeds. Beach sand is found to be the best, and in the absence of this, pure, coarse sand comes next.

EMBANKMENTS.—The bed should be surrounded with an embankment, which should be at least 4 feet high when first made, as it will settle somewhat; and, moreover, it is well to have it a foot or more above high water mark to guard against breaks. If the soil excavated from the drainage ditches in the bed be sufficiently compact, it may form the embankments; otherwise, different soil must be added. If there is not naturally a sufficient supply of water to flood the bed when desired, a reservoir should be constructed at the upper end of the plantation, from which it should be separated by an extra strong embankment, with a sluice gate for the purpose of letting in the water and shutting it off. At the foot of the plantation a dam must be constructed of the nearest suitable material, strong enough to resist any possible pressure that can be brought against it when the bed is flooded, and high enough to allow a depth of at least 2 feet of water in the shallowest part of the plantation, in case this is not completely level—a condition which is very desirable, though sometimes unattainable except by too heavy an outlay. The dam should also be furnished with a sluice-gate, the latter to be shut down to let the water overflow the Cranberries, and opened to let the flood off when desired. The bed may be 1 acre or more, provided it can be properly flooded. Almost the entire cost of the plantation is due to the preparation of the bed. An estimate of the expense is impossible, as it will cost as much to remove the trees, stumps, brushwood, &c., and to build reservoirs and embankments on one piece of land as to fully prepare another for the reception of the plants. The outlay has varied from £20 to £120

per acre; but it must be borne in mind that, with moderate success in a suitable location properly prepared, the investment is permanently remunerative. If the swamp be covered with valuable timber, the sale of the trees may pay the whole expense of converting it into a Cranberry meadow.

VARIETIES AND PLANTING.—The best time for planting is from the beginning of April to the middle of June, according to the latitude and climate; but where the bed can be kept moist the work may be continued during the entire summer. Sometimes the plants are put out in autumn and covered with a sufficient depth of water to prevent the ground from freezing and throwing them out. In any case it is of first importance that the plants should be obtained from fruitful beds as well as those that produce the largest and best fruit. When plants cannot be obtained in the neighbourhood either from wild or cultivated beds, they should be bought from those who make a business of growing plants for sale; but in such cases care should be taken to secure good plants, and that they should be carefully packed before they become dry. A little extra care and expense in this matter will be amply repaid in more profitable returns afterwards. The three principal varieties of Cranberries recognised in the markets are, the Cherry, round, hard, dark, almost black, and either large or small, as there are two varieties; the Bugle, egg-shaped, a pale crimson, large and small, for of this, too, there are two varieties; and the Bell, large, black, and the favourite with Cranberry growers. There are many other shapes intermediate between these, and in colour the varieties vary from greenish yellow or white to dark rich purple, almost black. Having procured the plants or cuttings, they should be set in rows from 18 inches to 3 feet or so apart, according to their quantity and quality, the object being to cover the ground as soon as possible. There are several methods of planting, such as sod planting, hill planting, drill planting, planting by pressure, and putting cuttings. The Early Black Bell some consider the most profitable sort. A good way is to make drills from 2 feet to 3 feet apart, and in them set from three to six cuttings 4 inches deep every 12 inches, pressing the soil solidly about them, and letting the tops lie slanting near the ground. On meadows of thin sod the plants may be dropped on the surface, and covered with an inch or two of sand. Most of the large plantations, especially in the West, are made with plants taken directly from the wild beds; they are removed in large clumps or sods from which all weeds and grasses should be removed before they are transferred to the Cranberry bed, or else cuttings are made and planted the same as those procured from cultivated beds.

CULTIVATION.—For the first two or three seasons the beds should be carefully cultivated, and no weeds, grass, or sprouts from brushwood should be allowed to grow. A hoe may be used the first year for eradicating these, but later the plants cover the ground so thickly that a hand-fork and trowel are the only proper implements for the purpose. Constant attention rather than hard work is required, and when the plants have become matted over the whole surface, very little cultivation will afterwards be needed. Bearing begins within three or four years after planting, the time depending on the quality of the plants, the richness of the soil, and the care bestowed on cultivation. If the fruit is picked sooner it is likely to injure the subsequent crops. Fertilisers often do more harm than good. The only safe way in applying them is to experiment with a few plants and be guided by the result. A sprinkling of fresh, rich manure, well pulverised and mixed with pure, coarse sand, has been found the best application.

FLOODING.—The water should be let on only when the ground has begun to freeze, but before it has frozen hard. The proper time will, of course, vary in different places and also in different seasons. So will the depth of water which should cover the bed—all that is needed is depth sufficient to prevent the plants from freezing; and while a depth of 3 ft. will not be too much in some places,

a depth of 2 ft. or less will prevent this in other localities. The water should be kept on in spring until all danger of late frosts is over, as this will retard blossoming, and the flowers and fruit of the Cranberry are easily injured even by slight frosts. There should be no set season for letting the water on or off, as location and season should determine the matter. Unless in the case of autumn planting, flooding is unnecessary until the third year after the plants have been set out. Sometimes it is advisable to flood the meadows during the summer drought, but then it is advisable to apply only water enough to give the soil a good soaking.

GATHERING.—Gathering is now mostly done by hand, as it has been found that the Cranberry rake injures the plants and so damages the fruit, or rather mixes with it so much dirt and leaves, that it brings a lower price in the market than hand-picked sorts. The picking begins in September or October, and in the operation various sorts of crates, baskets, hurdles, &c., are used, the main object being to allow all foreign bodies to fall through when the fruit is carried from the field or spread out to dry. All unsound berries should be carefully removed before the fruit is packed for market. In large plantations the berries are run through a fanning mill furnished with a long sieve or grate to separate the small berries from the large, or a separator constructed for this purpose is used. After they have passed through this ordeal, they undergo the inspection of a row of women on each side of a long table, at one end of which the berries are started and passed down to the barrel or box at the other end, each person picking out any damaged berries that may be seen during the passage. The clean berries should be packed in whatever sort of receptacle is the favourite in the market where they are to be sold and until wanted, stored in a well-ventilated, cool room into which neither sun nor frost can penetrate. The yield varies greatly in accordance with the cultivation, the quality of the plants, and the soil, the injury from frosts, insects, and other causes. A large yield would be from 350 to 400 bushels per acre, and an average one about 200 bushels. Any less than 100 to 150 bushels would hardly pay interest on the investment and the cost of caring for the bed and harvesting the crop.—*Rural New Yorker*.

POT CULTURE OF VINES.

THE forcing season is now upon us, and those who have to supply early Grapes, and have no means of doing so except from pot Vines, must pay great attention to them during the next few months. In some cases cultivators are enabled to purchase pot Vines ready grown for them; but they are expensive, and not infrequently they have to be produced at home. For a number of years I had to grow early Grapes on pot Vines after having grown the Vines from which the Grapes were produced. First of all in doing this, we must decide what are the best varieties to grow. Black Hamburg is by far the best; and for a white kind, Foster's Seedling may be chosen, although Royal Muscadine is not to be despised. It sets its berries well. Shy-setting Grapes ought not to be grown in pots to force early.

THE EYES must be put in early; the first or second week in January was always selected by us as the best time to do this. We used to prepare a bed of fermenting material; tan is as good as anything, as it does not heat violently. Each eye was inserted singly in a 3-inch pot. The potting material (good turfy loam, with a fourth part of rotten stable manure added) should be rather moist at the time of potting; if it is dry, the eyes do not start well, and it is not a good plan to water them until the young Vines show themselves; even then water very cautiously. The young Vines are sometimes killed in a wholesale manner by receiving an overdose of water before they are established. When the plants have grown 3 inches or 4 inches, repot in 5-inch or 6-inch pots. The same compost may be used, or the manure may be left out and crushed bones used instead. As the days lengthen and the plants increase in

strength, the temperature may be increased. At first 50° were enough; when the plants are potted this may be increased to 55°, and by the end of March to 60°, ultimately rising to 65°. As the plants increase in strength they are potted next into 8-inch or 9-inch pots, and finally by the end of June or early in July into 11-inch and 12-inch ones, in which they will produce their fruit. As soon as put in their fruiting pots we had some trellis-work laid over the hot-water pipes on which to set them; then they received a Pine-house temperature from 85° to 90° after the house was shut up in the afternoon, with plenty of moisture in the atmosphere. The canes were tied up close to the glass, at least as close as we could get them without injuring the leaves. By the end of August or early in September they were brown and quite hard with plump buds, as we generally stopped the leader at 9 feet or 10 feet from the pot. They never had any manure water, and yet the canes would be of the strongest description. I advise keeping them in heat for a considerable time after the canes show signs of ripeness. While the leaves are green, the eyes at the base are becoming plump; the incipient bunches are then being fashioned and prepared for the early start they are expected to make next season. Some might insist on turning the Vines out-of-doors to ripen. This ought not to be done. It is not necessary to turn them out at all. By gradually withholding water the leaves will assume the golden tints of ripeness and drop. After that place them in a cool house, and cut them back to the required length of rod, say 7 feet or 8 feet. They may be

STARTED in a few weeks, very gently at first; 45° to 50° as a night temperature is enough. A very gentle bottom-heat will cause the buds to start more regularly, but it must not be much; 70° to 75° would be sufficient; more might be injurious. Syringe the Vines every day with tepid water; this will greatly help to promote the swelling of the buds. Apply a rich surface dressing, and also give weak manure water as soon as the Grapes are set. Tying, training, and the ordinary routine of Vine culture are well known, and need not be further dwelt upon here.

J. DOUGLAS.

CRACKING IN MELONS.

IN his interesting remarks on fruit cracking "J. S. W." (p. 536) asserts that Melons ripening on plants with good foliage are the least liable to crack badly. This is not my experience; in fact, with us the reverse is the case, the fruit on the healthiest, best-grown plants being, under certain conditions, much given to cracking. We, too, found that the withholding of water at the roots is no preventive; neither will partly severing the stalks do any good, especially when the slightest crack is visible. Nothing in our case but early ventilation and the maintenance of a drier atmosphere will prove effective, and that only at times. It is after a spell of dull weather we experience the greatest difficulty, the atmosphere being then highly charged with moisture, and on this a sudden burst of bright sunshine appears to act in a manner very prejudicial to any juicy, ripening fruit. Whether the heat and moisture cause the skins to contract, or whether they cause the sugary matter contained in the fruits to swell and thereby burst them, I cannot determine, but burst they do, and often in a very provoking manner. All we can do is to slightly ventilate early on clear mornings, and rather freely on dull days should a sudden change occur. Some varieties are more liable to burst than others, none with which I am acquainted being so bad as Victory of Bath. At one time this variety was relied upon for the very earliest crops, but as we could not afford to favour it at the expense of later and more valuable sorts, it had to be discarded in favour of a true form of Blenheim Orange, the latter ripening quickly and seldom cracking. Our worst misfortune this season was with William Tillery; several handsome fruits of which, averaging 7 pounds in weight, burst badly, and were quite spoilt for the purpose for which we particularly

required them. Better than these cracked fruits I never tasted; in fact, most that were cracked, as well as Cherries and Plums, are very good though greatly impaired in value. W. I. M.

Premature ripening of Pears.—Our experience this season with Pears is similar to that of Mr. Wildsmith, recorded in THE GARDEN (p. 498). For the past fortnight we have been using Josephine de Malines in first-rate condition, and occasionally well-ripened examples of Ne Plus Meuris. Beurré Rance is, likewise, becoming ripe, and will have to be used shortly, instead of keeping good till February. I never recollect these late Pears ripening so early before, but I well remember that a few years back many autumn Pears were unusually late in ripening, notably in our case Beurré d'Amanlis, Thompson's, and Beurré Superfin. This occurred during an unusually wet season. In the present instance we have the reverse happening during a season remarkable for a long period of drought during the late summer. This, coupled with the exceptionally warm autumn, in a great measure is, I believe, the cause of Pears being in fit condition for dessert much earlier than usual. Beurré Diel has this year been extra fine from an east wall, on which in several previous years we did not succeed in ripening it to perfection on our gravelly soil. Duchesse d'Angoulême with us is hardly ever presentable for dessert. We had a few this autumn that were better than usual, but not first-rate. Thompson's stands invariably in the front rank, so also does Beurré Superfin. Easter Beurré with us is scarcely worth the room which it occupies, while further south very fine examples of it I well remember were nearly every season gathered from a tree on a south-east wall.—JAMES HUDSON, *Gunnorsbury House*.

Coal tar and Vines.—As the person who started the discussion on the above topic in THE GARDEN (p. 364), permit me to say a few words in reply to the several correspondents who have followed me in the matter. First, "J. S. W." says (p. 407) that he thinks my evidence as to coal tar killing the mealy bug on our Vines is "only at best negative," and infers that it was the cleansing the Vines and dressing the walls and woodwork with paraffin that killed the bug. I differ from him on this point most conclusively. My reasons for doing so are that each year for the past eleven years the Vines in question have had the same thorough cleansing with "strong soap and water;" and although the woodwork was not dressed with paraffin, yet twice during that period the house has had three coats of paint, the sashes being removed both times, so that the work could be thoroughly done. Under these circumstances I think I am entitled to say that my evidence is "positive," not "negative." I am the more entitled to claim this, seeing that at page 486 I am corroborated by two correspondents, neither of whom is personally known to me; I am also supported by your shrewd, practical correspondent, Mr. Baines (p. 471). "G. M.'s" notes (p. 538) have no bearing on the subject at issue at all, as applying a mixture of clay and tar to Vine stems when dormant is quite a different matter altogether from painting hot-water pipes with coal tar; the latter being, as is well known, a very unwise thing to do. In conclusion, allow me to say that I have as great a horror as any gardener of smearing fruit trees generally in fruit houses with mixtures of any description, but when one has an evil to contend with, it is well to know a harmless remedy; hence my giving my experience with coal tar and clay to kill mealy bug on Vines.—J. CLAYTON, *Grimston*.

Lizards (T. Pitt).—The animal you forwarded is a small male specimen of the common lizard (*Zootoca vivipara*), often abundant on heaths and commons. It is a useful and perfectly harmless little creature. It feeds entirely on insects, which it catches by darting at them with great rapidity. Its favourite food is flies of various kinds, but it will eat other sorts. The young of this species are born alive. The other British species, the sand lizard (*Lacerta agilis*) lays eggs in warm, sandy places, from which the young are hatched.—G. S. S.

5106.—Liquid manure in winter.—As "C. M.'s" trees are, no doubt, already too vigorous, it would be superfluous, if not mischievous, to further enrich their root runs with manure, either liquid or solid. Were they otherwise, however, trees grown on such light soil as he describes would be benefited by liquid manure in winter. The extra amount of moisture thus given to the roots could hardly harm with a porous bottom of thin sand, while the porous earth would act as a sieve or a filter, and retain most or all of the enriching properties of the sewage on its passage through, discharging it into the nearest outlet almost pure water. Such being the case, the application of sewage to vegetable ground in winter also enriches it. Of course on tenacious soils with imperfect drainage this excess of water applied with the sewage would do more harm than the manurial residuum left from the sewage would do good. But this would not be the case on such soils as those described by your correspondent. About the finest Onions ever seen by the writer were grown on the same bed ten or more years to his knowledge. This piece of ground had no manure, but house slops and soapsuds with a little soot from a cottage chimney in which wood chiefly was burnt. The Onions continued to thrive, and were always free from grub at a time and in a district where that pest was so persistent as to direct my special attention to this particular bed. However, as a rule, there is considerable waste in applying liquid manure direct to uncropped land in winter. By pouring it over the heap of refuse and rubbish, all of which "C. M." carefully conserves, this would much improve it, none of the manurial properties of the liquid being wasted.—D. T. F.

FLOWER GARDEN.

SOME OF THE MORE STRIKING BINDWEEDS.

WHAT a host of rich garden plants are to be found among the some 800 species belonging to the Bindweed family, and how few of them are cultivated! "Veronica's" note on the beautiful *Ipomæa rubro-cerulea* directs attention to one of the very finest of the *Ipomæas*, long an inmate of old-fashioned gardens, but about which the present generation of gardeners appear to know or care but little. We are indebted to "Veronica," too, for looking up and bringing to light more than one old garden favourite whose good qualities have been forgotten or ignored; and in the case of this *Ipomæa* he has ferreted out a real treasure, whose beauty is of the very highest order, even among bell or trumpet-flowered tropical Bindweeds. I know a garden in which this plant is grown to perfection, the roof of an intermediate house being literally covered with its shining green foliage and large sky-blue trumpets during the winter months. As many as 500 flowers have been counted at one time on this plant. When cut just before they expand and placed in dishes of water, these flowers have a most beautiful effect when placed on the dinner table, lasting the whole evening and displaying a perfect kaleidoscope of colours under the influence of gaslight. A variety of colours is perceptible even during the daytime in the flowers produced by this plant. Flowering at this season of the year gives this *Ipomæa* additional value, for although each flower lasts but a day, there is an endless succession of them for nearly two months. Seeds of *I. rubro-cerulea* may be procured from any respectable seedsman for a few pence, and if sown in June and grown on, feeding a little now and then with liquid manure, the rich floral display above described may be enjoyed by all who possess a stove or warm conservatory. Mrs. Horsfall's *Ipomæa*, too, has held its own as a first-rate flowering stove plant. At this season, and again in early summer, it bears a large crop of pendulous bunches of purple-rose bell-shaped flowers, which pen one after the other in quick succession, and which even in bud are ornamental, the buds having the appearance of berries before opening. It requires a moist stove and liberal treat-

ment at the root all the year round. It is a native of the East Indies, whence it was introduced some fifty years ago. *I. Leari* is another well-known stove species whose freely-produced large lilac flowers are very ornamental during the summer months. This, along with *I. Batatas*, sometimes called *Batatas paniculata*, produces a tuberous rootstock from which the long climbing branches are developed annually. *I. purpurea*, or *Convolvulus major*, is the well-known Morning Glory, a common garden plant all over the civilised world. We all know the handsome white, blue, carmine, rose, and variegated flowers of this beautiful Bindweed, and there are few annuals more worthy of a yard or so of flower border here and there than this and a few Pea-sticks, round which it can twine its slender stems, thickly laden with many-coloured trumpets. For covering old hedges or iron fences no plant is better adapted than the Morning Glory of South America. The many coloured flowers of this plant are the result of cultivation, the original colour being deep violet. *I. hederacea*, or *Pharbitis Nil*, is a hairy-leaved, blue-flowered species to be met with now and then, but not nearly so frequently as from its ornamental character it deserves to be. And now let us advert to the lost beauties of the genus, or, if not lost, hidden in some old-fashioned garden such as that where "*Veronica*" met with the beautiful rubro-cœrulean species. *I. Turpe-thum* is a luxuriant growing species, with large pure white flowers, common in Asia, and cultivated in the West Indies, but, although introduced into this country many years ago, apparently no longer cultivated. *I. pes-caprae*, or *I. maritima*, is in cultivation at Kew, where it flowered last summer, and proved itself to be a beautiful stove climber. It is a common sea-coast plant in the Tropics of both the Old and New Worlds, where it often plays an important part as a sand-binder, thus preventing the sea from making inroads into the land. In Ceylon it is one of the commonest of shore plants, strewing the sand for miles with its two-lobed leaves and violet or lilac flowers. The leaves resemble in form a goat's foot, from which the specific name is derived. *I. acuminata*, a blue-flowered species; *I. paniculata*, with flowers in corymbs of about twelve, and large, bell-shaped, deep purple corolla, are some of the finest of the tropical Bindweeds that have been cultivated here, but appear to be either rare or lost altogether.

B.

ANDROSACE LANUGINOSA.

SINCE this alpine plant was brought from the Himalayas we have received *A. sarmentosa* from the same quarter, and the latter is more woolly even than the present species, which is named in allusion to that characteristic. It may be useful to remember this, because, though the two forms are otherwise distinct, they have been confounded by amateurs, which may easily happen in the case of two plants so nearly allied and comparatively new or little known. The thick and flattened coating of hair on *A. lanuginosa* gives the foliage a silvery appearance. The leaves are lance-shaped and 1 inch or 1½ inches long, arranged in rosette-like tufts on straggling, stolon-like, prostrate stems. Under cultivation the flowers appear early in summer, and in the case of vigorous plants continue to be produced until late in the autumn. The slender scapes are from 4 inches to 8 inches long, and carry rather large clusters or umbels of variously coloured flowers. The primary colour is a soft red, and, in accordance with the age of the bloom, such tints as white, yellow, and carmine are more or less developed. A well-grown plant of this *Androsace* is when in flower a lovely object; all the species, indeed, are attractive, but this is more so than the rest, owing to its richness of colour, size of the flower-heads, and its prolonged season of flowering. Fortunately, too, of a genus requiring some special treatment, this is one of the easiest to manage. Of its hardness in our climate there can be little doubt, though it prospers better in some parts than in others; on our west coast and in Ireland it does well. My experience of it is that it can

endure very low temperatures, but that during wet winters the crowns rot from moisture held about them by the hairy foliage; if sheltered, without, excluding light and air or moisture from the roots, no difficulty need be apprehended. It may be grown finely in pots, and this method allows of its being transferred to a cold, airy frame during winter. It is useless trying to grow this or any other of the genus on rockwork unless provided with solid veins of soil capable of being kept thoroughly moist; if the stones are large and well sunken, *Androsaces* will succeed in the sloping strips of earth between them. It is well to bear in mind that their long silky roots seek food in deep cool soil, and that they cannot endure the least drought. On rockwork of the character just described the roots will be well provided for, but they can hardly be retained in pots, even for a year, if the plants are doing well, and I may add that the pots should always be plunged. This should be done either in fibre or sand. Ashes are too hot and dry in summer. So important is it to



Androsace lanuginosa.

preserve the roots from the effects of heat and drought, that I would not lift plants out of the plunging material during a hot day. Pot culture always has this drawback, too, viz., that the roots go through the holes like a silky fleece, and when the pots are moved a check from the wholesale loss of root power is experienced. Lately I have so plunged the pots in well-firmed sand that a hollow space exists under each pot, and it is interesting to lift the pots and examine the tassel-like tuft of roots bespangled with globules of moisture. A capital compost for this class of alpine is fine peat or leaf-mould largely mixed with sandstone and brick grit; silky loam may be added for most of them, and for the species under notice will answer alone. In propagating it the wiry stems should be taken with all possible length in summer. Insert them as cuttings in moist, but sweet soil so deeply, that the tufts of foliage rest thereon. Allow full sunshine after a week or two, but leave the young stock undisturbed until the next year's growing season comes round, and shelter from wet in winter, as in the case of established plants. I have found it to be a bad practice to disturb the roots of *Androsaces* just before or during winter. They should be divided or repotted much in the same way and at the same time as the allied *Auriculas*. They may also be increased by pegging down the stem or fixing them down with small stones. Seed may also be had, but I have never raised plants in that way.

Kirkstall.

J. WOOD.

IRIS SUSIANA.

"*VERONICA*" says (p. 525) about this: "By taking up the roots after the leaves die off in summer and keeping them out of the ground until the worst of winter weather is over, is, perhaps, the best way of treating this plant. If any of your readers are usually successful, their course of treatment will be most welcome." Professor Foster, of Cambridge, is the right person to speak, *ex cathedra*, about a matter of this sort; but in case the above sentences do not meet his eye or he is too busy to notice them, I will comply, in few words, with "*Veronica's*" suggestion. If he and I were to have the care of the same plant, it would only be in the ground for a very few months during the year, for he digs up *Iris susiana* just when it is replanted by me, and it is, *vice versa*, left by him to take care of itself when I am sure it should be guarded from wet. Some instructions of Herr Max Leichtlin first opened my eyes to the course which should be pursued. During the whole of the summer months not a drop of water should come near this plant, and during the winter months it can shift for itself. I do not find that it suffers in the latter case from neglect, and, if I remember rightly, it is just the same on Dr. Foster's bleak hill.

The only part of the problem that requires any consideration is how best to keep it dry in the summer. This must either be done by a frame put over the plants, or they must be taken up bodily and kept in a greenhouse from May to September. I am not quite sure which of these two methods is best. Max Leichtlin always prefers the first. I have tried the second with success. But I shall know more about this if all be well in the spring of next year. I have left some of these *Irises* in the ground (kept dry of course), I have put others on a shelf in full sun in the greenhouse, and I have kept some in a box full of sand. If "*Veronica*" lives anywhere near here, and will give me the honour of a visit towards the end of April or beginning of May, I hope to be able to show him some very good specimens of *Iris susiana* and *Iris iberica* in blossom, and also to have made up my mind as to whether it is best to leave the plants in summer in the ground or to take them up and to keep them under glass. I have not so far found that the little rootlets are injured in the latter way, as was feared might be the case.—H. EWBANK, *St. John's, Ryde*.

It has been pointed out that success in the cultivation of this plant depends on a thorough resting time in summer. If "*Veronica*" (p. 525) will cover up his plants with glass from June to September, there will be every chance of success. Plants thus thoroughly roasted and rested will stand wet and cold and flower well; so treated, they may be potted in light rich soil, and under the protection of a frame or glass house will be in flower a fortnight earlier than those in the open. *I. susiana* is the principal representative of a group of *Irises* which are termed *Oncocyclus*, all the species belonging to which are remarkable for their singular and beautiful colours, and for the classic form of their flowers. There is every probability that within the next two or three years a number of species of this group will be distributed, the flowers of which are purple, dark red, pale and dark blue, as well as yellow, all new to cultivation, and which will attract the attention of all lovers of these, so to speak, eccentric plants.—MAX LEICHTLIN, *Baden-Baden*.

Permanent bulb beds.—Many of the hardier kinds of bulbs, such as *Daffodils*, *Jonquils*, single *Tulips*, &c., are most useful for furnishing cut flowers, and I find that if left in the soil for several years undisturbed they do far better than if annually lifted. As they make their leaf growth and die down again early in the season, they may be economically grown as regards space along with plants that flower in summer and autumn. The plan which I adopt is to set out beds about 4 feet or 5 feet wide, with alleys between them for convenience in gathering the flowers. In planting *Carnations*, *Phloxes*, *Pæonies*, *Larkspurs*,

Roses, and hosts of other good things for cutting in the same beds, I set them in cross rows at good distances apart, and then put in an intermediate row of bulbs. I find that mixtures of this kind get on extremely well together. If the soil is deeply cultivated and enriched before planting, a top-dressing of leaf-mould or manure is all they will require for two or three years, when both plants and bulbs will need lifting and dividing; and now that the demand for cut flowers is increasing beyond ordinary sources of supply being able to meet it, I can heartily recommend this practice to others. At Easter and Whitsuntide, when these early flowering bulbs come in, there is always a great demand for both indoor and church decorations, and Daffodils are exceptionally well suited for such purposes.—J. GROOM, *Gosport*.

ORCHIDS.

THE ORCHID ALBUM

For December contains coloured plates of the following, viz.: *Lælia harpophylla*, a pretty species, with orange-red flowers in the way of *Lælia cinnabarina*. This, when exhibited at South Kensington, about three years ago, by Sir Trevor Lawrence, was not much known, but, being a fine form, it was greatly admired. It has since then been introduced in quantities, but the ordinary forms of it are far behind Sir Trevor Lawrence's original plant. Prof. Reichenbach suggests that it may be a mule between a *Brassavola* and *Lælia cinnabarina*, but being found in a wild state in thousands, this hypothesis seems doubtful. It is more slender in growth and much taller than *L. cinnabarina*, but it grows and flowers freely under the same treatment, succeeding best in a winter temperature of from 50° to 55° as a minimum. It is now at rest, preparatory to flowering in spring. Its flowers are well adapted for button-holes and small bouquets. The next plate is a very fine one of *Odontoglossum Alexandræ* var. *Cooksoni*, the flowers of which are pure white, of large size, heavily blotched, and spotted with reddish brown. The same form has appeared in several collections, and as the spotting seems to vary with the strength of the plants and the treatment which they receive, and as the owners of the various plants attach their own names or that of their friends to them, confusion amongst them is likely to arise. This particular form is well worth a varietal name, but the first to flower it ought to have the privilege of naming it.

Cypripedium Spicerianum makes a charming plate, and as this is proving itself to be one of the prettiest of recent introductions, and ought to be grown in every garden, a few cultural notes respecting it may be useful. It is said by its introducers that "it grows on almost perpendicular rocks, from which the plants are loosened with sticks, and so let down, during the months of May and September." Thus situated, water is constantly trickling down on it. It is further said that it ought not to be grown in a hothouse during the winter months. The editor, however, advises it to have the same treatment as *C. Stonei*, which does best in the warmest house. Messrs. Veitch grow it with their *Phalenopsis*. I also give it the same treatment, and find it to grow and flower as freely as *C. insigne*. I potted a plant of it about twelve months ago in good compost, consisting of turfy peat and Sphagnum, and on turning it out a month since the whole mass of compost and drainage was full of strong healthy roots.

An exceedingly fine spike of *Dendrobium Dearei* completes the number. This is also proving itself to be a very handsome *Dendrobe*. The pure white flowers, with just a dash of pale green at the base of the lip, are useful in a cut state, as they last long in good condition. It is stated that as many as thirty flowers have been produced on one stem. The plant seems to require much the same treatment as *D. formosum*, viz., growing it near the glass in the warmest house, either in pots or baskets, but probably it will, like *D. formosum*, succeed best in baskets, with not too much potting

material placed round the roots. It is stated to be a native of Mindanao, Philippine Islands.

J. DOUGLAS.

IMPORTANCE OF DRAINAGE FOR ORCHIDS.

IF there is a difficulty in the cultivation of some of these plants, it is comprised in the word drainage. In every other respect they are the best-conditioned, easily managed, and most accommodating plants with which we have to deal. If an *Erica*, an *Azalea*, or even an ordinary greenhouse or stove plant received but a fourth part of the maltreatment to which Orchids are, even in these days, sometimes subjected, they would perish, be consigned to the rubbish heap, and be forgotten; while the good-natured Orchid would still hold on to dear life with all the determined tenacity of which it is so capable. Abundant, thoroughly perfect, and continuous drainage, however, it seems to demand with all the forcible energy of which still life is sometimes capable of showing. How strange it is that we so often allow the mute cravings of these gems we love so dearly to go unheeded and unanswered! Drainage in the purest and most perfect sense of the word they do require, and must have, else their charming verdure soon pales to a sickly and unhealthy hue; they fail to produce their gorgeous blossoms, and eventually, after severe and persistent struggles, not unattended with palpable warnings of their portended fate, they linger out a miserable and wretched existence, and ultimately die. It is not at all surprising that they should demand such ample drainage if we examine their method of growth in their native habitats. Even the terrestrial species, with one or two exceptions, do not require their roots to be constantly immersed in water; even these are said to prefer the wholesomeness of a running stream to a stagnant pool. But a stagnant pool in the Tropics is not so disastrous to them as is a flower-pot partly filled with sour peat or a mass of rotten Sphagnum in our close, ill-ventilated hothouses, where the atmosphere is kept as nearly as possible at all times to the point of saturation. As to the

EPIPHYTAL SPECIES, they utterly detest and abhor anything approaching stagnation at the root; hence the wise provision with which Nature has endowed them—that of having a creeping, nay, in some instances it may almost be called a running, stem, so rapidly do they climb even the tallest branch or tree in their native homes. This constant attempt on their part to obtain clean and fresh root space, avoiding that which is dead and adhering firmly to that which is alive, healthy and wholesome, should teach a lesson to all of us who have not hitherto taken special care about the kind of material on which we place them so long as it is capable of being called peat, nor to see that the Moss in which their roots are often too freely embedded is at least free from filth and decay, and so arranged as to secure a natural and efficient passage for the copious supplies of water required to pass through it. With some cultivators it seems a sufficient provision for drainage if the pot be loopholed in all directions, filled three parts full with broken potsherds and charcoal, and then heaped up with alternate layers of peat and Moss in the most indiscriminate and careless fashion. Drainage such as the Orchid loves is not secured by such means, nor will the materials so jumbled together continue healthy and sweet for any length of time under the abundant daily supplies of soft water which this plant requires during the period of active growth. Drainage for these plants means not only of the substratum, but of its surface materials also; therefore, to make use of any kind of peat, except that of the best and most suitable quality, should on no account be employed.

THE MOSS also should be collected free from dirt, leaves, and sticks, in patches or lumps just as it grows naturally, without separating the particles in the least degree. In the operation of potting these lumps of Sphagnum should be placed in a vertical position without disarrangement, and

the peat also, after separating it from the fine particles, should be used in rather large pieces, taking care to keep the fibre perfectly upright. Large lumps of charcoal should also be inserted between them at irregular intervals. These materials should be made as firm as possible, not so much by pressure from above as by lateral pressure, and this should be done with all the force which the fingers are capable of exercising. Orchids require a very firm, and sometimes even a solid, base for their roots to cling to; anything which is loose or frequently shifting is foreign to their nature, and should on no account be used. Their ordinary foundation being the branch of a tree or piece of rock, in potting, these should, as regards firmness and solidity, be imitated as exactly as possible. With such materials, prepared and used in the manner described, while they will allow water to percolate through them with the greatest freedom, they will not, even when dry, throw it off the surface, and thus, as is too often the case, prevent the inner roots receiving a proper supply; nor will they, from their highly compressed condition, hold in suspension too great a quantity at any time. The Moss, being placed in large patches in an upright position, will make a free growth; nor will it shrivel up during the dry season, but will at all times afford a natural protection to the surface roots, and, what is even more important, it will aid considerably in securing that which I have endeavoured to show is so essential to the welfare of Orchids—perfect drainage.

W. C. T.

POTTING ORCHIDS.

I do not wish to unnecessarily prolong this discussion, but would like to point out that Mr. Catt misquotes what I stated (p. 520). My remarks were, "That winter is the best time for repotting every Orchid that can be potted." By that remark I meant all Orchids that were starting to make roots. We have finished repotting by far the largest proportion of our Orchids. Those at rest have not been repotted. All the *Dendrobiums* are yet at rest; so also is *Odontoglossum citrosum*; the last named we report as soon as it begins to grow. For many years we repotted our Orchids in summer, but have gradually adopted winter or early spring in preference. One of the most successful exhibitors of Orchids, Mr. John Ward, of Leyton, potted the bulk of his collection in winter. May I ask Mr. Catt if he has proved from practical experience that it is wrong to pot Orchids in winter? Further, has he the same proof that it is wrong to pot newly-imported *Cattleyas* in drainage only until roots begin to push? Then, as to ventilation, I have, in all my writings, continually urged its importance. Our Orchid houses have air on night and day. Twenty years ago I had fully proved the importance of this. We have "hit-and-miss" ventilators in the walls exactly opposite the hot-water pipes. These admit a small quantity of air, and it is warmed by passing amongst the pipes before it reaches the plants. I had these ventilators arranged the same as they are in Messrs. Veitch's nursery at Chelsea, and Mr. Canham told me some years ago that the ventilators (apertures in the front walls) were open night and day. There is a difference, surely, between advising a cultivator seeking for information to leave a little air on all night and to say give "plenty of air at all times." In certain states of the weather we have found it necessary—as our houses are much exposed—to shut up close either at dusk or later, but some of the ventilators are opened a little the first thing in the morning. When Mr. Catt first engaged in this controversy it was in the interest of the inexperienced. An amateur with little practice in air-giving might open the ventilators wide night and day, in frost and sunshine, just as an amateur searching for information was told to put so much guano on the surface of a 15-inch pot; he took the circumference of a 5-inch one, applied the guano, and killed his plant. One cannot be too careful in giving information in all matters relating to culture. Moreover, success in the culture of any class of plants is not always arrived at by

the same means. A system of culture that answers well in one place may not do so in another.

J. DOUGLAS.

Odontoglossum baphicanthum.—Mr. Norman Cookson sends from Oakwood, Newcastle-upon-Tyne, a spike of this delicately beautiful *Odontoglossum*, which is still rare in collections. It is presumably a hybrid between *O. gloriosum* and *O. crispum*, its flowers seeming to be exactly intermediate between those of these two species. The sepals and petals are narrow and pointed; their colour is pale sulphur-yellow spotted with chestnut-brown, and the attenuated pointed lip spotless.

Cattleya exoniensis.—A flower of this charming Orchid, the undisputed queen of all hybrid *Cattleyas*, has reached us from Mr. McDonald's collection, Woodlands House, Perth. Such a fine *Cattleya* as this in flower at this season is indeed a treat, making one regret that its regular blooming time is not at Christmas. The flower sent was one of three cut from one spike. The petals are a beautiful mauve, while the shallow lip is of the richest amethyst-crimson with a dash of lemon-yellow on the throat, and exquisitely frilled at the margins with white.

Lælia anceps Barkeri.—This, the richest coloured variety of *L. anceps*, has been sent to us in fine condition by Mr. David Kemp, gardener to Mr. T. D. Cunningham Graham, Dunlop House, Stewarton, N.B., who states that there were four such spikes as that sent on one plant. The spike in question bears four lovely flowers, the sepals and petals of which are deep rosy purple, and the lip the intensest carmine-crimson. It is indeed a very fine Orchid and particularly welcome at this season of the year.

Dendrobium superbiens and Goldiei. When these two nearly allied *Dendrobies* are seen side by side in flower, as we saw them the other day in Mr. B. S. Williams' nursery, their distinctiveness is apparent. *D. Goldiei* is unquestionably the finer of the two, its colour being deeper and brighter than that of *D. superbiens*. The flower, moreover, differs structurally from that of *D. superbiens*, the lip being more attenuated and the crest different. We consider this one of the finest of all Australian Orchids, and as it flowers in winter it is doubly valuable.

Lycaste gigantea.—This is one of those strangely-coloured Orchids, which, though not showy, are sure to attract attention. It has very large flowers—the largest of the cultivated species. Their colour is a sort of pea-green shaded with chocolate, while the fringed lip has a dash of orange on it which harmonises well with the general character of the flower. It is now in bloom in Mr. B. S. Williams' nursery, in an intermediate house, where also are such showy kinds as *L. Skinneri* in variety, including the rare white form (*alba*). There are also in flower in this house *Epidendrum erectum*, a showy and free flowering species with deep rose-purple blossoms; *Cymbidium Mastersi*, the pretty little yellow-flowered *Oncidium cheiroporum*, and *Pleione præcox*, the last a gem. In the East India house *Vandas* are still in bloom, notably a superb variety of *V. suavis* and one of the richest coloured forms of *Saccolabium giganteum* which we ever remember to have seen.

SHORT NOTES.—ORCHIDS.

Phalenopsis amabilis.—A fine display of flowers of this *Phalenopsis* may now be seen in one of Mr. H. Little's Orchid houses at Hillingdon, near Uxbridge. The plants are healthy and vigorous and the flowers large, well formed, and of good substance. *P. Schilleriana* is throwing up a large crop of stout flower-spikes, which when in bloom will make a fine show.—A. I.

Cattleya luteola.—This plant is now flowering in the Orchid house at Kew. It is a yellow-flowered species belonging to the *Aclandis* group, and appears to be easy to manage. I have seen it under the name *C. Holfordi*. Although not so gorgeous in its flowers as many of the *Cattleyas*, this species, from its free-growing and free-flowering characters, is deserving of a place in *Cattleya* collections.—B.

Odontoglossum grande.—This we grow in a rather rough and ready manner, but it is evident that our treatment suits it, for it flowers every autumn with great regularity, and each succeeding year it increases in vigour. The plant is growing in a mixture of rough peat and chopped Sphagnum, and is always kept in a temperature very little higher than that of an ordinary greenhouse. In severe weather the thermometer frequently goes down below 40°. As to watering, it gets no particular care, but at no time is it kept very wet or very dry.—J. C. C.

Renanthera Lowi.—I send you a photograph of a plant of *Renanthera (Vanda) Lowi*, from Baron Kruby, of Peskau, in Bohemia (Austria). It is one of the largest plants in European gardens, being 1½ yards by 2 yards. As you will see, the plant has 21 spikes, some of which are more than 3 yards long.—B. ROEHL, 109, *Carolinenthal, Prague, Bohemia*.

* * * The photograph represents an exceedingly fine specimen of this plant, the largest we have ever seen. It possesses about a dozen strong growths, and each carries two, three, and four spikes, which hang gracefully on all sides of the plant. The photograph is most artistic, and as elegant and informal as could possibly be desired. Such a fine specimen of this singular and beautiful Orchid is indeed a rarity.—ED.

Trichosma suavis.—A spike of this sweetly scented Orchid, bearing no fewer than seven blossoms, has been sent to us by Sir W. Marriott; it shows that Mr. Denny understands its requirements, for it is the best spike we have yet seen. Orchid lovers who do not possess this Assamese Orchid—which is rather rare—should make its acquaintance, as it is so sweetly scented, and, moreover, a very elegant and pretty plant. The flowers—about the size of those of *Cœlogyne ochracea*—are white, with the labellum striped with deep red and bright yellow. It develops its flower-spikes with the young foliage, which, being of a lively green, shows off the flower-spikes well.

Cypripedium Dominicanum.—This is a Lady's Slipper which one can safely recommend. It has been in cultivation for some years, and is now both plentiful and comparatively cheap. It is of such free growth, that a small plant of it in a 5-inch pot will grow into a large specimen between 2 feet and 3 feet across in the course of four or five years. It is also constantly in flower, imitating in this respect one of its parents, *C. longifolium*, and the flowers, though not so large as those of *C. caudatum*, have long caudal appendages, and are very handsome. Mr. Dominy, who raised it, told me to grow it in an intermediate house; but I found that it did not winter well there, so we grow it all the year round in the warmest house.—J. DOUGLAS.

Cypripedium Schlimi.—It may not be generally known that there are three distinct forms of this little Orchid, a veritable gem among the Lady's Slippers. First there is the original form characterised by the rosy flowers, shortish leaves, and, as every Orchid grower knows, this form does not possess a very strong constitution—in fact, falls into the category of "miffy" Orchids. Then there is what is called the variety *album*, somewhat a misnomer, as the blooms are not really white, only pale pink. The third form is one that we saw the other day in flower at Messrs. Shuttleworth and Carder's nursery, Park Road, Clapham. This is characterised by unusually long leaves, vigorous growth, and flowers which, though of the same form as those of the original, are larger and of a much deeper colour; indeed, so deep as to justify the varietal name of *atro-roseum*. This variety was recently imported by this firm from the Western Andes, whereas the other form of *Schlimi* comes from the Eastern Andes, and this wide geographical separation of the two forms no doubt accounts for the difference between the plants. The western form is undoubtedly the best, judging by the specimens in question; and here in this nursery all three forms are growing side by side, and exactly under the

same conditions of treatment. Orchid lovers will welcome a more vigorous form of *Schlimi* than the original is, and especially as the long-leaved form bears deeper coloured, and therefore showier blossoms.

Orchids in the open air.—Our summer climate is a little too uncertain for anything like a general adoption of this practice, which, moreover, has been tried in England far oftener than many seem to suppose. I have some hazy recollection of Colonel Trevor Clarke having experimented with some Orchids in this way, but I know that Messrs. Backhouse did so at York for some years. For several seasons they placed many hundreds of plants of *Lælia majalis*, *Epidendrum vitellinum*, and one or two other Orchids out of doors during the summer months, where they grew freely and formed hard, compact pseudo-bulbs. As a rule, however, they found the atmosphere rather too dry, and further observed that, with a little artificial shelter and humidity, the plants progressed better. In particularly sheltered and humid situations no doubt many Orchids would do fairly well in the open air; but it is suggestive to find that, during more recent years, Messrs. Backhouse have grown no Orchids out of doors with the exception of *Epidendrum erubescens*, which succeeds well so treated. Although the outdoor culture of some few "cool Orchids" may be possible, I do not think the results will ever equal those obtainable in properly ventilated "cool houses." Experienced Orchid growers may now and then place a few well-established plants outside with advantage, but the danger is that new beginners may try the plan only to court disastrous failure.—F. W. B.

Cœlogyne cristata.—I rather suspect that the plant of this *Cœlogyne*, which flowered best with Mr. Muir, did so because of the cooler and more airy position it occupied. This *Cœlogyne* will grow luxuriantly enough in a warm stove, and produce two sets of bulbs in the year, but it will not flower well. It is a "cool Orchid," but will not thrive in an ordinary greenhouse. We have a row of large specimens of it here occupying the whole length of the cool house that, on their account and that of other subjects, is shaded the whole summer when the sun shines, and the plants always flower from every bulb, many producing two spikes. I daresay this *Cœlogyne* would be better without shade in a greenhouse, but in an intermediate house, where no front air is given, the sun is too much for the foliage in a still atmosphere. In a large nursery near here many fine specimens are grown in the same temperature as ours are, and are permanently shaded all the summer by a calico shading, yet they always flower freely, and the foliage is of a beautiful dark green colour—always a good sign. With regard to growing either *Cœlogyne* or *Lycaste* in ordinary greenhouses and on window-sills, all I can say is, I never saw any so grown, and we cannot do it here, because the bulbs are too late in starting in spring and too late in ripening in autumn. In mild localities in the south such things may be practicable.—J. S. W.

Varieties of Cypripedium insigne.—A complete series of the forms of this well-known Lady's Slipper has been sent to us by Messrs. W. Thomson, Tweed Vineyard, Clovenfords; these consist of the genuine *C. Maulei*, *albo-marginatum*, and *Chantini*, which Mr. Thomson regards as synonymous with *punctatum violaceum*. Another form is added, named *majus*, which we do not remember to have seen before. All these varieties are undoubtedly distinct, but it is a difficult matter to intelligibly describe their differences. *Maulei* is unquestionably the finest; it is remarkable for the great depth of white on the dorsal or upper sepal. This white extends for fully 1½ inches from the top, and on the lower portion of the white sepal are some blotches of purple. *Chantini* has not such a depth of white on the dorsal sepal, neither are the spots so rich, and the colour of the flower is lighter. The variety *albo-marginatum* is very distinct, inasmuch as the dorsal sepal is almost entirely margined with white; hence the

name. The specimen sent of the majus variety consists of two flowers on one stalk. This form is remarkable for the unusual breadth of the dorsal sepal, which is flatter than usual. Its ground colour is a lively green, and this is copiously spotted with small dots. The white margin is wider than that in the typical form. These varieties are all greatly superior to the original *C. insigne*, and ought to be grown in preference to it.

THE SCHOOL GARDEN.

AMONG reforms in the air, so to say, is the school garden; it is pleasant even to think of the good it might do and the beauty and charm it would add to the early life of many children. We cannot avoid such things being merely in "project"; a point is gained when men begin to see the need and the use of such an institution. And noble use a school garden might render. It opens the fairest gate of knowledge, without books or "cram"; it introduces us to the living creatures themselves, in the varying beauty of their flower and fruit, spring buds or autumn gold. It would meet at once, in a delightful way, the curiosity of children, while teaching them at the same time much that would be of value throughout life. The boy who patiently endures the infliction of grammar as one of the miseries of his school life might take true pleasure in flowers, trees, or native plants of the district. The advantages to the state of a real knowledge of such things among the people generally it would be difficult to estimate too highly. Our roundabout book learning is as nothing to making the acquaintance of the living things themselves. It is quite common now to find trees not known to those whose business it is to look after them. This is true even of native trees. Now, there could not be much difficulty in teaching every healthy child to know the native trees of its own country—in our case few in number—and the true way to do this is the natural one of making them acquainted with the trees themselves in their changing beauty or dress at various seasons. Books and papers must ever be precious as a record of our knowledge, and a means of rapidly conveying it to others; but they do not afford the best way to the learning of objects. And this is particularly true of the garden and tree world, in which we have the inhabitants always near us.

It is surely possible to overcome the fear and dislike of school, to make it in harmony with the energy, spirit, and joy of youth! And there is no better way to do so than to embower the school in a garden, where things that enjoy the open air of the district might be happily grown. The churchyards and school-yards of the country are generally among the barest and ugliest things one sees—the very places which of all others should be embowered in trees and flowers. As to the school, some of its terrors would disappear if it were even as attractive externally as a fair specimen of those cottage gardens which are the prettiest things in some of our fairest country districts. It should be larger and better, and, in getting beauty to please the eye, we get the living material to store the mind with knowledge which rarely turns to dust. Those charms of form, colour, and fragrance which give us so much of our best pleasures and happiest associations might be shown there. The merely curious exotic need not get a place, but the essentials of teaching should be there in the shape of every tree native to or common in the district and the flowers that grow without care in its air and soil; and it should be the pleasant task of the children to learn and know them all and to know their English names. Other things may demand specialists, but the trees around us and the birds and flowers should be better known to all. So far as knowledge is valuable, it may, in this branch at least, be the possession of all in varying degrees. Given the love and knowledge of the objects, the simplest person may make valuable observations and gather useful facts. How well our present mode of teaching works is

shown by the fact that many persons engaged in agriculture or horticulture do not know foe from friend in the ceaseless movement of life about them. It is common to hear men who have spent their lives in gardens attribute the direct work of insect and other minute pests to "blight." We cannot, then, expect much knowledge from those not so occupied. Now, there are many problems and difficulties before the reformer which the wisest cannot see their way to solve; but this wretched ignorance might be overcome by the school garden and a good case of the birds of the district, its insects, its native plants, and minute and fungus vegetable growths, which could not easily be shown in the garden, or always got in their living state. Their habits or ways, for good or evil, can often be effectively shown in the same way. Few will doubt the good it might do in every branch of our rural economy, leaving out the great personal gain to the individual. It would even be a powerful factor in counter-acting hurtful habits which the young fall into often from the want of healthy work for their energies. Once possessed by interest in natural objects of any kind, it is not so easy for vacancy or evil to secure a place. The beauty of the English rural landscape is known the world over, and our lead in various rural arts is equally remarkable. With such an advantage, we ought never to fall behind. The gain to our rural population of an early acquaintanceship with the living things about them would be immense. Competition is advancing on us from many points, and it cannot be met in the old way. But it is absurd to suppose that we are to sit in despair, and allow our land to run out of cultivation. We shall be forced, by the example and success of other nations, to teach the arts of rural life to the young; and the teaching is so pleasant, so far as regards the garden, that we can scarcely begin too early.

POISONING BY RHODODENDRON LEAVES.

OWNERS of live stock and sheep can hardly exercise too much caution, it would seem, with regard to the properties of the shrubs and trees planted on their land, or to which animals may, accidentally or otherwise, obtain access. The green leaves of the Yew have long been known to possess properties poisonous to animals grazing upon them, although the berries of the tree appear to be at least comparatively harmless—a circumstance of which abundant evidence is afforded by the fact of various kinds of birds feeding and thriving upon them. Some other shrubs and trees possess similar properties; and there can be no doubt, judging from a case of sheep poisoning which has just occurred at Woodhill, near Wonersh, in Surrey, that the Rhododendron may now be added with certainty to the list. The facts of this case may shortly be stated as follows: A few days ago a number of sheep belonging to a Mr. Webber, a farmer living near Woodhill, were suddenly seized with illness without any cause for the attack being apparent. Mr. Carter, veterinary surgeon, of Guildford, was sent for, who, upon seeing the symptoms exhibited by the sheep, formed the opinion that they were suffering from the effects of some narcotic and irritant poison. One of the sheep having just been slaughtered when he arrived at Woodhill, Mr. Carter examined its stomach, and found that it contained a great quantity of Rhododendron leaves. This afforded a clue to the origin of the mischief; a visit was therefore at once made to the park in which the sheep had been feeding, and upon a search being instituted, it was found that the Rhododendrons surrounding the fshpond had been completely stripped of their leaves, so far as sheep could strip them. The cause of the illness of the sheep in this instance was thus placed beyond doubt; but the case is valuable as affording unquestionable proof of the mischievous and even fatal effects which the leaves of this shrub, now so common among us in almost countless varieties, are capable of producing generally upon sheep, and, it may be presumed, upon other animals also,

and we call attention to it both on this account, and also with a view to putting upon their guard those of our readers who may be exposed to such a danger and loss as that incurred by Mr. Webber. There are few parks or shrubberies now-a-days that have not Rhododendrons planted in them, and often in large numbers. They are often, too, planted in coppices and woods, and for the purpose of making covert for game. In many, we may perhaps even say in most, of these situations the shrubs are either within the immediate reach of sheep and live stock, or are easily accessible to them, especially to the former. We can hardly, therefore, err in giving publicity to this case of sheep poisoning near Wonersh, and in impressing the importance of the subject upon the attention of those who may be interested in it.—*Field*.

GARDEN FLORA.

PLATE 420.

THE ZENOBIA.

(WITH A COLOURED FIGURE OF *Z. SPECIOSA* PULVERULENTA.*)

THE genus *Zenobia* contains but a single species, a native of the Southern United States. Perhaps its nearest ally is *Andromeda Mariana*, the Stagger Bush, a plant of considerable beauty, which, like the subject of this notice, is far too seldom seen in gardens. A large number of the introduced shrubs from the United States, presenting great variation in habit, size, in the colours of the flowers, and in the time of blooming, could be readily procured by planters, and charming effects produced with but little trouble. In far too many gardens, however, scarcely anything else is to be seen but the Laurel, Box, Aucuba, and such like, and in many even peaty or boggy districts, where the natural conditions obtain under which plants such as the *Zenobia* thrive best, the choice of the owner seems to be restricted to Rhododendrons or Azaleas. Apropos of such wilful neglect or carelessness, or whatever it may be called, the concluding remarks of Col. M. H. Drummond-Hay in a paper read by him before the Dundee Horticultural Association, seem thoroughly to the point: "It has often struck me as strange in these days that, among other things, the taste for hardy exotic hard-wooded plants (I do not now allude to Conifers, but more especially to flowering shrubs and fine-foliaged evergreens) should be so little cultivated. We often see this in many of our public parks and private domains. There may be masses of bedding plants, good collections of herbaceous and rock plants and ferneries, together with pine-tums, and perhaps beds of Rhododendrons and Azaleas; but what is the shrubbery like? We turn down a side walk, and there we find a few common Laurels, Lilacs, Snowberries, and other common plants, with Hollies stuck about, and perhaps some Box trees, an Aucuba, or a common Rhododendron or two, and this merely to hide the stable or some other objectionable object." Yet a number of plants not less useful and ornamental than any of these would succeed perfectly well under the same conditions if allowed a chance of doing so.

THE *ZENOBIA* in its native haunts affects boggy spots, but under cultivation in this country it

* *Zenobia speciosa*, Don. in Edinb. N. Phil. Journ., xvii., p. 158 (1834); D. Don. in Sweet's "British Flower Garden," t. 330 (1838); Loudon, Arb. et Frut. Brit., i., p. 1109. *Andromeda speciosa*, Michaux, "Flora Borealis Americana," i., p. 256; Pursh, "Flora Americana Septentrionalis," i., p. 291; Elliott, "Botany of South Carolina and Georgia," vol. i., p. 492; Loddiges, "Botanical Cabinet," tab. 551; Chapman, "Flora of the Southern United States," p. 263. *A. cassinefolia*, Ventenat, "Jardin de Cels," p. 60, t. 60.



does well in any fairly cool place. If planted in peat and leaf-mould, it grows vigorously and soon makes a dense bush 3 feet or 4 feet in height, by as much through. Where, however, peat cannot be readily procured, a plentiful supply of decayed leaves, mixed with loam, does very well. In all probability it is hardy in most places in Britain; it thrives well in many places in Scotland. It seeds freely in many localities, and young plants are as easily raised as are *Rhododendrons*; where, however, it is desired to propagate any particular form, it is desirable to have recourse to layering, seedlings varying excessively in habit and foliage characters, and also in size of flower, &c. The beautifully scented white Lily-of-the-Valley-like flowers are produced in clusters or racemes from axillary buds on the wood of the preceding year.

VAR. NITIDA.*—In this form the foliage is a light bright green colour on both surfaces; in other respects it is like the form here figured. If treated as a pot plant and given the shelter of a cool conservatory during the winter months, it retains its leaves and flowers earlier than plants not accorded such protection.

VAR. PULVERULENTA†—A glance at the accompanying plate, which faithfully represents some flowering sprays of this beautiful shrub, will be sufficient to prove it one of the most lovely of all garden plants cultivated in the open air in Britain. When treated as a pot plant and kept clear of hard frosts, the silvery leaves remain on the bush until new ones are developed. Even without the snowy white flower-bells, this variety is almost worth growing for the sake of its pretty frosted foliage.

GEORGE NICHOLSON.

Royal Gardens, Kew.

** Drawn at Munstead, Godalming, July 16, 1883.

SEASONABLE WORK.

FLOWER GARDEN.

BREAKING up walks and roads as some do with a view to clean them is a mistake; not only is it a waste of labour, but it so mixes up the material by bringing to the surface the rougher portions beneath, as to cause much discomfort in their use, and it is a long time even under the best management before they can be got into good condition again. If walks or roads are broken up at all it should only be in cases in which they are unlevel and it is intended to add fresh gravel, as then the loosening up of the bed gives what is laid on a chance to bind, and the whole under the action of a good heavy roller becomes thoroughly hard and consolidated. To get the bed in this desirable state it is necessary to take advantage of the weather, so as to roll it when wet as long as it will bear the pressure, and when it shows symptoms of becoming in a mortary state it should be left to subside. In the selection of gravel for garden walks choice should be made of that having a bright colour and which is of a close, binding nature, two qualities that are essential

if pleasant-looking serviceable paths are to be made. Sandy gravel that is loose in pits when dug never binds, and it only such as is found in hard solid beds that has sufficient adhesive matter in it to hold it together again. If the fine parts are out of proportion to the stone it will be necessary to screen or sift so as to take some away, as it is only the stony particles that will bear the weight of the traffic. To have walks look really well, the stones in the gravel used for the surface should not be larger than Peas or small Beans, but the larger and more rugged they are beneath, the better and more durable will the walks be. Where weeds are troublesome through lack of traffic, and the edgings are of grass or tiles, so as to admit of its being used with safety, there is nothing equal to salt for their eradication, which, put on regularly every year about the middle of May, will keep the gravel free for the rest of the season. Not only will salt kill weeds, but it has such a cleansing effect, that Moss and all vegetable growth of that kind disappears, and gravel brightens and hardens under its influence considerably—so much so, indeed, as to have the appearance of being freshly laid.

LAWNS being now soft, an opportunity is afforded to rectify any inequalities of surface that will admit of being put right by the rammer, by the aid of which any man with a good eye will be able to beat such parts down, and if the roller is then passed over a few times all will be made smooth and level and in good order for the mowing machine when the time comes for its use. There are now so many plants of an ornamental character, that beds and borders, though shorn of flowers, may be made attractive by their bright, cheerful foliage; among shrubs there is great variety, the *Aucubas* being a host in themselves. Added to these, there are *Hollies*, *Retinosporas*, *Yews*, *Ivies*, *Euonymus*, and *Vincas* which, dotted about with patches of *Primroses*, *Pansies*, *Violas*, *Daisies*, bulbs of various kinds, *Aubrietias*, and other spring flower plants, will render these parts gay looking and attractive for some time to come. That there may be no drawback to the full enjoyment of the above named, the ground should be kept scrupulously clean and well raked among them, but it will be necessary when carrying out such work to exercise particular care not to injure any plants just making their way through the soil. Those of doubtful hardiness not already protected should receive that attention at once, as sharp frost may be expected at any time; and as the weather has during the autumn been so exceedingly mild, they are all the more likely to suffer through the late growth they have made. Herbaceous *Lobelias* are best wintered in cold frames, and it is advisable to treat choice *Pentstemons* and *Hollyhocks* in the same way; in early spring by giving them a little warmth cuttings may be taken off and stock propagated with safety. With the more tender subjects, such as *Pelargoniums* and other bedding plants, damp will now be the great enemy to contend with, to expel which air should be admitted on all favourable occasions, and fire-heat given to move the atmosphere within the structures in which the plants are housed, as it is only by keeping that in motion that the ravages of mildew can be checked or stopped. As dead and decaying leaves encourage this fungus, they should be picked off, and all dead branches cut away, the surface of the soil stirred and cleaned, which will help to render the air sweet and wholesome. The variegated and tricolor *Pelargoniums*, being the most delicate, should have the driest and warmest position assigned them, the best place for them being on shelves near the glass. *Calceolarias* cannot well be kept too cool, as the point with these is to check any tendency to growth during the winter. With this view the lights should be taken entirely off for a few hours every day when mild, and air given at other times by tilting them up behind.

ROOTS AND SEEDS.—*Cannas*, *Dahlias*, and other bedding plants that are being wintered, in cool sheds or cellars should be occasionally examined as to their safety in respect of frost or of

rotting through damp. As a rule, all roots winter safely if the temperature does not fall below the freezing point, and as to injury from damp, there never need be any danger of this if the plants are well packed in dry leaf-soil or Cocoa fibre. Of course no water should ever be given them; the only source to generate damp would then be the decaying stems, and these should be removed as soon as perceived. Any varieties of *Dahlias* that it is intended to propagate in quantity may now be potted and started in gentle heat for the production of cuttings. The single varieties have lately become so popular that all should have a few. The named kinds to be true must of course be raised from cuttings, but a fine show of them may be had next summer from seeds if sown any time between this and the end of February. Seeds of slow-growing succulents should be sown at once, as also should the following, which make good sub-tropicals: *Arundo conspicua*, *Cannas*, *Erythrina Crista-galli*, and *Grevillea robusta*.

INDOOR PLANTS.

ANTHURIUM SCHERZERIANUM.—Young plants of this may be raised from seed in unlimited quantities, but even when the seed obtained is the produce of only the best varieties, the progeny is almost invariably inferior to the parents, and the seedlings in nearly every case differ more or less from each other. Therefore, worthless or indifferent forms of this plant are much more plentiful than good ones; consequently, it is well for those who possess a really good variety to give it suitable treatment, as on this the size and character of the flowers greatly depends. This *Anthurium* is never quite at rest, and the leaves and flowers attain a larger size when the warmth in the night is about 48° than if a higher range is maintained. When kept comparatively cool, too, it begins to push up its flowers later in the spring and summer than it otherwise would, a circumstance in itself of importance to many who require a good display at this season. Give plenty of water to the roots until the principal crop of leaves has attained their full size, after which less may be used, but it must not be forgotten that *Anthuriums* are swamp plants, and must never have their roots so dry as many others. The one or two white forms, from which so much was expected, have turned out disappointing, being much inferior to the red kind; they thrive, however, under similar treatment. Brown scale increases extremely fast on these *Aroids*, and where it exists an attempt should be made during the winter to exterminate it. Careful sponging repeated several times over the whole surface of the leaves and stems I have found to be the best remedy. Young plants raised from seed sown during the preceding summer should, as soon as they get a couple of small leaves, be pricked off into shallow pans, well drained, and filled with a mixture of peat, chopped *Sphagnum*, and small crocks or broken charcoal.

TUBEROSES.—The earliest potted roots will have made considerable progress in top-growth, even if kept comparatively cool, and may now be subjected to more warmth; when the pots are well filled with roots, and the leaves have made some progress the plants will bear ordinary stove heat, but to prevent their being drawn they should always be kept well up to the glass. More bulbs ought to be potted to give a succession of flowers. One of the peculiarities of *Tuberoses* is that by potting at different times, and by regulating the after treatment in the matter of warmth, they can be had in flower over a good portion of the year. An important matter is seeing that the soil is kept in a state that would be too dry for almost any other plant until plenty of roots are made.

JASMINUM GRACILLIMUM.—Those who have obtained a stock of this free winter-blooming plant will find how useful it is for cutting, not alone on account of its desirable white colour and agreeable perfume, but from the fact that its flowers are produced on long slender shoots, which permit of their being cut with a much greater length of stem than the generality of plants that

* *Var. nitida*, Loudon, Arb. et Frut. Brit., i., 1109. *Andromeda speciosa var. nitida*, Pursh, "Flora Americanæ Septentrionalis," i., p. 294. *A. cassinefolia*, Sims, *Botanical Magazine*, tab. 970. *A. pulverulenta viridis*, Lois. in *Nouv. Duhamel*, i., p. 193.

† *Var. pulverulenta*, Loudon, Arb. et Frut. Brit., i., 1109. *Andromeda pulverulenta*, Bartram, "Travels," ii., p. 474, pl. 7; Curtis, *Botanical Magazine*, t. 667. *A. cassinefolia*, B. *pulverulenta*, Ventenat, "Jardin de la Malmaison," tab. 79. *A. speciosa var. pulverulenta*, Pursh, "Flora Americanæ Septentrionalis," i., p. 294. *A. speciosa glauca*, Watson, "Dendrologia Britannica," 2, t. 126. *A. dealbata*, Lindley, *Botanical Register*, t. 1010. *Lyonia pulverulenta*, Koch, "Dendrologie," zweit. theil, erst. abtheil. *Andromeda candida*, Hort. *A. glauca*, Hort. *A. quercifolia*, Hort. *A. serratifolia*, Hort.

bloom at this season afford. This may appear a matter of little consequence; but where flowers are to be arranged in vases and similar appliances in a loose, tasteful manner, it is essential that some at least should have long stems, as flowers mounted on wires necessarily soon fade, and the mounting, if at all perceptible, is most objectionable. With a sufficient stock of this *Jasminum*, a succession of its flowers can be kept up for some time yet; the first forced plants will furnish cuttings that should be put in to strike as soon as they can be had. It is one of the best new winter flowering plants introduced for some time.

CLERODENDRON BALFOURI.—So manageable is this pretty *Clerodendron*, that it may be had in bloom every month in the year if sufficient plants are at hand, and their season of growth and rest so arranged that they are in a condition to start when required. To enable this to be carried out it will, in most cases, be best to employ medium-sized examples, such as can be grown in 10-inch or 11-inch pots. Plants of this *Clerodendron* that were grown and put to rest in the autumn may at once be started in an ordinary stove temperature, giving them, if very dry at the roots, a good soaking by immersing them in tepid water for several hours, without which the centre of the ball is liable to remain dry after the surface has the appearance of being sufficiently moist, and in this condition the growth cannot be strong. If the plants have been well ripened, young shoots will be produced at almost every eye, which will show flowers when they have grown a few joints in length. Unless the roots are extremely cramped in the pots, it is best not to re-pot until after the blooming is over, as a disturbance of the ball along with additional root space is more calculated to produce growth than flowers. An application of manure water once a week will be an advantage when growth has fairly commenced. Independent of the attractive character of the plants when in bloom, the red flowers with their snowy bracts are very pretty in a cut state, but to have them in a condition to last well, when so required the flowering must not be hurried; 60° or 65° at night will be enough. Plants of this *Clerodendron* that are to be kept at rest longer must not be placed where the heat is insufficient; 58° or 60° is a temperature low enough to be safe, as even if dry at the root they perish if too cool.

PANDANUS.—Suckers of the different varieties of *Pandanus* root freely in a brisk heat at any time when they can be had in suitable condition, that is, when sufficiently solidified. This is a good time to put them in, removing a few of the bottom leaves and potting them singly in small pots in a mixture of loam and sand. Keep them moderately close, but not too moist. The advantage of propagating them now is they get well rooted and in a condition to start into active growth early in spring. These plants are most useful in a small state, their elegant habit of growth particularly adapting them for room or table decoration, or for grouping amongst other things in the stove. The coloured-leaved kinds (*P. Veitchi* and *P. javanicus variegatus*) should have their variegation well brought out. This can best be secured by keeping the plants during the season of active growth in the full light, only shading them slightly in very bright weather. The best kinds for general use are *P. Vandermeerschii*, *P. reflexus*, *P. Veitchi*, and *P. javanicus variegatus*.

CHRISTMAS ROSES.—The white flowers of these plants when nicely managed are little inferior to those of the *Eucharis*; they force in a very moderate heat; if too much is used the blooms are liable to flag when placed in a cooler temperature, but a little heat is beneficial in drawing the stems out sufficiently to make the flowers more useful in any arrangements in which they may be required. If some strong flowering roots are put in a cold frame, kept moderately close, and just protected from frost, they will come in later and give a succession. Strong clumps in the open ground should be covered with hand-glasses, by which means the flowers will be kept clean. If this precaution is

not taken they get spoiled with the dirt splashed on them in wet weather.

CINERARIAS.—With the exception of Violets, there are few blue flowers available in the winter besides these; at no time are they more useful than about the new year. Any warmth beyond that of a few degrees above the ordinary greenhouse temperature spoils the plants, as directly they are submitted to much warmth the flowers become so drawn as to make them worthless; consequently, unless they are all but ready to open their blooms, it is better to keep them quite cool. Where successional sowings were made everything should be done to retard the latest portion by keeping them as cool as can be without their getting frozen. See that the whole stock is kept scrupulously clear from aphides; few plants are sooner spoiled than *Cinerarias* if permitted to become at all infested with these parasites. As has been frequently urged, dipping in Tobacco water is preferable to fumigation unless the latter is done with very great care.

CALLAS.—Where flowers of these are wanted early in the year, the possibility of getting them depends on how the plants have been treated. Planting out in single crowns in the summer time, as has been advised, and lifting and potting in the autumn has many advantages, not the least of which is that both leaves and leaf-stalks will be much dwarfer and have a nicer appearance when in bloom, but stock so treated should be kept for successional flowering, as it does not usually force so readily as larger plants that have been grown through the summer in pots; these latter, if well exposed to the sun in the open air through the latter part of summer, will generally throw up blooms immediately they are placed in warmth, supplying them sufficiently with water and keeping them well up to the light. Before putting them in heat see that they are perfectly free from aphides, which are more partial to them than many things, and where present get down into the young flowers directly they begin to unfold, where no ordinary quantity of Tobacco smoke appears to reach them.

APHELANDRAS.—The brilliant-flowered *A. aurantiaca* Roezli can be had in bloom over a lengthened period where the treatment has been such as to get a portion of the stock on and the growth fully matured; plants so managed and now kept in a moderate heat will come on apace, and bloom at a time when they will be found very useful. The beautiful *A. elegans*, the flowers of which are so effective, should be grown wherever there is moderate stove heat at command; it occupies little room, 6-inch or 7-inch pots being large enough for one-year-old plants; it can also be had in succession over a considerable period. Plants of the old *A. cristata* that flowered early in the autumn and were then cut back should, as soon as they have made shoots an inch long, be turned out of the pots, have their balls reduced, repotting in new soil, and giving them pots a size or two larger. Young plants of *A. cristata* with single stems, raised from cuttings, are very useful, as they occupy little room and in many cases are preferable to larger examples; they should be kept through the winter in an intermediate temperature where they will just keep slowly moving until nearer spring, when more pot-room may be given them.

ABUTILONS.—Where white flowers are wanted for bouquets, and there is sufficient stock of the pretty *A. Boule de Neige*, it will be found invaluable, as it goes on blooming so long as there is enough warmth to keep up growth. Young dwarf stocky plants that can be stood on a shelf near the roof are in some cases better than older examples. The red varieties and also the yellow, at the present time so much in favour, must not be lost sight of. There are now a good many with a dwarf distinct habit and remarkable for their freedom of flowering. A cool stove or intermediate temperature suits them best, as under such conditions the plants get less drawn and the flowers are stouter. Whenever any of the family are getting too tall they may be headed down at this or any other season if there is enough warmth to

enable their breaking freely, otherwise they, in common with all other plants, are better left until further on when there is more heat.

ORCHIDS.

EAST INDIA HOUSE.—All Orchids that have any deposit on the leaves should be carefully sponged over with rather warm, soapy water. At this season more than any other one cannot be too careful in watching that no drops of condensed water fall into the centres of valuable plants. All good Orchid houses are so constructed that a groove in the rafters and sash-bars carries the condensed and other water down to the plate at the base of the rafters, and if the house was not constructed in that way at first we have seen the same result obtained by nailing a piece of zinc to the undersides of the rafters and turning up the edges to form a groove. We noticed in some hot houses that were recently exhibited that all the rafters and sash-bars were grooved in greenhouses, as well as those for stoves and Orchid houses. Another decided improvement is in the way in which the glass is rounded so as to carry all the water to the centre of the squares instead of to the sides; this improvement, though apparently a slight one, is, we think, quite as important as grooved sash-bars and rafters, and we would never think of building an Orchid house minus these improvements.

CATLEYA HOUSE.—Most of the above remarks apply to this department as well as to the cool section. The flowers of *Catleyas* are thick in substance, and of a firmer texture than those of some others of the family of Orchids, and their lasting qualities depend to a certain extent on the temperature and atmospheric conditions under which they open. They last longer when the plants are kept comparatively dry at the roots; the air should also be as dry in the house as it is possible to have it consistent with the health of the plants; a close, humid atmosphere would destroy the best flowers in less than ten days. We removed a number of the evergreen *Dendrobiums*, such as *D. Farmeri*, *D. thyrsiflorum*, *D. densiflorum*, *D. Dalhousianum*, and others of this type from a warm house to this department; their growths were late in ripening, but as they are now well matured, we have put the plants here, where they will be kept as dry as possible, only getting water once in ten days or a fortnight. *Vanda teres* should also be placed in this house now from the warmest house, if it has not already been done, and it should also be kept very dry indeed. If there is not sufficient room in the house, some of the deciduous species, such as *D. nobile*, *D. Wardianum*, *D. crassinode*, and *D. Falconeri*, that have made their growth late may be placed in a greenhouse temperature, and they need not get any water for weeks at a time while they are there. The earlier flowering plants should be placed in heat; indeed, some of them ought to be well advanced by this time or in flower. It does not answer to place them in a high temperature from the warm greenhouse all at once. Such sudden changes will cause many of the flower-buds of such fine Orchids as *Dendrobium Wardianum* to become abortive. The resting and after treatment of these *Dendrobiums* have something to do with their successful flowering, but not so much as the treatment they receive while making their growth the previous season.

COOL HOUSE.—We have noticed in many even well-managed houses that green or yellow aphids is by far too common, especially on *Masdevallias*. It is very desirable indeed to free the plants from it, and as it is dangerous to fumigate, washing or dipping must be resorted to. This pest increases fast during severe weather, when much artificial heat has to be employed. A good plan where the collection is comparatively clean is to have a vessel at hand containing Tobacco or soapy water with a brush, and as soon as any fly is seen, remove it with the brush dipped in the mixture. A week or two ago we potted some cool house Orchids that had been received from a nursery,

and they are rooting away most vigorously in the fresh compost. In a week or two we will commence repotting all the plants that require it. We would again urge the importance of getting the compost ready, and the pots washed quite clean with warm water. The principal requisites for cool house Orchid culture are clean pots and potsherds, charcoal, good fibrous peat, dried and fresh Sphagnum. The pots should be well drained in all cases, because the larger proportion of cool Orchids require so much water, and if there is a large body of potting material, the organic matter decays and becomes sour, with the result that the roots of Orchids will either not grow into it, or will die if they did. Those who have been accustomed to repot Orchids will have noticed that they never do really well unless the roots have taken firm hold of the sides of the pots, and that all the most active and useful rootlets are there. How very necessary it is, then, to have the pots washed perfectly clean, or if they are new pots they should be well soaked in clean water for a few hours before using them. When the plants have to be turned out of the pots in which they have been growing, it is often better to take a hammer and carefully break the pots in pieces rather than risk the injury to the plants by tearing off the roots when they have been turned out in the usual way. In all collections, even the best managed, there are some plants which have not grown well, owing to the roots and compost decaying. In that case, have some rain water rather warm in which to wash every particle of compost from the roots before repotting in smaller pots and good sweet fibrous material.

FRUIT.

HARDY FRUIT.—The weather being mild and open, the planting of all kinds of fruit trees may still be proceeded with, and as many newly purchased trees may be laid in on a dry border, see that plenty of fine soil or leaf-mould is placed about them to prevent frost, should it come, from descending to the roots, and in the event of the weather becoming severe, a little dry Bracken placed amongst the shoots will do good service in protecting Peaches and Apricots, which are often not so well ripened as one could wish. Meantime press forward the pruning and nailing of established trees, and top-dress all that are likely to derive future benefit from that operation. The nature and strength of the material used for this purpose will, of course, be governed by the condition as well as the varieties of fruit trees under consideration. Old trees, as a rule, particularly Apples and Pears, are greatly benefited by a good dressing of frame ground manure, while young ones will become more fruitful if treated to a dressing of fresh loam, burnt earth, or charred garden refuse. Peaches and Apricots, indeed all kinds of stone fruit trees, require calcareous matter, than which there is nothing better than old lime rubble or plaster broken pretty fine and spread over the surface of the border. Strawberries, Raspberries, and bush fruits enjoy liberal supplies of good rotten manure, and the earlier it is applied the better, as, independently of the protection which it affords to the surface roots, its manurial or stimulating qualities get washed down ready for the demand when spring growth sets in. Peaches, Nectarines, and Morello Cherries which have been unnailed and secured from injury by wind may be well washed and dressed with Gishurst compound when the weather is dry and mild, and the nailing of the latter may immediately follow the cleansing of the walls with soapsuds, brine, or lime-water; but Peaches must be left till the last in order to retard the blossoms, and so preserve them from early spring frosts.

FIGS.—Where the early pot trees are being brought forward under the influence of fermenting material, see that it is renovated by turning and the addition of fresh leaves or short manure when there is danger of the bottom heat falling below 70°. Syringe the trees well every morning when the day temperature begins to rise, and again in the afternoon when the weather is bright and fine

and there is a fair chance of the wood becoming dry before nightfall. When the buds are well on the move, and the embryo Figs begin to swell, help them forward by turning on a little extra fire heat through the day; give air at 68° and run up to 75°, under gleams of sunshine, shut up early, and let the temperature range from 50° to 55° at night. Succession houses in which the trees are planted out in well-drained borders should receive repeated supplies of tepid water during the fortnight preceding the time fixed upon for starting. If the trees are old and carry heavy crops annually, a good mulch of rotten manure will be of great service, while young ones which have a tendency to become gross will succeed best under a top-dressing of old turf and lime rubble. If yearling plants intended for growing on for next year's forcing have not been potted, place them in the succession house early in January, and shift into larger pots when the terminal points begin to push, then plunge in gentle bottom heat in order to get an early growth well ripened before the autumn. Put in eyes or cuttings ready for starting next month.

STRAWBERRIES IN POTS.—Where a proper Strawberry house does not exist, and the forcing of this fruit is obliged to be carried on in early Peach houses and vineries, January 1 is a good time to get in the first batch of plants. Those, of course, will be selected from the most forward plants in the smallest pots, as the crowns are sure to be ripe, and the pots being quite full of roots, their throwing up flower-scapes will be reduced to a certainty. When the plants have been dipped and top-dressed, place them on shelves close to the glass, syringe regularly, and give them sufficient water to keep the roots constantly moist, as anything approaching drought, independently of its fostering spider, will produce a check which may prove fatal to the crop. It is a common practice to fill the shelves in these houses when they are closed for forcing, and although the temperature of the vinery may be somewhat high, that of the Peach house suits them admirably. To keep up the succession it is a good plan to fit up an ordinary Cucumber or Melon pit with shelves some 12 inches or 15 inches from the glass for the reception of the remainder of the early batch, and to place some fermenting material beneath, but not touching them. In mild weather the humid heat will be found quite sufficient, but when very cold, gentle fire-heat may be needed to prevent the temperature from falling below 40° at night, and air must be given when it is likely to rise above 50° by day. Where the general stock is wintered in cold pits, throw the lights off by night, and by day when the weather is fine and settled. Close and tilt them to protect from heavy rain or snow. If well plunged over the rims, sharp, dry frost will do them no harm.

CUCUMBERS.—Up to the present date the weather has been highly favourable for winter Cucumbers, and indifferent indeed must have been the management where the plants have failed to produce an abundance of fruit. But the time may not be far distant when a sudden change to wintry days and nights will necessitate sharper firing, and as the latter is always injurious, provision should be made for economising fuel and checking variation of heat during the hours of darkness. A brisk bottom heat of 80° to 85° about the roots is of great importance, and where fresh Oak or other hard leaves and short stable manure can be obtained and well worked in an open shed, timely additions should be made to the beds in which the plants are plunged; the glass should be kept perfectly clean; and last, but not least important, all interior surfaces should be kept sweet and free from decaying matter. As Cucumbers cannot have too much light during the winter months, remove old leaves a few at a time, avoid hard stopping, and crop lightly until after the turn of the year. Old plants which have been a long time in bearing will require liberal feeding with tepid liquid, and top dressing with rich compost, consisting of light turf, bone or charcoal dust, and old lime rubble. Manure in a solid form

is objectionable, as it encourages worms and produces canker, the best remedy for which is quick-lime and powdered charcoal rubbed into the parts affected. If spider and mildew become troublesome, renovate the beds with fresh fermenting leaves and a little short stable manure, syringe well with clear sulphur water, cut the fruit in a young state, and encourage robust growth by means of generous cultivation.

LATE VINERIES.—Muscats that were ripe in September may now be cut and removed to the Grape room, where, under good management, they will hang for a long time in perfect condition. As soon as the crop has been removed, prune the Vines, cleanse, dress and ventilate freely, to give them as long a rest as possible before they are again started into growth. Lady Downes and other thick-skinned kinds need not be cut before the first week in January, unless, like the Muscats, the fruit and wood were thoroughly ripe early in the autumn, and where these conditions, helped forward by fire heat early in the season, have not been attained, the attempt to keep them fresh and plump after they are cut will be useless. If any alterations, either inside or outside, are contemplated, have soil and drainage prepared in as dry a state as possible, protect from the elements, and, if possible, get the work finished before we have a change to severe weather. Assuming that the outside borders are in a satisfactory condition, remove all temporary covers as soon as the Grapes are cut. Apply the annual top-dressing of turf and bones, and protect the roots from frost with a thick covering of stable litter or Fern.

EARLY HOUSES.—If the Vines have been bent down to a horizontal position, to insure an even break, get them tied up to the wires as soon as the most backward buds are on the move. Syringe with warm water when the temperature begins to rise. Give air at 68°, close early, and syringe again if the afternoon is fine. If inside borders are well drained, a second supply of water at a temperature of 80° will help the young growths rapidly forward, and old Vines will benefit by the addition of a little clear liquid from the tank, or a dash of guano in the water, while vigorous young canes will produce more compact "shows" and set their fruit better if stimulants are withheld. Pay timely attention to disbudding, or rather the removal of weak breaks from which bunches of Grapes cannot be expected, and when the best shows become prominent, raise the night temperature to 58° or 60° on mild nights. If forcing has been commenced with fermenting material on the borders, make frequent additions, turning the whole mass, and mixing the old with the new.

KITCHEN GARDEN.

If Globe Artichokes are not yet protected, lose no time in doing it. When frosted they may live, but the stems will be weak and the Artichokes small—in fact, useless. We are cutting from under a few leaves very fine heads of Snow's Broccoli, not large, but close and white. Outside Lettuces, covered with the same material, are now green, fresh, and delicious. Of Black-seeded Brown Cos, the king of all hardy Lettuces, we cut a constant supply outside, and have done so for many years past. The time is now at hand when leaves and manure must be put together for frame Potatoes, Radishes, early seeds of Lettuce, Cauliflower, &c. No labour is lost in having the heating material well looked after; when the beds are made tread them firmly, and think you are making Mushroom beds. To build up manure beds from 3 feet to 4 feet, and set frames on them, is not only a waste of time in building, but a positive disadvantage to the inmates. The right plan is to dig out pits the size of the frame, 2 feet or 3 feet deep, and fill them a foot or so above the pit to which they will sink level; every bit of heat is thus utilised. Any kind of light soil enriched with manure will grow Potatoes well; but for Carrots and small seeds we use refuse from under the potting benches, mixing sand and mud scrapings with it. Of Potatoes we use the true Myatt's and Wilson's frame—the latter a new kind. Early

Scarlet and Shorthorn Carrots are among the best forcers. Do not be caught napping in not having a good supply of what are called little things, such as green Mint, Tarragon, Mustard and Cress. Keep an eye to the Mushroom house, and do not let the supply of Endive fall under what is usually blanched in that house. In the case of Celery here, as elsewhere, Bracken is brought into use; it is so light and feathery that it makes the best of all protectors. Speaking of Celery, our favourite is Major Clarke's and White Heart.

Propagating Rhododendrons.—I am surprised that "J. C. B." (p. 373) makes no mention of propagating Rhododendrons by layers. Few are prepared to go in for the nurseryman's plan of grafting. Branches root readily without any artificial assistance when they come in contact with the soil and get buried by their own fallen foliage. I have seen a Rhododendron clump consisting originally of three bushes planted together that covered a piece of ground I think a hundred or more yards in circumference, and which had simply extended by the rooting of the branches in the soil. Some time ago this immense bush was greatly curtailed, as it was encroaching too much, and it was found to be more like a plantation of Rhododendrons than anything else with which one could compare it. This is what takes place unaided, but if the branches were layered in the usual way no doubt better results would be gained.—J. S.

KITCHEN GARDEN.

MR. JENSEN AND THE FUNGOLOGISTS.

The following appeared in the *Gardeners' Chronicle* the other day: "To my mind Mr. Jensen's experiments would be unworthy of remark were they not backed by Mr. Plowright. There is evidence all through the reputed experiments that the experimenter does not know the things he is dealing with." "Reputed" experiments! It will hardly be credited that the author of this sentence is the same who, on "scientific principles," based on the "complete life-history" of the Potato fungus, invented and sold the "Salus" cure, which turned out such a failure. The great fault of Mr. Jensen—who has interested Potato growers lately more than all the fungologists together have done for years—is that he has proved the success of his plan conclusively, and that that plan does not coincide with the views of some of our fungologists. Mr. Jensen believes the disease germs to be washed down through the soil to the tubers, which they enter direct, and his plan is to earth the Potatoes over deeply enough to prevent the spores reaching the Potatoes, *i.e.*, on the filtering principle. Whether the theory be correct or not, the practice founded upon it has succeeded beyond dispute, but that is apparently a minor consideration in Mr. Worthington Smith's eyes. What he is chiefly concerned in proving is that the theory is wrong; the practice and its results are presumably of no consequence compared with the fungus itself. Mr. C. B. Plowright is the only fungologist who appears to understand the practical value of Mr. Jensen's plan, and, like a true philosopher, willing to believe anything on proof, he has done a good deal to prove its utility and bring it into notice. While Mr. Worthington Smith has been busy with his microscope, computing the number of fungus germs that can lie on a space equal to an eighth of an inch, Mr. Plowright has been at work in the Potato field, and retaliates the hard blows of his opponent by very much harder blows in return. At present the party with the pen seems likely to be overwhelmed by the party with the spade. Here are the conclusions arrived at as reported in our contemporary:—

EXPERIMENTS PERFORMED AT KING'S LYNN IN CONNECTION WITH THE JENSENIAN SYSTEM OF POTATO CULTURE, 1883.—1. *Direct infection of the tubers by the conidia and zoospores of Peronospora infestans.*—It having been asserted that it was impossible thus to cause the disease in

tubers because of the thickness and impenetrable structure of their epidermal tissues, the following experiments were performed, in which recently dug tubers had applied to their surface the conidia, by simply dashing them with a diseased branch; they were then placed in the earth, and examined eight days afterwards; an equal number of tubers taken from the same root at the same time were also buried as control tubers:—

Variety of Potato.	No. of tubers infected.	Date.	No. of control tubers.	Diseased on the eighth day.	
				Infected.	Control.
1. Porter's Excelsior..	4	Aug. 1	4	4	1
2. Beauty of Hebron..	3	Aug. 1	3	3	0
3. Porter's Excelsior..	6	Aug. 1	6	6	0

Experiments Nos. 1 and 2 were made in conjunction with Mr. John Thompson at West Lynn. Experiment No. 3 was made in my garden at King's Lynn. Porter's Excelsior is a Potato which takes the disease very readily; so that the control tuber which become diseased was doubtless affected before it was buried. Care was taken that the tubers were free from any abrasion of the cuticle, or injury by which the disease could have entered the substance of the tuber without penetrating the skin. The control tubers were kept for several weeks, but evinced no signs of disease. These experiments would not have been mentioned had it not been recently reasserted that the disease could not be communicated in this way.

II. *High-moulding experiments.*—Experiment No. 1.—Mr. John Kidd had two rows of Myatt's Prolific with thirty-eight plants in each, one of which he high-moulded on July 15 at my suggestion. On August 17 both rows were lifted; 5 per cent. of the row with the ordinary moulding were diseased; but in the high-moulded row no diseased tuber was found.

Experiment No. 2.—Four plants of Porter's Excelsior were high-moulded in Mr. J. Thompson's garden on July 14. The next four plants in the row were left moulded in the ordinary way. On August 1 disease was general in this garden; August 18 Potatoes lifted by Mr. Thompson and myself with the following result:—

Ordinary Moulding.		High Moulding.	
Sound.	Diseased.	Sound.	Diseased.
46	5	41	0

Experiment No. 3.—Eight plants of Elephant in the same garden, high-moulded at the same time, lifted on the same day as in the previous experiment.

Ordinary Moulding.		High Moulding.	
Sound.	Diseased.	Sound.	Diseased.
49	10	39	0

Experiment No. 4.—Four plants of Beauty of Hebron. No disease in either high or ordinary moulding.

Experiment No. 5.—Eight plants of Ashleaf, four in one row, four in another row.

Ordinary Moulding.		High Moulding.	
Sound.	Diseased.	Sound.	Diseased.
54	13	85	0

Experiment No. 6.—Twelve plants of American Rose, four plants in three rows, high-moulded, as compared with the four adjoining plants grown with the ordinary moulding.

Ordinary Moulding.		High Moulding.	
Sound.	Diseased.	Sound.	Diseased.
75	13	84	1

Experiment No. 7.—In the foregoing experiments high moulding compared very favourably

with ordinary moulding, but if high moulding be the true cause of this freedom from disease, it should compare more favourably still with plants that have not been moulded at all. There is another point upon which I wished to satisfy myself, which was this: If the Potatoes had been left longer in the ground, would the disease have travelled down the stem to them? Four plants of the Beauty of Hebron were high-moulded on July 14 to the extent of full 5 inches; the four plants next to them had never been moulded at all. In due course *Peronospora* appeared upon these Potatoes, but it was not until not only was the foliage destroyed, but long after this, when most of the stalks had vanished, that the Potatoes were lifted (on September 19). This experiment was made in The Vineyard, West Lynn, by Mr. S. Castle and myself.

Not Moulded at all.		High Moulded.	
Sound.	Diseased.	Sound.	Diseased.
54	65	107	0

These figures speak for themselves as to the effect of high moulding as a preventive against the Potato disease.

Tabular statement of the results of high-moulding, showing the number of sound and diseased tubers respectively:—

Kind of Potato.	High Moulding.		Ordinary Moulding.		Percentage of Diseased Tubers.	
	Sound.	Diseased.	Sound.	Diseased.	High Moulding.	Ordinary Moulding.
Porter's Excelsior ..	41	..	46	5	..	10
Elephant ..	21	..	30	8	..	20
Beauty of Hebron ..	18	..	19	2
Ashleaf ..	26	..	34
Ashleaf ..	59	..	20	13	..	24
American Rose ..	26	..	26	6
American Rose ..	29	1	21	4	1	17
American Rose ..	29	..	29	3

Charles B. Plowright, King's Lynn, December 10. [A paper read before the Scientific Committee, December 13.] S.

Potato Lady Truscott.—Of the many new, or comparatively new, sorts of Potatoes grown by me during the season of 1883 this has proved to be by far the heaviest cropper. The haulm is rather short and sturdy, the leaves being extra large, while the tubers, though not particularly handsome, are sufficiently so for all ordinary purposes. The quality with us is first-rate, and that, too, in spite of the heavy character of our soil. This is one of the best sorts for planting in rows, say 3 feet apart, the spaces between them being subsequently filled with late Cauliflowers, Brussels Sprouts, or Broccoli.—W. I.

Green Mint.—This is one of the herbs in great request in early spring; good strong clumps of it should therefore be lifted now and placed in shallow boxes filled with fine soil, and placed in a warm house where it will soon make growth fit for cutting. A vinery or Peach house just started is a good position for it, and in some soils the roots need frequent transplanting to keep up a good supply. If the roots that have been forced are planted out in May on fresh soil to succeed the open-air beds, there will be no lack of green tops at any time of the year or roots fit for forcing.—J. G. H.

Early Potatoes.—Where the earliest kinds of Potatoes are grown so as to get them fit for use in the shortest time after planting, it is a great advantage to have the sets well prepared by starting them at once in gentle heat, so that they may have dwarf sturdy tops and a good mass of roots ready to lay hold of the soil directly they are planted. I find shallow boxes such as are used for bedding Pelargoniums to answer well for this purpose,

filling them about half full of fine leaf-mould, and laying the sets on it in a single layer. They soon form a quantity of roots; if kept near the glass, the tops will be dwarf and sturdy, and when planting time comes they will lift with a mass of roots, and will repay the attention bestowed on them. After trying a good many sorts I do not find any to beat the true Ashleaf Kidney for frame culture, or Myatt's for warm borders. Both are excellent in quality and appearance, and the demand for seed of these kinds in spring proves that they are still the most popular of all the sorts in cultivation.—J. G., *Hants*.

Autumn Cauliflowers.—Messrs. Dickson, Brown, & Tait (p. 535) are evidently of opinion that I have not done justice to their Eclipse Cauliflower. If it will please them better, I will say that it is remarkably like Veitch's Autumn Giant, only it is somewhat earlier. If there is any difference in the habits of the respective varieties, I

will materially forward the crop. Light evergreen branches also considerably assist in breaking the wind that is frequently more destructive than frost itself.—J. G., *Hants*.

Winter Cabbages.—Young Cabbages which are seldom destroyed here by frost are preferred to Savoy, Kale, or other winter greens. Market gardens, and even allotments at present, contain large breadths of tender young Cabbages that look more like May than December. The usual plan is to sow in June, and get good strong plants by the time early Potatoes are fit for lifting; as fast as these are cleared off the land is forked over and Cabbage plants are put in about 18 inches apart, so that when fully grown they touch one another, and next to spring Cabbages these winter ones are the most delicious vegetables grown. The sorts in most request are the Early Battersea, Enfield Market, and Early York. The plan of letting the stumps of spring Cabbages stand for a

fit for cutting early in the new year. The sprouts or small heads that form on the stem continue to be produced for a length of time, and in seasons when nearly all white Broccolies have been destroyed by frost this hardy kind has stood uninjured and proved most acceptable, for as regards flavour hardly any kind of vegetable surpasses it. Its colour is against it, but that is an objection which its merits soon overcome.—J. G., *Hants*.

Chou de Burghley.—Mr. Stevens says (p. 472) that this has not been so good in any one respect as a Cabbage, and yet immediately afterwards he remarks that it is what we may call a distinct vegetable, and possesses a fine, delicate flavour. This is just what others who have grown it claim for it, and if it is a distinct vegetable possessing a fine, delicate flavour, surely it must be superior to an autumn Cabbage or Savoy; while as to being hollow, we have plenty of them large and solid enough to weigh five pounds and upwards, and I find one to be quite enough for a moderate-sized family. If it is as good after frost as it is now and proves to be hardy, it will, I feel sure, be largely grown for winter and spring use, and be in great demand at those seasons.—S. D.

Spring Cabbages.—These are still being planted in open fields by market growers who do not fetter themselves by fixed dates, but are guided by the state of the land and the weather. The latter having been favourable lately, large breadths of Cabbage plants have been put out, and the surface stirred amongst those planted early to promote growth; as soon as they are large enough or show the least signs of premature running to seed, they are pulled up and bunched and sent to market. Market growers generally raise their own plants; they sow a quantity of seed broadcast thinly on large beds in an open position; therefore their plants are large and robust when put out; and as plenty of manure is ploughed into the land, the roots strike into it at once, and it is seldom that the plants suffer from frost in these open fields so much as they do in enclosed gardens. Cabbage plants grow best on pretty firm land. Where garden Cabbages are put on land that has been recently trenched, their growth is not equal to that made on land that has been ploughed; in fact, for the Brassica tribe generally I believe that it is hardly possible to get the soil too firmly consolidated; in dry weather it is even sometimes advisable to roll the land with a heavy iron roller before planting, for if loose, the roots do not seem able to get hold of the soil. Short, stocky plants let into the soil up to the leaves, so that they cannot wind-wave, make the best Cabbages. Early Fulham and Early York, or selections from these, are the kinds in most request hereabouts.—J. G., *Gosport*.



Australian Grass Trees.

should say Eclipse is the least self-protecting of the two, neither being at all perfect in that respect. I have grown Eclipse Cauliflower at least four seasons, and as the seeds were in each case supplied by a well-known firm of seedsmen, and as received by them in Messrs. Dickson, Brown, & Tait's packets, if I have not grown the true variety the latter alone are to blame.—W. I.

Brown Cos Lettuce is undoubtedly the best of all varieties for winter salads. The best way of protecting those nearly fit for use is to work dry leaves amongst them and lay a few Pea sticks over all to keep them in their place. Asparagus tops make most useful protection for such produce, as they admit air and ward off frost. It is surprising how much frost may be kept off by such easily-applied protectors; in fact, less loss will occur in the case of crops so protected than in close pits or frames. Successional crops for early spring use may be carried safely through severe visitations of frost by means of light coverings of this kind. If Bracken is procurable, there are many kitchen garden crops, such as Winter Spinach, Parsley, Endive, and other saladings, that will be grateful for its shelter; and if a good covering of it is placed over Rhubarb crowns, it

crop of sprouts is not practised so much as in large private gardens, a rapid rotation of crops with plenty of manure being the rule in market gardens. The soil for early crops of Potatoes is now being prepared by a liberal dressing of town refuse, such as ashes and gritty material collected by scavengers' carts. The ground gets a good deep ploughing, and is then allowed to lie roughly until the sets are planted, which is done by the plough. The latter leaves the soil loose and friable, and when the crop is dug up, which is done by means of steel forks, no further preparation in order to produce a fine crop of Cabbages is necessary.—JAMES GROOM, *Gosport*.

Purple Sprouting Broccoli.—This old-fashioned variety has been in danger of being put aside to make room for new sorts. It ought, however, to find a place in every garden, as it is one of the hardiest vegetables grown, and produces a greater quantity of edible produce than almost any other kind of Broccoli; after the main crown is cut away the stem continues to produce little heads or sprouts that are very delicious. Sow it in March and put out the plants in rows 2½ feet apart in May; it then has time to make fine plants before winter sets in, and if the latter proves mild it is

GIANT GRASSES OF AUSTRALIA.

DURING the periodical visitations of excessive drought that occur in many parts of the Australian continent the greater portion of the vegetation is in many cases totally destroyed either by the drought, or by bush fires, which devastate immense tracts of country. Such, however, is the tenacity of life in the Xanthorrhoeas, or "Black Boys," that, with the exception of shrivelling up the green foliage and charring the stems, fires do not harm them, and excessive drought appears to be even favourable to their existence. Standing alone on dry sandy plains, they are said to resemble sentinels in the distance, the leaves and flower-spike having the appearance of the head and spear of a native "life-guardsmen." Although so tenacious of life, it has, however, hitherto been impossible to keep alive large specimens of these plants in this country for any length of time. A fine specimen of *X. arborea* was received at Kew about ten years ago, but although it lived for some little time and produced a flower-spike, it never established itself, and it may now be seen in one of the Kew museums along with other specimens of the same genus, all of them retaining their leaves and flower-spike in the most perfect condition. The finest living Grass tree with which I am acquainted is in the College Gardens, Dublin. This is a

healthy, large, well-grown specimen of *Kingia australis*, a near ally of the *Xanthorrhoeas* and showing the same singular habit. There are several species of *Xanthorrhoea* in cultivation in European botanic gardens, but they are all very small, and as it takes some hundreds of years to produce such a specimen as that represented in the accompanying woodcut, our chance of seeing them of any great size under cultivation is exceedingly small. Australia is singularly poor in native edible fruits, so that the natives were driven to seek their food in the shape of esculents, such as Fern roots, Sweet Potatoes, and the young heads of the Grass trees. The gum exuded from the stems of the *Xanthorrhoeas* was also used by the natives for fastening the stone heads to the ends of their tomahawks. It is now used as incense in churches, for which its pleasant aroma when burning is said to make it well adapted. There are a dozen species of *Xanthorrhoea* known in Australia, some of which have a short stem, others one of from 8 ft. to 10 ft. in height. The plant here represented is *X. arborea*, one of the tallest species, with a flower-spike like a Bullrush, and about 6 ft. in length. The plant to the left in front of the Grass tree is *Astelia Banksii*, a tall growing Grass-like plant, sometimes found in large quantities in marshes, and sometimes growing on the trunks of gigantic trees. It grows freely in a cool conservatory in this country, and its pale green or silvery Gynurium-like leaves have a striking effect. Its flowers are not ornamental. The plant with tall graceful flower-spikes appears to be *Arundo conspicua*, which, however, is known only in New Zealand in a wild state, where it is common in wet, marshy land. It is quite hardy in the south of England, and if happily situated, it forms at least as great an ornament as the North American Pampas Grass. B.

INDOOR GARDEN.

ORNAMENTAL-LEAVED ANTHURIUMS.

AMONGST Anthuriums there are many very handsome and distinct plants hardly surpassed by any of the fine-leaved subjects now so much cultivated. Numbers of the species are of an evergreen herbaceous habit, producing large handsome foliage of a beautiful velvety texture; they are mostly from warm countries, and need a good amount of heat in which to grow them satisfactorily. They are increased by division of the crowns and by suckers, which most of the species when strong produce more or less freely. They may be divided, or suckers may be taken off at any time during spring or summer, when growth is active, but spring is preferable, just as growth is about to commence. It is not well to remove the suckers until they have made some roots, or a portion of their leaves will be liable to go off before they get established, but when they have formed a few roots and pushed down into the soil the suckers can, as a rule, be cut clean off with a sharp knife and the roots be got with them entire; they should at once be put separately into small pots and kept a little, but not too close. They will usually be found to grow away without much check, and only need to have more room given them as they increase in size. If wanted very large, good-sized pots will ultimately be required, as many of the species are strong growers. Their roots are much inclined to keep on the surface, and on this account the pots should be well drained, which is also necessary, as they need water plentifully during the growing season. They will thrive through the spring in a temperature of 60° to 65° by night, raising the heat during the day, and as the season gets further advanced 70° in the night and 80° or 85° in the day will not be too much when the weather is warm. Place them where they will get a fair amount of light, but shade must be applied when the sun is at all powerful. Give air on favourable occasions, and syringe overhead freely once a day whilst any growth is going on. A night temperature of 60° to 65°, with 10° more in the day, will be heat enough through the winter. The strongest grow-

ing species can be grown to a large size if desired simply by not dividing them and giving sufficient root space. The undermentioned are all

GOOD KINDS: *A. crystallinum*.—This has very large beautiful massive leaves of a pale olive green, the midrib and principal nerves having a distinct white band running their whole length. It comes from New Grenada. *A. Warocqueanum* (also from New Grenada) has leaves which are arrow-shaped and from 24 inches to 30 inches long, deep green and velvety in texture, the midrib and veins being almost white—a grand plant. *A. Veitchii* has leaves from 2 feet to 3 feet long by 10 inches wide; colour, deep green with a metallic tint, the surface waved and very distinct in appearance. A native of Columbia. *A. margaritaceum*.—This has neat foliage, but its principal attraction is the numerous clusters of lilac berries that it bears, and which are produced freely. *A. magnificum*.—A handsome species, with large leaves 2 feet across, deep green in colour, and of a silky appearance; the nerves are white. A native of Brazil. *A. regale*.—A very stout-growing plant, with handsome large leaves. *A. Brownii*.—A strong-growing species, with tall stems bearing leaves 3 feet long, cordate-lanceolate in shape. Columbia.

INSECTS.—The leaves of these Anthuriums, being large and comparatively few in number, do not offer much shelter for insects, which are generally kept in check by the regular use of the syringe through the growing season. Should mealy bug or scale effect a lodgment, they must be sponged off carefully, so as not to bruise or injure the leaves. T. BAINES.

PENTAS CARNEA AND KERMESINA.

THE two species of *Pentas*, *P. carnea* and *P. kermesina*, are both soft-wooded shrubs of small growth, producing very freely their delicate flesh-coloured flowers, which appear in medium sized bunches at the points of the shoots. They are natives of Africa, and need a moderate stove temperature, in which, with little care, they thrive well. They may be easily increased at any time of the year from cuttings of the half-matured shoots whenever these can be had; but supposing that the propagation is begun in spring, say the middle of April, at which time suitable cuttings will be forthcoming, composed of three or four joints of the terminal ends of the shoots, put three or four together in 4-inch or 5-inch pots in sand, keep them moist and covered with a propagating glass in moderate heat, and shaded when it is sunny; here they will root in three or four weeks, after which gradually remove the glasses, and when the cuttings have got inured to the full air of the house, move them separately into 3-inch pots filled with sandy loam and a little leaf-mould; keep the soil moderately moist, shading slightly when the sun is powerful. As soon as they begin to grow pinch out the points of the growths; this should be repeated two or three times during the summer, tying the branches out horizontally, which will cause them to form a number of shoots; by the middle of July move them into 6-inch or 7-inch pots; they are free-rooters and will bear a liberal shift such as this. Stand them in a light place and give room enough so that they may not be overhung by taller growing things that are often let to seriously injure low growers like these plants, and from which cause they never bloom as they otherwise would. When well managed they will keep on flowering almost continuously as growth is made, but they are more useful in the autumn, until which time it will be well to keep the flowers picked off.

LIQUID MANURE will help them when the pots get full of roots; let them have all the light available through the autumn, for on this a good deal depends the amount of bloom they will make. After the flowers are removed from the points of the shoots, if the wood has been grown under conditions to insure its being well matured, the joints below will push growth which will form flower-heads that will open in succession. The blooms are distinct and very useful for cutting. When the short days of winter

arrive keep the plants drier at the roots, but not so as to cause them to flag; a temperature of 60° will suit them through the dormant season. Just before growth begins in spring cut back the shoots well, and as soon as they have broke turn them out, remove part of the old soil, and give them pots 1 inch or 2 inches larger, treating as through the preceding summer. It is better now to cut the flowers for use as they open, as it will keep the plants compact. The old examples may be kept on, managing them as already advised by renewing the soil, or young ones can be always had coming on to take their place. *P. rosea* is also a desirable kind that will succeed under similar treatment. It has rose-coloured flowers. A native of Africa.

INSECTS.—*Pentas* are not usually much affected with insects, but should any of those that infest stove plants make their appearance, use the syringe and sponge. T. B.

Gardenia florida.—Mr. Collier's note on this *Gardenia* (p. 403) should be read by all cultivators of *Gardenias*. Here, in South Georgia, they form large bushes, and look as healthy as Laurels. They do not even get the once-a-week watering spoken of by Mr. Collier, as there has been no rain now for nearly two months, and they are growing in a poor sandy soil fit only for Cacti. The thermometer has been down several times to 38° without in any way affecting the foliage.—J. W. ODELL, *Thomasville, Georgia, U.S.*

Double white Azaleas.—Of these we grow three varieties, all distinct, and all well worth culture. By far the best of the three is *Deutsche Perle*, exhibited in the spring of the present year at South Kensington, where it received the highest award given by the floral committee to new flowers. I had two plants of it, which flowered freely, and the flowers lasted long on the plants in good condition. We found them very useful, too, for all sorts of bouquets. I have little doubt that this pure white Azalea will be grown largely for furnishing cut blooms for market, as it is good in habit and very free blooming. *A. Borsig* is also a very desirable variety, distinct in flower and foliage from all others. Flag of Truce has very large and beautiful double white flowers, which place it in the front rank as a decorative plant; and *Fielder's White*, though single, is not to be despised. It is a useful early-flowering white Azalea, forces well, and is very hardy.—J. D.

Tree Carnations.—Very early in the new year we get off all the small side growths which we can get from the stems of these Carnations, and insert them in 4-inch or 5-inch pots in light soil, plunging the pots in a little bottom heat in the forcing house where the temperature is about 50°. The labels in the different pots stand an inch or two higher than the slips, and these support a square of glass just sufficient to retain moisture about the cuttings. Thus treated, they root rapidly. Juliette and Mrs. Llewellyn are two grand additions to the deep rose-coloured class, and Nimrod and Worthington Smith are high up in the list of scarlets. Queen, I think, is the best of all the white varieties; and Gloire de Nancy, though scarcely a perpetual, has fine large white flowers. The primrose-yellow coloured variety with fringed flowers, called *Analusia*, is also distinct and pretty.—J. DOUGLAS.

SHORT NOTES.—INDOOR.

Salvia Pitecheri.—Allow me to inform Mr. Bedford (p. 539) that there is not the least doubt as to our *Salvias* being true to name. They have had no special treatment whatever. They were grown among other sorts, and were treated in the same manner as most gardeners treat such plants. It is one of the freest growing *Salvias* with which I am acquainted. I cannot forward a spray, as Mr. Bedford requests, as our plants were required to be in bloom by the end of last October, and now they are cut down.—J. MAYNE, *Broadlands, Romsey.*

Cyclamens in winter.—Many endeavour to forward their *Cyclamens* by placing them in a close, warm house at this time of year. This has the effect of causing them to become drawn, and the blooms to be weak and devoid of colour. They should never have more warmth than from 55° to 60° in the daytime, with a drop of from 5° to 10° at night, ventilating freely in mild weather.—J. C. B.

Dipladenia boliviensis.—This is the most easily-grown Dipladenia with which I am acquainted, and though not so conspicuously flowered as the majority of Dipladenias, it is nevertheless well worthy of cultivation. Our plants of it are in bloom nearly all the year round, and just now we find their charming white flowers, with their yellow throats, very serviceable for forming wreaths and bouquets. The flowers are also very effective in small fish globes mixed with fronds of Maiden-hair Fern, and constitute a change from Allamandas and Thunbergia Harrisii, which also find favour on the dinner table. Rough peaty soil appears to suit it, and the addition of burnt loam enables us to safely give it liquid manure frequently.—I.

Potting up Narcissi for indoor decoration.—I am one of those busy people who are always on the outlook for the easiest and surest road to success, e.g., from the advent of the Paper-white Narcissus for months to come, ending about July with the double form of *N. poeticus*, no greenhouse, nor even a window, should be without the choicer kinds. Some catalogues contain upwards of 100 varieties, but there are many, to the ordinary observer, duplicates. I potted my imported ones in October, but I found last year both the orange and silver Phoenix among the doubles, and, I may add, the beautiful pure white scented *N. odoratus* fl.-pl., and such fine trumpet-shaped singles as Horsfield's and the Musk-scented did well lifted any time in December or January, carefully potted, and the smaller bulbs returned to the ground to mature and ripen for another year. I am at present doing this, and I commend the practice to those who have not tried it for many reasons.—W. J. M., *Clonmel*.

Winter-flowering Carnations.—Those who may be able to cut Carnation blooms through the winter will undoubtedly feel themselves well repaid for the care and labour bestowed on the plants through the summer. With the exception of the Rose, no flower is more generally useful than the Carnation at this time of the year; it is the best of all flowers for button-holes and sufficiently robust to last a long time fresh out of water. Young plants yield the finest blooms, and are, I think, more manageable than old specimens, but in order to have them in good condition by winter they must be propagated early in the year. Healthy, well-rooted plants put into moderate warmth in a light house in January will produce good cuttings by the middle or latter end of March. These strike freely enough, and if hardened off and grown along liberally through the summer will become well established in 6-inch pots late in the autumn; or they may be planted out in well stirred ground in May, lifting and re-potting again in the first week of October. American trade growers grow them very largely in this manner.—J. C. B.

Anthuriums at Kew.—In addition to the garden species of Anthurium popular either on account of their handsome flowers or noble variegated foliage, Kew possesses many others, most of which are of botanical interest only, but some having properties, either in the shape of foliage or flowers, that should prove serviceable to horticulture. The importance lately attached to hybrid plants, and the desire to cross new or good plants with others, with a view to improvement either in habit or form or colour of flower, may result in many of the so-called botanist's plants being made useful. Of this I was reminded when looking through the Aroid collection at Kew a few days ago, where many of the Anthuriums are in flower, and the great variety of foliage, habit, and form of flower observable in them suggested a good field for the hybridiser. Already we possess a handsome hybrid raised from *A. ornatum* and *A. Andreanum*, but although the flowers are attractive, the hybrid *A. ferrierense* is rather coarse-habited for a good garden plant. A beautiful species belonging to the same group as *A. ornatum* is *A. Lindigii*, of which a plant, some 5 feet in height and with large heart-shaped green leaves, is in flower at Kew. The flower-scape is a foot long, and bears a spathe 5 inches long by nearly 3 inches broad,

spoon-shaped, and of the purest ivory white. The spadix is nearly as long as the spathe, half-an-inch in diameter, and of a delicate lavender-pink colour, with which the specks of white pollen form a pretty contrast. The scent of this flower is delicious. The Neottopteris-like *A. acaule* is another species whose flowers have a sweet scent, reminding one very much of that of ripe Raspberries. *A. Browni*, a recent introduction by Messrs. Veitch, has large handsome foliage and an inflorescence which although almost wholly green, yet is ornamental. Many of the spadices were well set with young seeds, so that they would prove prolific enough in the hands of a skilful hybridiser. *A. hastiferum* has a spadix nearly $\frac{1}{2}$ feet in length and hanging down like a monster rat's tail. A number of less striking species also bore good crops of curious flowers.—B.

Aralia Sieboldi.—This is one of the hardiest and most enduring of plants, and one that will stand in draughty or otherwise unfavourable places longer than most others. Its bright green foliage is always pleasing and cheerful and easy to clean, a syringing freeing it from all dust. It is therefore just the plant for rooms and halls and other positions in dwellings, and the wonder is that it is not more grown for indoor decoration than it is, especially in towns where gas is so injurious to less hardy plants. The green variety should be raised from seeds sown in heat, where they soon come up, and if potted singly and grown on in 5-in. or 6-in. pots in a cold frame, they make useful plants in a season. Although the variegated variety seeds freely when it blooms, most of the plants raised from seeds come up albinos and do not live; the only way by which that kind is increased is by means of cuttings taken off with a heel, which if then put in sharp sandy soil, and placed under a handlight in a cool and damp place, soon root and start into growth.—S. D.

Grevillea Preissi.—During autumn and winter we are frequently reminded of the beauty of this Grevillea, which, despite its merits as a flowering plant, is but little met with. It is a free growing, much-branched shrub, with light green divided leaves somewhat like those of the Southernwood. Its flowers, which are borne in dense clusters on the points of the shoots, are of that peculiarly-curved character common to all the Grevilleas, and pink in colour with a prominent style which, being of a deeper hue, forms an attractive feature. This Grevillea is a greenhouse plant of easy culture, growing well in a mixture of sandy peat and loam, and rarely troubled with insect pests. It may be kept out of doors in summer in common with many other New Holland and Cape shrubs. This Grevillea is also known as *G. Thelemanniana*. Cuttings made of half-ripened shoots strike without difficulty if treated as Heaths, and similar subjects usually are inserted in well-drained pots of sandy peat, and covered with a bell-glass till rooted. But little if any more heat must be given them than that in which they have been grown, otherwise they will damp off.—H. P.

Lapagerias in pots.—I do not doubt that "Delta" (p. 526) will succeed very well in growing Lapagerias in pots. Hitherto it has been the common way of growing them, but it was not till the planting-out plan became common that we heard of those fine specimens alluded to every now and then in the papers. The fact, too, that "Delta's" young plants are already in 18-inch pots, sunk below the stage, shows he is finding out the right way. An 18-inch pot is a very large pot, and if plunged in the ground or shaded, the plant will doubtless do very well in it for a time. The fault of pots is this: the Lapageria is an enormous rooter, the proportion of roots being greatly in excess of the branches; consequently the pot soon gets crammed with them, and then the plant gets starved. This is my experience, and I have usually to lift and pot a number of young plants every year, as we have a house filled with Lapagerias, from which layers are annually rooted in considerable quantities. "Delta" may rest assured that the best way in the case of those for

whom he writes is to plant Lapagerias out even if the roots are confined to a certain space. Under such circumstances they always do best, and are less troublesome. So far, "Delta's" success appears to have been first-rate both in the quantity of flowers produced and in the size of the clusters, but then he only put his young plant into an 18-inch pot "this year," and the plant is just beginning to be benefited by the shift.—J. S.

Eucharis amazonica planted out.—This Eucharis is generally grown in pots, but anyone having room will find that it does far better planted out, especially if it can be accommodated with a bed under which there is a tank or pipes to afford bottom heat. In that case the bulbs make plenty of root and large leaves, which lead to an abundance of bloom. Tan or other fermenting material would do just as well as the hot water, or perhaps better, provided the plants have free drainage. We put half-rotten leaf-soil under them, and on that a little finer material and a quantity of sharp sand. Since we began to use this they are much more vigorous than I ever had them before, and are just now sending up a great number of flower-spikes that will give us something to cut at for a long time to come. We have ours in a Cucumber house in a bed 2 feet 6 inches or so wide, and they are planted in two rows at about the same distance apart. If allowed to remain, as I hope to be able to do, they will soon get together, as they are spreading fast, and no doubt the next crop of bloom will be even more abundant than this. As soon as the present one is over we shall keep them dry, so as to rest them a little, and then give them a good soaking with warm water to start them again into growth.—S. D.

BOOKS.

ESSAYS ON DIET.*

THIS is an interesting and good book by the president of the Vegetarian Society. His views on this subject are pretty well known, and he does not mind exposing himself to a little ridicule by his advocacy of vegetarianism. There are a great many useful things in the book, and much light is thrown on the question of cereal, fruit, and vegetable food as compared with flesh food. It seems to us that he explains very well how it has come about that men eat flesh to such an extent as they do, the main reason being that man, a tropical animal, found himself in cold countries without his natural food. He had to eat what he could get in the northern parts of the world, when ice epochs or other great changes cut him off from the sunny lands where he fed on fruit and green meat. The book, however, is somewhat disfigured by a good deal of weak reasoning about milk and eggs. Assuredly it is unreasonable to refuse the chicken and devour the egg! Dr. Newman talks very tenderly of milk and eggs; he does not quite like to give up these, yet he does not say the true thing about them, which is that both are absolutely unnecessary. Physicians of the greatest eminence, who have made a specialty of stomach diseases, frequently interdict the use of milk and eggs, while they advise the use of good fresh meat. There is good evidence to suppose that the use of milk, and of products made from milk, are not inconsiderable factors in the production of a dyspeptic and bilious condition. No reasoning can support the idea that man in an adult state requires for his health the milk intended by Nature for the young of another animal. Many seem not to know that there are whole nations—and some of them the strongest races in the world—who are mainly vegetable feeders; but arguments go on as if this point were not settled. Dr. Newman has no trouble in showing that the finest physical and mental developments are quite consistent with a purely vegetable diet. Nor would he have any trouble in proving that eggs and milk are quite unnecessary articles of nutrition. The fact is

* "Essays on Diet," by Dr. F. W. Newman. London: Kegan, Paul, Trench, & Co.

vegetarians do not know the strength of their own case. We have not only proved that man can live on the vegetable kingdom wholly, but we have this proof, that physically one of the finest and strongest races lives on one sort of food from the vegetable kingdom, and that not of the best class. In discussing this matter it must be remembered how wonderful is the range of quality in fruits and farinacea. If a race, and one said by deep observers to be a strong one physically, can be supported on a second-rate product like the Potato, surely the enormous range of food from the vegetable kingdom will give us all we want for every phase of life. The book, as has been said, is a very useful and interesting one, but the coming reformers must be more logical, and must abolish the pig-stye and the cow-house. The state of the domestic animals is simply disgusting on the great majority of farms, and it is little wonder they are decimated by disease to the frightful extent that at present obtains.

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 540.)

LOMARIAS.—This extensive genus, replete with interesting species, contains plants found in nearly all parts of the globe, and owing to that fact their constitution is such that, while some few such as those that come from the Mauritius, New Caledonia, and Tropical America need stove treatment, the great bulk of them are greenhouse plants. It is especially the numerous and handsome species from Brazil, New Zealand, Chili, Australia, and South Africa which can be employed with the best advantage for the ornamentation of our cool houses, as not only is this mode of treatment the most rational and least expensive, but it is also the only one under which such species as those just referred to really thrive well. It is an indisputable fact that, whereas fine-foliaged or flowering plants can often be induced to grow more rapidly when forced, in the case of Lomarias a temperature kept above their requirements produces disastrous results. This is undoubtedly owing to their natural dislike to having water over their foliage, and plants under such conditions must be copiously syringed to counterbalance the heat employed in the process of forcing. Now to Lomarias this mode of culture cannot possibly be applied with any chance of success. First, because as soon as the temperature becomes too high thrips make their appearance; and secondly if water overhead is at all used, the texture of the foliage of nearly all the species is such that the fronds get spotted, and then whole plants in a very short time present a wretched appearance. As these remarks are applicable to nearly all the species, large and small alike, and as they are of the utmost importance for the successful management of this particular genus, they cannot possibly be too carefully observed. Besides a couple of species recently introduced from Japan and one from Chili which are thoroughly hardy, there is the *L. Spicant*, the only member of the genus having a claim to European origin. This is found wild in nearly all parts of Europe—in Denmark, Norway, Sweden, and even in the Canary Islands. In this country it is very commonly met with in Hertfordshire, Worcestershire, and in many northern districts, where it grows abundantly under hedges and in lanes, as well as in Ireland, especially in the counties of Clare and Wicklow; but the coldest habitat to which it is indigenous with us is the Cairngorm Mountain, in Banffshire, where it is found at an elevation of some 1200 feet. But if different species need different temperatures, the soil in which they delight, with very few exceptions, is suitable for all of them. It should consist of about equal parts good fibrous loam, leaf-mould, and silver sand. If leaf-mould is not easily procurable, an equal quantity of peat may be substituted, but leaf-mould is best. A few of the smallest growing kinds, such as *L. alpina* and *crenulata*, are very useful for

FERN CASES, where, on account of their distinctly shaped fronds, they contrast in a pleasing manner with the more feathery as well as the more massive kinds with which they are associated. Several sorts are also useful for room decoration, the principal among them being the well-known and much-appreciated *L. gibba*, which for that purpose is very extensively grown by nearly every market grower. Of that species alone hundreds of thousands find their way every year to our metropolitan markets; then comes the slower growing, but very compact and handsomely habited, *L. nuda* and *ciliata*, which also come in for their share of usefulness in decoration. Although they will not bear to be kept dry, Lomarias do not require so much water at the roots as the majority of other Ferns do. They should be potted rather

on, let us say, the point of a rock, as it is a plant which requires but very little soil in which to grow. As in the case of all other Lomarias, the fertile and the barren fronds of this little gem are perfectly distinct; the latter are pinnate and broadly lanceolate, and the pinnæ are set closely on the rachis and of a bright metallic hue when young, turning with age to an uncommonly dark green colour; the fertile ones are also pinnate, but much contracted, and do not share the change of colours which affect the sterile ones; neither of them average more than 4 inches to 5 inches in length. Although it may in many places be treated as a hardy Fern, it succeeds best and remains evergreen in the greenhouse.

L. ATTENUATA.—This is a distinct species of medium dimensions and a native of the Mauritius,



Lomaria attenuata on a dead Tree Fern trunk.

loosely, for they dislike the soil being pressed hard into their pots. Another excellent way of making use of them is planting them in dead Tree Fern stems. Remove the decayed or partly decayed matter from the centre of the stems, and scoop them out sufficiently to accommodate a solitary plant with a little mould round it in order to give it a start; after that keep the stem constantly moist, and the result will be that in a short time the roots of the Lomaria will have taken possession of the dead stem, in which they run apace. The plant will thus have all the appearance of a handsome Lomaria with a stout stem of its own, and, if properly managed, such plants remain for years in excellent condition.

L. ALPINA.—A pretty dwarf-growing species from New Zealand and extremely useful for bordering the rock fernery or for planting in a group, making a patch of a metallic or dark green colour

where it is found growing wild on the sides of Tree Ferns and in partly-decayed vegetable matter. The barren fronds, which are pinnatifid, show themselves to great advantage when the plant is growing on a block of Tree Fern, as they gracefully droop. They are from 15 inches to 20 inches in length, and are when young of a rosy tint, but later on become very dark green. These fronds are lanceolate in shape, and from 10 inches to 12 inches broad at their widest part, their pinnæ measuring about 6 inches in length and very pointed at their apex. The fertile fronds, which are wholly sporangiferous, although resembling the others in shape, are much smaller, being very much contracted and of an uniform dark green. Stove.

L. AUSTRALIS.—A handsome South African evergreen species not grown so extensively as it deserves to be. The fronds, of a bright green

colour, and produced from a succulent crown, are pinnate, the pinnæ being lanceolate and obtuse, whereas the fertile pinnæ are longer and much contracted; in fact they are nearly linear. These fronds seldom attain more than 20 inches in length. Greenhouse.

L. BLECHNOIDES.—This charming little evergreen Chilean species is well adapted for growing in Fern cases or in crevices of rockwork of small dimensions; although it somewhat resembles in general appearance *L. alpina*, it is quite distinct from it, but can be used for the same purpose. Its pretty little fronds, which seldom exceed 6 inches or 8 inches in length, are produced from wiry creeping rhizomes, which remain close to the ground, into which they root freely. These fronds, which are of a leathery texture, are pinnatifid, the pinnæ being short and blunt. As in all other members of the same genus, the fertile fronds are contracted, and add but little to the charms of the plant to which they belong. It is of a dark green colour throughout. Greenhouse.

L. BOREALIS (L. Spicant).—A thoroughly cosmopolitan species, dwarf and sturdy in habit, and pleasing in colour—found in nearly every part of the globe. It is plentiful in North America, where some of the hillsides are entirely covered with it. In Madeira, the Azores, and Canary Islands it has been found in great quantities. It is also very abundant at the Cape of Good Hope, but it is nowhere met with in such abundance as in the British Isles, notably at Norwich, at the bottom of the thicket in the vale of Dudescombe, near Painswick, in Anglesea, in Cumberland, and in Forfarshire, where it grows luxuriantly at an elevation of about 700 feet above the sea level. Its fronds, which are narrowly lanceolate in form, are produced in great quantities from a black, scaly, tufted main crown furnished with numerous stout roots; they are borne on purplish polished stalks a few inches high, shaggy and scaly at the base, and tapering to a point at each end. The barren fronds, which average about 10 inches in length, are evergreen, but if outside in winter they become prostrate without, however, separating from the plant; they are pinnate and bear their pointed pinnæ set rather close to the rachis. The barren fronds, which are always erect and not so numerous, are always situated in the centre of the plant; they are taller than the others, often measuring from 18 inches to 20 inches in height; their pinnæ, wholly sporangiferous, are much narrower, more pointed, and also more distant from each other than those of the barren fronds. If kept under cover during cold weather the fronds of this species, which are extremely useful in a cut state, retain their stiffness all through the winter. Greenhouse.

L. CAPENSIS.—A strong-growing evergreen species from South Africa with handsome pinnate fronds of large dimensions and lanceolate in shape. It is an extremely ornamental species when planted out in the rockery in a prominent place where there is sufficient room to allow of the full development of its barren fronds, which sometimes measure over 3 feet in height, and of the fertile ones, which, although much contracted, attain about the same dimensions. The whole plant is very dark green in colour and a robust grower. Greenhouse.

L. CHILENSIS.—This truly majestic Fern, as its name implies, comes from Chili, where it grows naturally at high elevations and in comparatively cold habitats. It is undoubtedly one of the most ornamental kinds comprised in the whole genus, and one which is very showy when planted out on cool rockwork in a rich, open soil, and where its underground rhizomes can run freely and produce a quantity of young plants in all directions, by which means it is readily propagated. Its beautiful pinnate fronds are produced from a fleshy decumbent rhizome, and have a gracefully arching habit, although leathery in texture and borne on long and stiff stalks of a reddish colour—characters by which it is easily distinguished from any other member of the genus. It is not an arborescent kind; on the contrary, the rhizome generally creeps on the surface of the ground without

even making an attempt at forming a stem. It is, however, a gigantic growing species, as the fronds, which are very dark green, often attain 4 feet or even 5 feet in length. Although it has been known in many favoured situations to stand our winters unprotected, it is nevertheless better adapted for the cool greenhouse.

L. CILIATA.—A very distinct species from New Caledonia, and one which is a general favourite on account of its rapid growth and compact, yet elegant habit. The barren fronds, which seldom attain more than 10 inches in length, are produced from a single crown, in time forming a little slender stem of 6 inches or 8 inches high. They are pinnate, or sometimes pinnatifid with premature pinnæ, rendered very attractive by the hair-like teeth with which they are bordered on each side. The fertile fronds, although of the same drooping habit as the barren ones, are very much contracted, and the whole plant is of a cheerful light green colour. This useful species has also produced a garden variety, known under the name of *L. ciliata gigantea*, which, besides partaking of all its attractive characters, is still much more ornamental, as it is of more robust growth, and its handsome fronds attain much larger dimensions, measuring sometimes 15 inches to 18 inches in length. The stalks of this variety are also densely clothed with long, narrow scales of a very dark colour, which greatly add to its beauty. Both species and variety should be kept in the drier part of the house, as any little moisture allowed to settle on their foliage causes the appearance of numerous black streaks—precursors of decay. Stove.

L. CRENULATA (L. Germaini).—This is a very pretty Chilean species of dwarf and compact habit, and one which thrives remarkably well in a Fern case, where it soon makes a beautiful mass of light green colour. It is a slowly-creeping plant with pinnate little fronds seldom exceeding 5 inches in height, produced in great abundance from wiry little rhizomes which always keep on the surface of the ground. They are borne on short soft stalks, whose base is densely clothed with broad chaffy scales of a light brown colour, and have their pinnæ sessile, obtuse, and crenulate. This interesting little plant is of very easy propagation, for although as a rule *Lomarias* are freely raised from spores, it is comparatively a much slower process than the propagation by rhizomes, which in this case may be effected without trouble. Greenhouse.

L. DALGAIRNSLÆ.—A very fine and highly ornamental species only recently introduced from South Africa. It is of arborescent habit, and possesses something of the aspect of the better-known *L. zamioides* and *magellanica*, both of which are of similar texture and look. Its handsome fronds, from 2 feet to 3 feet in length and about 15 inches wide, are produced from a blackish trunk, shaggy at the apex and formed by the agglomeration of many stout, round, green stalks covered at their base with broad, dark brown chaffy scales. They are pinnate with lanceolate acute pinnæ of a very coriaceous texture, dark green on their upper surface, and much paler underneath. It is one of the few kinds which do not mind being wetted overhead. Greenhouse.

L. DISCOLOE.—This is a beautiful species from New Zealand which in time makes a short stout stem, bearing a massive crown of gracefully arching, pinnate fronds, sometimes reaching 2 feet in length, including the stipes, covered with short, light brown hairs, and which generally measure about the fourth of the whole length. As is usual among *Lomarias*, the fertile fronds are entirely different from the barren ones, but in this case instead of being regularly contracted, so as to form linear pinnæ throughout, as in nearly all the other kinds, they are very often only partially contracted, and the base of the fertile pinnæ is conspicuously auriculate, a character which gives the whole plant a peculiar and unique appearance. Greenhouse.

L. DISCOLOR BIPINNATIFIDA.—This South Australian species is undoubtedly one of the most pleasing and attractive of *Lomarias* in cultivation,

not only on account of its light, cheerful colour, equally bright on both sides of its beautifully divided fronds, but also for its elegant drooping habit and other characteristics perfectly distinct from those of any other species. It is a subarborescent Fern of symmetrical habit; its numerous broad sterile fronds, which often measure 3 feet in length by 6 inches in breadth, rise evenly from the crown of a short, robust stem, and, spreading outwards in all directions, arch in an exceedingly graceful manner. The pinnæ are very closely set, so that the parts overlap each other and are cut or divided down to the midrib, the outer subdivisions or segments being very much toothed and somewhat crisped, which gives the fronds an elegantly fringed appearance. The peculiarity attached to this extremely useful and remarkable plant is that its would-be fertile fronds are as sterile as the barren ones themselves, for although plants sufficiently strong produce a set of fronds late in the summer which have all the outward appearances of being fertile as they are erect, have their place in the centre of the crown, and as their pinnæ and pinnules are very much contracted, yet among the many specimens already in cultivation none have ever been known to produce any spores. It is to that defect that we must attribute the comparative rarity of the presence of so valuable a plant in ordinary collections, as, with the exception of the few stems which were imported from Victoria a few years ago, all the plants now in commerce must have been propagated from suckers sparingly produced by underground stolons or rhizomes, or else from young shoots which are occasionally found along the stem, and which, if detached and laid on a bed of *Sphagnum*, emit roots freely. Great care must be taken not to have this beautiful plant subjected to artificial heat if possible, as we find that thrips are particularly fond of it. Greenhouse.

PELLÆA.

CHRYSANTHEMUM REFORM.

MR. ENGLEHEART says (p. 475) that THE GARDEN will be doing good work if it will lend its influence towards bringing about a revolution in Chrysanthemum culture. He then inveighs against big coarse blooms, and considers them opposed to good taste, and he goes on to contrast his own specimens with those grown in the Temple Gardens. Next he condemns the method and practice of growing big blooms, as opposed to his own sprays of bloom; then he proposes to educate the judges at Chrysanthemum shows, condemns all he has observed at such exhibitions, and finally winds up with another request to THE GARDEN to insist upon a reform in the direction which he considers will be most pleasing to lovers of flowers. With regard to

BIG COARSE BLOOMS, I may confidently assert that tastes vary wonderfully, and in the case of Chrysanthemums I believe the divergence is more marked than in that of the majority of popular flowers. Mr. Engleheart pleases himself in their cultivation; the majority of growers who happen to be professional gardeners have to meet their employers' tastes, and if, in addition, they are also able to distinguish themselves, so much the better. The criticisms, however, upon the groups of plants—notably those in the Temple Gardens—I consider uncalled for. Mr. Engleheart should remember for what purpose they are grown, as well as the disadvantages under which the two growers labour. If these plants were furnished with ordinary blooms only, they probably would displease both the Benchers who own them, and also cease to be a source of delight and instruction to so many thousands from all parts of the country who enjoy the display. We are too apt to over-estimate our own handiwork, but take great pains to discover faults in other people's. In the case of the Temple Chrysanthemums, the surprise is not that the lower part of the stems are naked, but that such a great number of fine blooms should be grown in the very heart of London. As a matter of fact, really grand banks of superior blooms can be secured by no other method than that adopted in

the Temple Gardens, as well as by the majority of those who compete in the classes for groups at shows. That this is the case I had strong proof at an important provincial show. I assisted a friend to form a group with a number of large well-grown untrained plants, such as are usually grown for conservatory decoration, but they were simply nowhere compared with the groups of plants grown with stems of various heights, or what we term "natural standards," some being closely disbudded, others disbudded slightly. What we have to do is to please ourselves if we are amateurs, and if gardeners to study the requirements of our employers' establishments. If Mr. Engleheart will introduce into his "little winter garden" a few "natural standards," each carrying three or four blooms on as many shoots, he will soon observe that this class of plants prove the most generally attractive, and in all probability will, in the future, be less antagonistic to their cultivation by others. Coming to

THE ONE BIG BLOOM METHOD, may I ask how many there are who are contented with one bloom on a plant? But few, I opine, and these do not include some of the best growers. If blooms of the greatest excellence could be grown by the method advocated by Mr. Engleheart, or even if the sprays of bloom which he would substitute for those grand examples of high culture would please a fifth part of the frequenters of exhibitions the case would be different. In the greenhouse sprays of blooms may be most serviceable and attractive also to a few; but the greater portion of admiration will always fall to the share of the big coarse blooms, and one or two classes are quite enough for the sprays. In fact, unless some of our finest varieties, such as Empress of India, Princess of Wales, Mrs. Heale, Golden Queen of England, are freely disbudded, the blooms are oftentimes so poor as to be almost unrecognisable even by good growers, and it is the same with many of the best Japanese sorts. For my part I have never seen blooms too large for a lady to wear; in fact we have the greatest difficulty in preserving our best specimens. They are delighted with the largest Japanese blooms we have, and there are some who occasionally vary these with a fair sized Poinsettia head. I do not say all ladies are alike in this respect, as some prefer Japanese varieties; some the medium-sized, neatly incurved sorts, such as Mrs. Rundle; some the very large incurved sorts, such as Mrs. Heale; others like the reflexed, of which Mrs. Forsyth is a good type; and a few fancy, Anemone flowered, and Pompones. We grow to please all and manage to give satisfaction.

THE TRAINED SPECIMENS are certainly of little real service, and would not be grown were there no shows, but they are examples of skilful culture nevertheless, and in their way are as meritorious as any equally formally trained plants of other genera which figure so conspicuously at our numerous spring and summer shows. If there were little or no difference between them and ordinary conservatory plants they would cease to be attractive, and the exhibitions would cease to be remunerative; the same argument, too, holds good in the case of large blooms. I admit that the plants are oftentimes rather too formally trained, but this formality is less apparent when first-class specimens are staged. Poorly grown or badly trained plants are sometimes a disfigurement to a good show, and so would also be badly grown conservatory Chrysanthemums. I say there is room for all, and also that much of the popularity now attained by the Chrysanthemum is wholly due to the efforts of exhibitors.—W. I. M.

—Chrysanthemum reform, I trust, will go on and bring about a much-needed alteration as regards style of growth. I have this season grown a small collection in what may be termed a natural manner, for though sticks and tying are used, nothing is distorted, and there is no torturing of the plants, while air, light, and room for the display of bloom is secured. A certain amount of disbudding is necessary in order to secure kindly opened flowers, but usually it is carried too far. Elaine with me, 5 feet high and nearly as much

through, has had its entire upper half one sheet of snowy bloom. Bouquet Fait, with 200 flowers open on it, formed a good companion to it; and Peter the Great, Beverley, Virgin Queen, John Salter, Parasol, Mr. Hume, Album striatum, and others have all flowered about equally well. One of the most charming was Mrs. Dixon, on one plant of which there were over 250 golden flowers. We have no great space for flowers here, but at the Chrysanthemum season I have some of the forcing houses at liberty, and have had about 100 feet of the range filled with them. I was pleased to hear one day from the secretary of a neighbouring society (Walton and Weybridge) that next season it is intended to have classes for naturally grown plants; once we get that, I entertain no fears about the rest.—THOS. WOODFIELD.

RECENT PLANT PORTRAITS.

CATTLEYA CALUMINATA (*Revue Horticole* for December 16).—A beautiful hybrid form of this lovely family, raised by the well-known French horticulturist, M. Alfred Blen, by crossing the variety known as *C. amethystina* with the pollen of *C. Acklandiae*. The new variety occupies a position intermediate between its two parents, possessing some of the characters of each; its flowers are of medium size with a deep purple lip and creamy white upper petals, beautifully and distinctly spotted with purple, the ground of the outer half being of delicate pale canary colour. This is quite a gem.

ECHEVERIA VAR. DECORA (*Illustration Horticole*, plate 505).—This is a beautifully variegated form of the well-known *E. metallica*, obtained by the French firm of Debergue and Son, of Cambrai (Nord), but whether from seed or by propagation of a chance sport is not stated. This pretty plant will be distributed by the Compagnie Continentale of Ghent, who have purchased the stock from the raisers.

TAPEINOTES CAROLINE MAJOR (*Illustration Horticole*, plate 506).—An enlarged flowered form of this comparatively well-known white-flowered Gesneriad from Mexico received by the Compagnie Continentale from Bahia, and said to quite eclipse and throw into the shade its type form, being of much more vigorous habit of growth, with handsome deep red stems and underleaf and much enlarged flowers of the same white colour. This novelty was presumably obtained from seed.

BATATAS PANICULATA (*Illustration Horticole*, plate 507).—This handsome trailer, with large rose-coloured Ipomœa-like flowers with a deep purple throat, which may be seen in great beauty by visitors to the old Victoria Regia house at the Royal Gardens, Kew, has apparently not been hitherto figured in any periodical. It is also known and has been described by different botanists under the various names of *Convolvulus campanulatus*, *C. insignis*, *C. roseus*, *Ipomœa paniculata*, *I. mauritiana*, *I. gossypifolia*, *I. eriosperma*, and *I. quinqueloba*, and as *Batatas insignis*. It requires the temperature of a moist stove, and was introduced from the East Indies towards the end of the last century. W. E. G.

Royal Botanic Society, Regent's Park.

—Special prizes offered by the Veitch Memorial Fund Trustees: Three Veitch Memorial medals and £5 each, to be awarded on May 21, 1884. No. 1, best specimen Orchid in flower; No. 2, best stove or greenhouse plant in flower, to be awarded on June 18, 1884; No. 3, for the best dish of three bunches of Grapes (one variety). These prizes are to be awarded only to specimens of superior cultivation, exhibited by bona-fide gentlemen's gardeners. They need not be specially entered for, but will be awarded to the most meritorious exhibits, quite irrespective of any other prizes, being intended to crown with an extra prize the best specimens at the exhibition of the day. In all other respects, the Society's regulations, as printed in the schedule, must be observed.

QUESTIONS.

5107.—**Holly seeds.**—Where ought these to be sown—in heat or in the open?—A. R. A.

5108.—**Pot Vines.**—I have some canes of Black Ham-burgh and Buckland Sweetwater three years old. Should they be repotted, and how many bunches will they bear? They are strong canes, but I have never tried to fruit them.—YOUNG GARDENER.

5109.—**Mushroom spawn.**—Can any reader tell me if bricks of Mushroom spawn last unused for any length of time? I have some, purchased two years ago and kept in a dry place, and know not if it would be wise to trust to them for present use.—T.

5110.—**Bouvardias.**—Should cuttings of Bouvardias and double Petunias be put in a close case in bottom-heat and served the same as advised for Gardenias, i.e., not plunged at first but when callused, or would the sand-and-water mode of propagating them be the most expeditious plan during spring?—F. C.

5111.—**Chrysanthemum Antonius.**—Can any of your readers tell me the origin of this small Anemone-flowered Chrysanthemum? Is it a seedling or a sport, and if the latter, from what? When was it raised, and what is its history? Any information as to it will be valued.—SAMUEL LEAROLD, Buddersfield.

5112.—**Staphylea pinnata and Ptelea trifoliata.**—Can any reader of THE GARDEN oblige me by saying whether these would be hardy enough for Scotland? The Ptelea must be a good town tree, some specimens of it having existed for years close to the Times office in Printing House Square.—J. T. M.

5113.—**Manuring fruit trees in winter.**—Will it do any good or harm to give fruit trees liquid manure in winter, say Peaches and Nectarines indoors, and Pears and Apples outside? The trees are mostly young and vigorous, having been planted seven or eight years; some of them I have root pruned to check their growth.—C. M.

5114.—**Rhododendrons.**—I am about to make some new beds for Rhododendrons and Azaleas, and I should be glad if some reader of THE GARDEN would help me as to the best sorts of each to plant and the distance at which they should stand apart; also which would be most effective—mixed beds of the two or separate beds.—C. W., Salisbury.

5115.—**Calanthes.**—Could any of your correspondents inform me the probable cause of Calanthes becoming spotted? I attribute it to a superabundance of moisture; am I right? Is it a common thing for Calanthes to retain their foliage while in flower? Several of our plants have done so, but I never remember seeing such a thing before.—J. H.

5116.—**Marantas.**—About three months ago I bought a small specimen of Maranta zebrina having four leaves. It is in a 6-inch pot and about 18 inches high, and kept in a stove with an even temperature of about from 65° to 70°. There is a new leaf just bursting from one of the stems. Since this new one has first appeared the other leaves have one by one drooped and died, and only one is left. Can anyone suggest a reason for this and advise me as to the treatment to which I should subject it?—SUBSCRIBER.

5117.—**Curculigo recurvata variegata.**—Can any of your readers suggest why I fail to grow a plant of this satisfactorily? It grows freely, but almost before the leaves are fully expanded the tips begin to fade, and eventually the bands of white become withered down their whole length. I keep it shaded from direct sunlight and in a warm, moist atmosphere. I have also a small *Cycas revoluta* which has not made the least growth since I bought it, about a year ago. It is in the same house with the Curculigo, where various other stove plants thrive fairly well. Perhaps Mr. Baines would be so kind as to assist with his advice.—A BEGINNER.

5118.—**Planting fruiting Vine canes.**—I am building a small viney to be planted next spring. Would some correspondent kindly say if I could plant what are called fruiting canes, so that they should be the permanent Vines? If so, it appears to me that there would be a great gain in time, that is to say, if a moderate crop could be taken from the Vines next summer, and if also they came into full bearing the succeeding summer. If what are called planting canes were put in, there would, of course, be no fruit next year and very little the year after, so that the former plan would almost result in a gain of two years, with, of course, some additional expense at the outset.—S. C.

5119.—**Bougainvillea spectabilis.**—We have a large plant of this growing in a tropical house, or rather I should say in a house that has been very moist and warm all the summer, but which from now until April will be allowed to fall to about 45° at night in severe weather, the average temperature during that time being perhaps 50° to 55°. Owing to the treatment the plant has had, the growth it has made is very vigorous. We have kept the weaker shoots cut out, so as to allow the stronger the benefit of extra food and plenty of light. The leaves are now falling off and the shoots are ripening. I am told that to flower this Bougainvillea well it is necessary to rest it through the winter, and in spring when new growth begins to appear to cut the shoots well in, the effect of which will be an abundance of flower from the young growths made on the spurs of last year's wood. I am also informed that these strong shoots should not be cut away, as they, and not young ones, bear the flowers. I should be much obliged to anyone who has grown this plant successfully for any information that would help me. We are anxious to have a good display of flowers next year, and so far everything promises well for that, but the conflicting opinions on the question of pruning cause me to hesitate before acting on the information I at present possess.—B.

FLORAL COMMITTEE'S AWARDS.

TO THE EDITOR OF THE GARDEN.

SIR,—Will you allow me space for a few remarks on "Q.'s" note on Floral Committee's Awards (p. 521)? During my friend Mr. Harpur Crewe's illness I had very frequently to take the chair at the meetings of the floral committee, and having served on many other committees and exhibition juries, I ought to know something of committee work. "Q." says "greater discrimination as respects the awarding of first-class certificates seems imperatively necessary." Great discrimination has been exercised. If "Q." had seen the number of beautiful plants shown before the committee without receiving an award he would, I think, agree with me in this. Take, for instance, tuberous Begonias. Splendid flowers have been exhibited; flowers which a year or two ago would have received a first-class certificate by acclamation, but which had been eclipsed by still finer ones exhibited. "Q." objects to certificates for "the almost innumerable class of Dahlias." I may remind him that single Dahlias which have received most of the recent certificates are comparatively new plants. A rage (which many good gardening authorities consider a wise one) for them seized a very large number of amateurs, and the trade responded by producing immense variety of colour and form. These were brought before the committee, and those showing a very marked advance in merit were certificated. On subsequent meetings still finer varieties were shown and similarly recognised. "Q." objects that a grand Orchid like *Vanda Sanderiana* gets only the same certificate as a Dahlia. The committee have not to compare Dahlias with Orchids, but with other Dahlias of the same class. A first-class certificate to a Dahlia only means that, in the opinion of the committee, a very marked advance has been made. I agree with "Q." that if the society could afford the expense, it might be desirable to give a medal for any grand new plant, and if he would aid by bringing in a number of good new fellows, their subscriptions would furnish funds for this and other useful purposes, though even here a difficulty would at once crop up as to who should have the medal, the collector or hybridiser, his employer or the purchaser who exhibits; perhaps they all should have one.

I do not think the general public appreciate the work the committee have to do. A large number of first-rate authorities in all classes of plants come up, some from a distance, giving their valuable time without any remuneration, and give careful attention to the work before them. It has been suggested that the committee is too large. This is, I think, an entire mistake. The council have not only to see that exhibits are fairly judged, but to make it obvious that this is so. In a large committee any favouritism is obviously impossible. It has been objected that when an Orchid has been exhibited the vote of a florist counts the same as that of an Orchid grower, or the same might be said of the vote of an Apple grower on Pine-apples. In practice it does nothing of the sort. Those acquainted with Orchids express their opinion first (and we are fortunate in having five or six members thoroughly acquainted with Orchids), and the other members of committee, if they vote at all, are greatly influenced by the opinion of these experts.

I can speak to the case of Lilies. If my friend Mr. McIntosh or I be present, we are at once pressed for all the information we have to give. Naturally, people think most of the plants with which they have most to do. I remember a shrewd member of our committee saying at one meeting he thought we were too free with certificates, and beginning the proceedings of the next by moving two first-class certificates for plants which deserved them, but as to which there was more question than in the case of those about which he had doubts. A great lady gardener, passing through a grand display of Pelargoniums, once said to me. "Let us go on to something worth looking at." She meant a group of hardy plants. I could suggest some improvements in the committee, but have already exceeded my space. I believe one

great want we have is that of more amateurs on the committee. It is most difficult to find these with knowledge and leisure living within moderate distance of London. I believe, in the future, that more amateurs will take part in the work of the society and will greatly strengthen it.

GEORGE F. WILSON.

Heatherbank, Weybridge, Dec. 18.

STRELITZIAS.

THESE showy Cape plants are generally classed as stove subjects, but they will thrive in a greenhouse in summer and do with a little more warmth in the winter than ordinary cool greenhouse plants need. An intermediate temperature suits them best. Some half-dozen kinds may be met with in cultivation, but they do not differ very materially from *S. Regina*, which has purple and yellow flowers. The *Strelitzias* are evergreen herbaceous plants of stately appearance; their season of blooming is ordinarily in the summer and autumn. *S. Regina* bears its flowers on stout erect stalks, which attain a height of 3 feet or more, according to the strength of the plant and the heat to which it is subjected; the flowers are very distinct and curious in form, and last in perfect condition two or three weeks.

PROPAGATION.—*Strelitzias* are mostly propagated from suckers, which are produced after flowering in the manner usual with plants that increase in this way, and when these have attained a considerable size they can be divided from the parent plant—during the spring or summer, so as to get established before winter—and put in separate pots, drained and filled with good fibrous loam with which some sand has been mixed. The pots used should be such as will suffice to hold the considerable quantity of roots which the suckers ought to have before their removal from the plants which have produced them. Pot firmly, and stand them where they will get some warmth that will assist their making new roots, and the thick leathery texture of the leaves is such that no shade is required, not even when the sun is most powerful; all that is needed to grow them well is to give sufficient air, with water as they want it, and enough pot room proportionate to the size of the plants, for they may be either kept to single crowns or let to remain entire until a number are formed, but for most purposes medium sized examples, such as those composed of three or four crowns each, will be found the most desirable. Large specimens can be divided into portions varying in size to meet the requirements of the cultivator, all that is necessary being that when the division is effected the several pieces, as soon as potted, should be at once placed where there is warmth enough to set them growing immediately; otherwise the roots they already possess are liable to rot.

INSECTS.—The natural consistency of the plants, stems, and leaves combined is such as to offer little attraction to insects, though aphides often establish themselves on the young leaves, but can be easily removed by sponging or fumigation; if affected with scale, sponging is the most suitable remedy.

T. B.

Veitch Memorial prizes.—I am pleased to learn from THE GARDEN (p. 562) that these valuable prizes are to be awarded in 1884, and no doubt the Dundee International Show will be a fit and proper place to award them. If not too late, might I try to persuade those who have the giving of them to distribute them so as to include all branches of horticulture? So far as I know, not one of these prizes have been offered for kitchen garden produce, and I am sure all who have a constant supply of vegetables to keep up will readily admit that the kitchen garden department deserves the highest encouragement, and that the paltry sums generally offered as prizes in this section are no reward for the skill and labour required to produce vegetables of the highest quality. There are many good gardeners who have no chance of securing these prizes, because they have no means of growing a large

collection of fruit or specimens of stove or greenhouse plants; but there are few indeed who have not a kitchen garden, and almost everybody who felt inclined could show vegetables. According to THE GARDEN, there are nine medals to be awarded next year, with nine £5 prizes, and surely, if vegetable culture is only viewed aright and its importance taken into consideration, there will at least be one or two of these prizes offered for vegetables. In a letter which I had the other day from Mr. Dunn, Dalkeith Park, he says that Dundee is an excellent place for vegetables; therefore let us hope there will be some reward offered for them.—J. MUIR, *Margam Park, Taibach.*

Fern reproduction.—Mr. Stansfield pointed out, at a late meeting of the Manchester Horticultural Mutual Improvement Society, that the secret of reproduction in Ferns was discovered by an amateur. He described some of the phenomena of Fern reproduction, and said that the number of varieties, especially British, had of late years multiplied amazingly; nothing like it was known, and he thought that one principle ought to be laid down with regard to naming new varieties, which was that the name given should be in some way descriptive of the plant itself, not a simple laudation of some individual. He urged upon his audience the importance of studying the different varieties of Ferns and how they developed.

Abelia triflora.—I enclose two of the remaining flowering sprays which I have had on a plant of this shrub. It is against a south wall and has been in flower continuously since May. The blossoms always last till November, but I have never seen them so late as this year.—E. C. A. BYROM, *Culver near Exeter.*

** A pretty shrub with delicately tinted and agreeably scented flowers borne in clusters terminating each twig. They are about half an inch across, star-shaped, and white flushed with pink. The long, narrow and hairy calyx lobes give a feathery appearance to the flowers. It is hardy against warm walls in the neighbourhood of London, but rarely flowers so late in the year.—ED.

Outdoor flowers in Fifeshire.—In sheltered nooks along the picturesque cliffs which form the coast line of our beautiful bay to the southward, and almost within reach of the dashing spray of the tempestuous North Sea, are patches of Gorse flowering with astonishing profusion. Not only is there an isolated flower here and there, but whole clumps are to be found in bloom, giving to the locality a novel and spring-like character, not at all according with the dull days of December. As a striking example of the mildness of the season, this fact may be interesting, and the more so, inasmuch as this is no favoured or sheltered region, but one fully exposed to the fierce gales that sweep in from the east and north-east. I also had sent me a day or two ago from a garden some miles inland some perfectly developed flowers of the pretty *Pyrus japonica* and a quantity of Roses in an astonishingly perfect state.—J. WILSON, *Greenside, St. Andrew's, N.B.*

Chrysanthemum shows.—Mr. May's suggestions (p. 540), that *Chrysanthemums* should be shown with stems of a certain length instead of as now on stands without foliage, are good, and I would go a step further, and not only have the flowers exhibited on stands, but without any thinning or dressing in order that they may be seen in their natural character, as it is only in that state that anyone can judge fairly of their proper size, habit, and form. As matters go now, the most skilful or practised manipulator gets the prizes, not the best grower, as the former can twist and turn the petals, or reduce or even add to them, and by such tricks quite build up a bloom that judges consider to be perfect. Dressing should be abolished, and anyone known to practise it disqualified, as to make it bloom what it never was or would be is dishonest. The training of plants in the stiff way too often seen should also be discouraged; nothing can be better than the natural habit of a *Chrysanthemum*,

which is branching and bushy, and all that is needed and ought to be allowed is sufficient sticks, kept out of sight if possible, to support the shoots. That there may be no deception as regards the number of plants in a pot, all should be shown with single stems clear from the soil to a height of 3 inches, and the diameter and depth of pots limited, so as to place all who compete on the same footing, and make the lots easy for adjudication.—J. SHEPPARD.

Law relating to cemeteries.—Two months or so ago a gardener attached to Nunhead Cemetery was discharged. On his afterwards wishing to renovate a private grave, at the request of its owner, the authorities refused him admission, and on his insisting used force. The case came on at the Lambeth Police Court, and the cemetery authorities were fined, the Press and the public concurring generally in the magistrate's decision. The cemetery proprietors, however, were not content, and moved the matter into the High Court of Justice, where Mr. Justice Matthew has pronounced against the magisterial fiat, observing that the possession of a freehold in a private grave gives no one the right to enter a cemetery against the wishes of the proprietary.

Poisonous Plants and their Uses was the subject of a lecture the other evening at a meeting of the Sale Botanical Society. Dr. Armstrong, the lecturer, stated that out of sixty natural orders of plants only about one-fourth were poisonous. Of these three were permanently poisonous, namely, Ranunculaceæ, or the Buttercup tribe; Papaveraceæ, or Poppyworts, which consist of herbs or shrubs with milky or coloured juice, the order possessing well-marked narcotic

properties; and Solanaceæ (Nightshades), also of a herby or shrubby character, mostly natives of tropical countries, and remarkable for their strong narcotic, poisonous qualities. A number of the newest introductions of poisonous plants into medicine, including Lily of the Valley, Jessamine, and Lobelia, were alluded to. Specimens of the active poisonous principles of plants, such as morphia, aconitine, and salysilic acid (lent for the occasion by Mr. Roberts, chemist, Sale) were exhibited, advice being given as to the best steps to take in cases of poisoning where immediate medical aid cannot be had.

Preserving iron surfaces from oxidation.—Pulverulent zinc is mixed with oil and a dryer, and the mixture is applied with a brush. For ordinary exposure, one coating of this mixture is affirmed to be sufficient, but a double coat, it is claimed, will afford a sure protection against both the atmosphere and sea water. A good formula for this zinc paint is the following: Zinc in powder, 8 parts; oil, 71 parts; dryers, 2 parts. The mixture should be prepared freshly, and only so much made as is required for the time. The zinc coating imparts to the iron a steel-grey colour, and does not interfere with the application of another coat of paint.—*English Mechanic*.

Mistletoe on the Elm—Allow me to inform "J.C.C." that almost at the top of a lofty Elm in the rear of the gardens at Forde Abbey, Dorsetshire, is growing, or was not long ago, a large mass of Mistletoe; and, strange to say, I know of no other specimen within several miles of it. If still there, it can be plainly seen at this time of the year by travellers on the London and South-Western Railway. The place is about half-way between the Crewkerne and Chard Road Stations, and the tree is, I should say, within 100 yards of the line.—J. M., Charmouth, Dorset.

Books (R. C.).—Rivers' "Rose Amateur's Guide" or Canon Hole's "Book about Roses."

MRS. JOHN ELDER has purchased thirty-five acres of the lands of Fairfield at a cost of £37,500, with the intention of presenting them as a public park to the people of Govan.

The new Palm house at Glasnevin, we learn, is to be 100 feet long, 80 feet wide, and 65 feet high, and is to consist wholly of teakwood and iron. It is to be built by Messrs. Boyd.

Naming plants.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

Names of plants.—P. D. D.—We do not undertake to name varieties of Chrysanthemum; they should be sent to some specialist.—*Constant Reader*.—Will you please send larger and older leaves of the Dieffenbachias you require names for.—D. F. F.—*Sophranitis grandiflora* (a fine variety).—P. D.—*Pteris tremula*—R. Bland.—*Dendrobium moniliforme* (also called *D. Linawianum*).

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received. In all cases where the numbers of the specimens sent are not mentioned, it must be inferred that the fruits to which they were attached are either local sorts, and therefore unknown at Chiswick, or that they are not in a fit condition for naming.

Names of fruits.—Anon. B.—1, Wareham Russet; 2, Waltham Abbey Seedling; 3, Cellini; 4, Cornish Aromatic.—J. Bunnell.—Beauty of Wilts.—G. C.—4, Jacques Iebel; 3, Claygate Pearmain.—E. T. H.—1, Hol-lanbury; 2, Lewis's Incomparable.—Anon.—1, Beauty of Kent; 2, Dutch Mignonne; 3, not known; 4, Braddick's Nonpareil.—W. Miles.—1, Golden Knob; 2, Cellini; 3, not known; 4, Flower of Kent.—Dr. Wallace.—31, Ashmead's Kernel; 32, Adams' Pearmain; 34, Northern Greening; 37, Claygate Pearmain; 35 and 36, not recognised.—Henry Brooks.—1, King of the Pippins; 2, Golden Reinette; 3, Bedfordshire Foundling.

